

Basic Assessment Report



edtea

Department :

Economic Development, Tourism and
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/0009/2014
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 1or 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 Economic Development, Tourism & 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.
9. The KZN Department of Economic Development, Tourism & 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 Economic Development, Tourism & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

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DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	DM/0009/2014
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:	Kerry Seppings Environmental Management Specialists cc (KSEMS)		
Physical address:	4 Woodville Lane, Off Hawkstone Avenue, Summerveld, Assagay		
Postal address:	P. O. Box 396, Gillitts		
Postal code:	3603	Cell:	079 520 1583
Telephone:	031 769 1578	Fax:	086 535 5281
E-mail:	ksems@ksems.co.za		

2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

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

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Kerry Stanton	MSc Cum laude BSc (Hons) MSc	- EAPSA Certified, - Certified Professional Natural Scientist (400167/12), - Certified GCX Carbon Footprint Analyst (Level 1)	18
Lucy Silungwe	BSc Environmental and Water Science		1
Colin Holmes	BSc (Hons) (MSc)		3

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
Ryan Edwards	Detailed CV available on request.	Wetlands	Section 4	Proposed Mlazi WP 189 New City Communal Ablution Block (CAB) Project: Watercourse Impact Assessment Report

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SECTION B: ACTIVITY INFORMATION

1. PROJECT TITLE

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

Construction of Bulk Sewage Pipelines (Gravity) and Prefabricated Toilets including the upgrading of an existing Sewage and Bulk Water Pipeline and Water Reservoir at Informal Settlement New City, Malagazi.

2. PROJECT DESCRIPTION

Provide a detailed description of the project:

As part of the “Provision of Water and Sanitation to Informal Settlements within eThekweni Municipality”, the immediate needs of priority informal settlements within the eThekweni Municipality were identified which require urgent construction of ablution blocks, as well as water and sewer connections to serve these recognized communities. The proposed pipelines and bulk sewer pipeline will tie into existing reticulation and will be able to provide future reticulation when the area is developed.

The ablution facility to be installed by Council is a temporary modified container (depicted in Figure 1 below). This will allow for future removal and re-placement to other informal settlements, as the settlements are upgraded and individual water and sewer connections are provided to each new formalized dwelling. Each “Ablution” block is projected to service approximately 50 – 75 households and be a maximum distance of 250m from any point.

eThekweni Water and Sanitation (EWS) therefore propose to construct twenty nine (29) ablution blocks, upgrade of existing: bulk sewer pipeline, upgrade of bulk water pipeline, upgrade of water reservoir and associated pipework in Kwamakhutha B in order to provide formal sanitation facilities to the informal settlement in the area.

Twenty nine pre-constructed ablution blocks (8 x 9.5m) will be erected and connected to CAB connectors and to bulk sewer pipelines. The application includes the upgrade of existing: bulk sewer main, bulk water main and reservoir. Please refer to Appendix C for the layout. The proposed pipelines will be made from uPVC. Sewage will be transferred to the existing Toti Waste Water Treatment Facility.

The proposed sanitation infrastructure will be located within the New City Informal Settlement (Kwamakhutha B) west and south of 510031 street. The proposed infrastructure lies south of the Mbokodweni River and floodplain. The Mbokodweni River is a ‘severely impacted’ main (major) river that drains into the Indian Ocean at Isipingo.



Figure 1: An example of the prefabricated toilets to be constructed within the New City Informal Settlement.

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:

<p>As per LN 1_ GNR 544_ 18th June 2010 promulgated from the 2nd of August 2010:</p>	<p>No. 11 <i>The construction of:</i> i) <i>Canals;</i> ii) <i>Channels;</i> iii) <i>Bridges</i> iv) <i>Dams;</i> v) <i>Wiers;</i> vi) <i>Bulk stormwater outlet structures;</i> vii) <i>Marinas;</i> viii) <i>Jetties exceeding 50 square metres in size;</i> ix) <i>Slipways exceeding 50 square metres in size;</i> x) <i>Buildings exceeding 50 square metres in size; or</i> xi) Infrastructure covering 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse.</p>	<p>The applicant proposes to construct ablation facilities and associated pipework within the New City Informal Settlement, eThekweni Municipality triggering activity 11 of GNR 544, infrastructure covering an area greater than 50m² within 32 meters of the Mbokodweni River and floodplains.</p>
<p>As per LN 1_ GNR 544_ 18th June 2010 promulgated from the 2nd of August 2010:</p>	<p>No. 18 The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever disturbance is the greater – But excluding where such infilling, depositing, dredging, excavation, removal or moving; (a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or</p>	<p>The construction of the pipelines across the watercourses, may potential require the infilling and/or excavation of more than 5m³ of soil from/in a watercourse.</p>

	(b) occurs behind the development setback line	
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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.

The purpose and need of the project proposal is for the formalisation of ablution facilities within specific areas of the New City Informal Settlement. The section of the New City Informal Settlement does not currently have access to formalised toilets. The formalisation of the sanitation facilities within this informal settlement is aimed at providing these direct communities with proper sanitation facilities. There are therefore no feasible site alternatives for this application however a number of layouts were initially considered as part of the proposal for the toilet and pipeline sites and are described below.

Twenty nine ablution blocks and associated pipelines including the upgrade of existing: bulk sewer main, bulk water main and reservoir are to be constructed south of the Mbokodweni River and floodplain.

Alternative A1 and S1 (preferred):

Twenty nine prefabricated ablution blocks approximately 8 x 9.5m in area will be erected within Kwamakhutha B. Sewage from the toilets will travel through 160mm diameter pipelines (CAB connectors) to bulk sewer pipelines. An upgrade of the existing bulk sewer main runs parallel to the Mbokodweni River. The bulk sewer pipeline will measure a total of approximately 1.5km and will be constructed of unplasticized poly (vinyl chloride) or uPVC. Please refer to Appendix C for the layout of the proposed toilets, upgrade of the existing: bulk sewer pipeline, bulk water pipeline and reservoir. All pipelines will be made from unplasticized poly (vinyl chloride) or uPVC. uPVC is widely used in building materials as it is known as having a strong resistance against chemicals, sunlight, and oxidation from water.

While none of the proposed infrastructure falls directly within a watercourse, there are sections of the existing upgraded bulk sewer pipeline that will cross the Mbokodweni River. Pipe bridges will be constructed where sections of the pipeline traverses the Mbokodweni River. These pipe bridges must be constructed within the right-of-way (ROW) corridor as to not further disturb watercourse vegetation and soils.

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No Go Alternative i.e. not constructing the ablation facilities in this section of Kwamakhutha B. Local communities will continue to be exposed to unsanitary conditions and excreta related diseases, further leading to the degradation and pollution of the Mbokodweni River and associated floodplain. The formalisation of sanitation facilities is intended on improving hygienic conditions within this area of the eThekweni Municipality. Should this development not be allowed, the watercourses, communities and households will continue to be exposed to these inadequate conditions.

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: N/A	Latitude (S):			Longitude (E):		
Alternative S1 ¹ (preferred or only site alternative)						
Alternative S2 (if any)						
Alternative S3 (if any)						

In the case of linear activities:

Alternative:	Latitude (S):			Longitude (E):		
Alternative S1 (preferred or only route alternative)						
• Starting point of the bulk sewer main	30°	00'	36.81"	30°	52'	42.27"
• 500m point of the bulk sewer main	30°	00'	35.31"	30°	52'	59.49"
• 1000m point of the bulk sewer main	30°	00'	34.57"	30°	53'	17.14"
• End point of bulk sewer main	30°	00'	41.02"	30°	53'	12.88"
• Starting point of the bulk water main	30°	00'	54.14"	30°	52'	41.98"
• 500m point of the bulk water main	30°	00'	56.20"	30°	52'	58.80"
• 1000m point of the bulk water main	30°	01'	09.12"	30°	53'	02.20"
• End point of bulk water main	30°	01'	12.83"	30°	53'	07.59"
• Reservoir	30°	01'	12.98"	30°	53'	07.57"
• Ablution Block 1	30°	1'	0.39"	30°	52'	58.74"
• Distance from the edge of a watercourse	Approximately 66m from a watercourse.					
• Ablution Block 2	30°	0'	56.90"	30°	52'	54.19"
• Distance from the edge of a watercourse	Approximately 120m from a watercourse.					
• Ablution Block 3	30°	0'	54.88"	30°	52'	55.96"
• Distance from the edge of a watercourse	Approximately 94m from a watercourse.					
• Ablution Block 4	30°	0'	56.90"	30°	52'	54.14"
• Distance from the edge of a watercourse	Approximately 150m from a watercourse.					
• Ablution Block 5	30°	1'	11.60"	30°	52'	42.98"
• Distance from the edge of a watercourse	Falls within a wetland.					

¹ "Alternative S.." refer to site alternatives.

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• Ablution Block 6	30°	1'	6.1"	30°	52'	39.79"
• Distance from the edge of a watercourse	Approximately 50m from a watercourse.					
• Ablution Block 7	30°	1'	3.44"	30°	52'	40.33"
• Distance from the edge of a watercourse	Approximately 41m from a watercourse.					
• Ablution Block 8	30°	0'	58.74"	30°	52'	40.33"
• Distance from the edge of a watercourse	Approximately 50m from a watercourse.					
• Ablution Block 9	30°	1'	0.23"	30°	52'	42.71"
• Distance from the edge of a watercourse	Approximately 110m from a watercourse.					
• Ablution Block 10	30°	0'	58.57"	30°	52'	45.63"
• Distance from the edge of a watercourse	Approximately 170m from a watercourse.					
• Ablution Block 11	30°	0'	54.35"	30°	52'	40.11"
• Distance from the edge of a watercourse	Approximately 100m from a watercourse.					
• Ablution Block 12	30°	0'	50.45"	30°	52'	37.10"
• Distance from the edge of a watercourse	Approximately 67m from a watercourse.					
• Ablution Block 13	30°	0'	50.57"	30°	52'	40.46"
• Distance from the edge of a watercourse	Approximately 75m from a watercourse.					
• Ablution Block 14	30°	0'	50.82"	30°	52'	43.90"
• Distance from the edge of a watercourse	Approximately 100m from a watercourse.					
• Ablution Block 15	30°	0'	53.77"	30°	52'	44.65"
• Distance from the edge of a watercourse	Approximately 60m from a watercourse.					
• Ablution Block 16	30°	0'	53.84"	30°	52'	44.68"
• Distance from the edge of a watercourse	Approximately 150m from a watercourse.					
• Ablution Block 17	30°	0'	42.84"	30°	52'	54.07"
• Distance from the edge of a watercourse	Approximately 210m from a watercourse.					
• Ablution Block 18	30°	0'	48.54"	30°	52'	51.38"
• Distance from the edge of a watercourse	Approximately 61m from a watercourse.					
• Ablution Block 19	30°	0'	45.12"	30°	52'	48.22"
• Distance from the edge of a watercourse	Approximately 50m from a watercourse.					
• Ablution Block 20	30°	0'	42.10"	30°	52'	49.93"
• Distance from the edge of a watercourse	Approximately 30m from a watercourse.					
• Ablution Block 21	30°	0'	45.25"	30°	52'	58.16"
• Distance from the edge of a watercourse	Approximately 70m from a watercourse.					

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• Ablution Block 22	30°	0'	41.26"	30°	53'	1.32"
• Distance from the edge of a watercourse	Approximately 70m from a watercourse.					
• Ablution Block 23	30°	0'	38.29"	30°	53'	0.35"
• Distance from the edge of a watercourse	Approximately 100m from a watercourse.					
• Ablution Block 24	30°	0'	37.47"	30°	52'	59.55"
• Distance from the edge of a watercourse	Approximately 140m from a watercourse.					
• Ablution Block 25	30°	0'	35.97"	30°	52'	56.26"
• Distance from the edge of a watercourse	Approximately 120m from a watercourse.					
• Ablution Block 26	30°	0'	38.41"	30°	52'	54.95"
• Distance from the edge of a watercourse	Approximately 200m from a watercourse.					
• Ablution Block 27	30°	0'	37.01"	30°	52'	52.12"
• Distance from the edge of a watercourse	Approximately 380m from a watercourse.					
• Ablution Block 28	30°	0'	40.04"	30°	52'	54.07"
• Distance from the edge of a watercourse	Approximately 210m from a watercourse.					
• Ablution Block 29	30°	0'	44.25"	30°	0'	53.66"
• Distance from the edge of a watercourse	Approximately 480m from a watercourse.					

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 A1² (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

Size of the activity:

Alternative A1	N/A m ²
Alternative A2	N/A m ²
Alternative A3	N/A m ²

or, for linear activities:

Alternative:

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

Total length of the pipelines:

Alternative A1	Approximately 1500m
Alternative A2	N/Am
Alternative A3	N/Am

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

Alternative:

- Alternative A1 (preferred activity alternative)

Size of the servitude of the pipelines:

Alternative A1	Approximately 6000 m ²
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² "Alternative A.." refer to activity, process, technology or other alternatives.

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

N/A m²
N/A m²

Alternative:

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

**Total size of the
ablution platform area:**

Approximately 750 m ²
N/A m²
N/A m²

7. SITE ACCESS

Does ready access to the site exist?	YES	NO
	X	
Access to the site is off 510031 street. Proposed pipelines and associated toilets will be constructed to the north, east and west of 510031 Street.		
If NO, what is the distance over which a new access road will be built	N/A m	
Describe the type of access road planned:		
N/A		

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

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; **N/A**
- 8.7. servitudes indicating the purpose of the servitude; **N/A**
- 8.8. sensitive environmental elements within 100metres 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 1metre 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.

9. SITE PHOTOGRAPHS

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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.

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.

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 23 375 000	
R0	
YES X	NO
YES X	NO
Approximately 110 local contract workers	
Approximately R1 742 400	
100%	
22	
R 65 400	
100%	

11.2. Need and desirability of the activity

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

The Kwamakhutha area within the eThekweni Municipality largely consists of high/medium density informal settlements. Many households in this area, currently, do not have access to waterborne sewerage connections and due to unsanitary conditions are exposed to a high risk of infection with excreta-related diseases.

According to the Constitution of the Republic of South Africa Act 108 of 1996 and the Water Services Act 108 of 1997, Local Government must ensure that all their residents have access to safe water and sanitation. This project forms part of eThekweni Municipality's Provision of Water and Sanitation to Informal Settlements programme. The proposed sanitation infrastructure is expected to vastly improve hygienic conditions and people's living standards within the informal settlement.

More details of the programme are provided in Appendix G.

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

The formalisation of the sanitation facilities will have a significant positive impact on society in that basic sanitation facilities will be made available for use by the community in this section of the eThekweni Municipality. In addition,

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by formalising the ablution facilities the potential for sewage to contaminate the stream is also reduced. This is both beneficial for communities and the environment downstream.

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

The proposed development forms part of eThekweni Municipality's Provision of Water and Sanitation to Informal Settlements programme. This programme aims to provide waterborne sanitation to approximately 990 000 people within Informal Settlements within eThekweni (based on 522 facilities x 60 dwellings x 6 people) should the project be extended to end June 2016. Through access to waterborne sanitation, water and washing facilities an improvement in the quality of life and the health of the environment has been celebrated. More details of the programme are provided in Appendix G.

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:
National Environmental Management Act	All organs of State.	1998
Environment Conservation Act	DEA / DAEA	1989
National Heritage Resources Act	SAHRA/AMAFA	1999
National Water Act	DWA	1998
National Water Resources Strategy	DWA	2004
Occupational Health and Safety Act	DOL	1993
Hazardous Chemical Substance regulations	DOL	1995
Environmental Regulations for Workplaces	Department of Labour	1987
General Administrative Regulations	Department of Labour	2003
Construction Regulations	DOL	2003
eThekweni Municipality by-laws (General By-laws)	eThekweni Municipality	2008
Noise Induced Hearing Loss Regulations	Department of Labour	2003
National Environmental Management: Air Quality Act	DEA / DAEA	2004
National Environmental Management: Waste Act	DEA / DAEA	2008
National Standards (SANS)	SABS	2003

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?

Approximately 3.5 m ³

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

Solid waste is expected to be minimal as materials excavated for trenches as required by the pipelines will be used again as fill material. Whatever solid waste is generated by the contractors must be removed from the site and disposed of at a designated disposal area within the construction site camp and disposed of at the closest available registered landfill site.

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

The closest landfill site is the Mariannhill Landfill site approximately 15km from the site. The closest hazardous landfill site is the Shongweni H:h landfill situated in Shongweni. Should alternative landfill sites be used, this disposal site must be fully licensed and registered and must be approved by the ECO prior to the disposal of waste at this facility.

Will the activity produce solid waste during its operational phase?

YES	NO
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If yes, what estimated quantity will be produced per month?		X
How will the solid waste be disposed of? (provide details of landfill site)		N/A m ³
N/A		
Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?		
N/A		

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

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	YES	NO X
If yes, contact the KZN Department of Economic Development, Tourism & Environmental Affairs to obtain clarity regarding the process requirements for your application.		
Is the activity that is being applied for a solid waste handling or treatment facility?	YES	NO X
If yes, contact the KZN Department of Economic Development, Tourism & Environmental Affairs 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
N/A m³	
Yes	NO X

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

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

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

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

YES	NO X
-----	---------

If yes, provide the particulars of the facility:

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

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

The reuse or recycling of waste water will not be required as little to no wastewater is expected to be produced from the construction phase. During the operational phase, no wastewater will be produced.

13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES X	NO
YES	NO X

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

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

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

Dust will be produced during the construction phase as well as emissions from construction vehicles accessing the site. The vehicle emissions will be comprised primarily of Carbon Dioxide (CO₂) and will be of a low concentration.

13.4. Generation of noise

Will the activity generate noise?

YES	NO
X	

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

YES	NO
	X

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

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

Construction vehicles and equipment will generate noise from the proposed activity during the construction phase. It is not expected that noise levels during construction and operation will exceed 85dBa.

Should activities that generate high levels of noise be required, nearby residents must be notified of the activities prior to the event. Workers will be trained regarding noise on site and construction hours will be kept to working hours (07h00 to 17h00). Work should not continue on weekends, after hours or public holidays, unless prior consent is obtained.

14. WATER USE

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

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

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

N/A	
-----	--

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

YES	NO
X	

A water use license is currently being applied for and will be attached to the Final BAR.

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

15. ENERGY EFFICIENCY

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

The proposed CABs will be constructed with translucent roofing which will allow for natural light to pass through during the day, this will substitute the use of electricity during the day.

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

Energy saving light bulbs have been recommended for use in the ablution facilities.

SECTION C: SITE/AREA/PROPERTY DESCRIPTION

"Leading the attainment of inclusive growth for job creation and economic sustenance"

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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:

Infrastructure	Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10	1:10 1:7,5	–	1:7,5 – 1:5	Steeper than 1:5
Ablution Block 1		X								
Ablution Block 2		X								
Ablution Block 3				X						
Ablution Block 4				X						
Ablution Block 5		X								
Ablution Block 6		X								
Ablution Block 7				X						
Ablution Block 8				X						
Ablution Block 9		X								
Ablution Block 10				X						
Ablution Block 11		X								
Ablution Block 12				X						
Ablution Block 13		X								
Ablution Block 14	X									
Ablution Block 15		X								
Ablution Block 16		X								

"Leading the attainment of inclusive growth for job creation and economic sustenance"

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Ablution Block 17		X					
Bulk Water Pipeline				X			
Bulk Sewer Pipeline					X		
Reservoir		X					

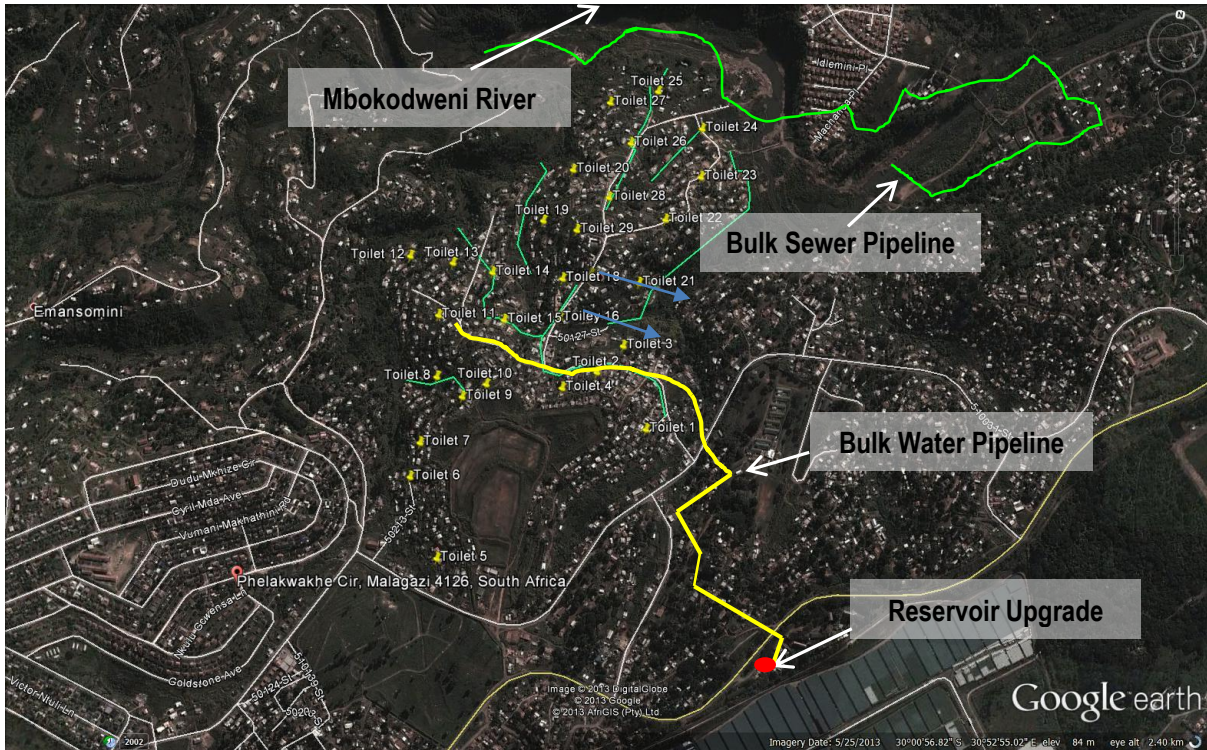


Figure 2: Blue arrows indicating the slope of the land from 50127 Street to a minor river (source: Google Earth, 2013)

Alternative S2 (if any): N/A

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

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

Indicate the landform(s) that best describes the site (**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
-----------	---------	-----------------------------	---------------	-------------------------	-------	----------------------------	------	-----------

Alternative S2 (if any): N/A

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Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
-----------	---------	-----------------------------	---------------	-------------	-------	----------------------------	------	-----------

Alternative S3 (if any): N/A

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
-----------	---------	-----------------------------	---------------	-------------	-------	----------------------------	------	-----------

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

If YES, please complete the following:

Name of the specialist:	Ryan Edwards from GCS Water and Environmental Consultants		
Qualification(s) of the specialist:	Available on request.		
Postal address:	4a Old Main Road, Judges Walk, Kloof		
Postal code:	3610		
Telephone:	031 764 7130	Cell:	-
E-mail:	ryane@gcs-sa.biz	Fax:	031 764 7140

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

If YES, specify and explain: n/a – although the site is located within the KZN Coastal Belt vegetation unit, the natural vegetation on site has been cleared and totally transformed by the New City informal settlement. The only vegetation that remains is secondary alien plants dominated by wetland and riparian vegetation. No intact primary KZN Coastal Belt vegetation is present (page 19 of the Watercourse Impact Assessment Report in Appendix D).

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

If YES, specify and explain: The Mbokodweni River floodplain and wetlands have been designated as “Freshwater Wetland” within the eThekweni D'MOSS flows into the Indian Ocean at Isipingo. While majority of the proposed infrastructure falls out of the delineated D'MOSS area, the proposed upgrade of the bulk sewer lies directly adjacent to the delineated area.

A summary of the specialist findings is provided below.

Are any further specialist studies recommended by the specialist? YES NO

If YES, specify: n/a

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

Signature of specialist: See signature on Wetland Report attached under Appendix D. Date: -

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

	Alternative S1:	Alternative S2 (if any): N/A	Alternative S3 (if any): N/A
Shallow water table (less than 1.5m deep)	YES X	YES	YES
Dolomite, sinkhole or doline areas	YES	YES	YES

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

3.1 Desktop Watercourse Impact Assessment Report

GCS Water and Environmental Consultants were appointed to compile a watercourse impact assessment to delineate and describe the current state of the watercourses in the study area. Mitigation against potential impacts that may occur as a result of the proposed construction and operation of ablution blocks were also suggested.

3.1.1. Summary of Findings of Wetland Assessment

The proposed ablution blocks, upgrade of the: bulk sewer main, bulk water main and reservoir are located on the northern slopes of the Mbokodweni River valley in the lower reaches of the Mbokodweni River catchment. The Mbokodweni River has been classified as a major river, where at approximately 5km east of the study area the river flows into the Indian Ocean at Isipingo. Twenty watercourse units were identified, notably the following watercourse units were classified:

- Mbokodweni River
- Mbokodweni Floodplain
- Stream units
- Wetland Units

The proposed infrastructure lies south of the Mbokodweni River and associated floodplain. The natural vegetation has been totally transformed by the informal settlement. Please see Figure 3 below indicating the location of the Mbokodweni River as well as other recognized watercourse units in relation to the project proposal.

The watercourse units were found to be disturbed and highly modified due to the establishment of informal dwellings and infilling activities, these watercourse units are characterised by alien invasive and various water loving indigenous species. The Mbokodweni River was recognized as being severely impacted by indirect water flow and quality disturbances, and vegetation observed to be of riparian indigenous invasive and alien invasive species. The in-stream habitat was found to be severely invaded by *Eichhornia crassipes* (Water Hyacinth) and is evidence of elevated nutrient levels within the river water and resultant eutrophication. While the stream systems were assessed as being of low ecological importance, the Mbokodweni River system was considered to be of moderate ecological importance and sensitivity due to the river being a major eThekweni river. The Mbokodweni River has current and potential value in terms of provision of freshwater resources and biodiversity maintenance.

The wetlands were considered to provide an intermediate level of flood attenuation services, largely due to the high level of catchment transformation. The streams and drainage lines within the study area are considered to be highly degraded and were thus assessed as being of **low** ecological importance. In spite of its poor state the Mbokodweni River was assessed as being of **moderate** ecological importance and sensitivity, due to it being a major river within the eThekweni Municipal area. Wetland units considered to be of significant importance included wetland units 1 and 11, which were assessed as being of **moderate** ecological importance.

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Impacts identified during construction and operation phases include:

- Direct disturbance
- Erosion and sedimentation
- Water quality impact
- Cumulative impacts

The wetland specialist concluded that most of the impacts pre-mitigation are of **low** significance however the potential operational water quality impacts and potential cumulative impacts could be assessed as **acceptable but undesirable** and **generally unacceptable** respectively. This is due to the river system already being highly degraded and further degradation is becoming progressively unacceptable. With strict adherence to the recommended mitigation measures, the magnitude and significance of all the potential impacts can be reduced to acceptable levels. Key aspects influencing post-mitigation significance scores are related to proper location, design and construction of the CABs and pipelines, the proper use and maintenance of the CAB toilets and the location of pipelines outside of sensitive areas, in particular the 1:100 year floodline and the riparian areas.

Specialist recommendations have been suggested to reduce the significance of the potential impacts during construction and operational phases and it is imperative that all the recommended mitigation measures are strictly adhered. The mitigation measures are listed on pages 40 – 50 of the Watercourse Impact Assessment Report in Appendix D. These measures have been incorporated into the Environmental Management Programme (EMPr, Appendix F).

GROUNDCOVER

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

YES	NO
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If YES, please complete the following:

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

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

YES	NO
-----	---------------

If YES, specify and explain:

N/A

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

YES	NO
-----	---------------

If YES, specify and explain:

N/A

Are any further specialist studies recommended by the specialist?

YES	NO
-----	---------------

If YES, specify:

N/A

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

YES	NO
-----	----

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Signature of specialist: _____ Date:

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

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

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

Section 5.1.1 of the Watercourse Impact Assessment Report describes river and stream units. The bed and bank erosion, of the stream units of the entire channel, was severe and most distinct in the narrower and steeper sloping sections. Stream unit 1 and 3 were characterised by alien invasive and few indigenous plants, while the riparian zone was dominated by various mixes of dryland and facultative riparian plants such as *Pennisetum purpureum* (Napier Grass), *Setaria megaphylla* (Broad-leaved Bristle Grass), *Colocassia esculenta* (Madumbe) and *Parthenium hysterophorus* (Parthenium Weed).

Stream unit 2 was found to be a highly disturbed and incised seasonal stream channel which drains into Stream unit 1. In-stream habitat included disturbed shallow pools and riffles polluted with litter. Obligate wetland species were found colonising in the upper reaches, such as, *C. esculenta* and *Typha capensis* (Bulrush). Dense alien dominated herbaceous vegetation is evident as the channel steepens with patches of indigenous invasive plants such as *Cyperus textillis*.

Stream unit 4 is a right bank tributary of the Mbokodweni River, this stream unit is highly disturbed and an incised seasonal stream channel, the in-stream habitat of the entire length of the channel was recognized as being limited and highly transformed. Riparian vegetation was secondary and dominated by indigenous invasive and alien invasive species, such as: *Trema orientalis* (Pigeonwood), *P. purpureum*, *Ricinus communis* (Castor-oil Plant), *C.indica* and *Solanum mauritianum* (Bugweed).

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Stream unit 5 was found to be highly disturbed and recognized as a highly incised seasonal stream channel draining directly into the Mbokodweni River. Due to the erosion of stream banks and physical disturbance, riparian vegetation was secondary and dominated by indigenous invasive and alien invasive species namely: *T. diversifolia*, *P. purpureum*, *R. communis*, *Persicaria spp* and *C. latifolius*.

The **Mbokodweni River**, river unit 1, is a relatively wide, perennial, main stem (major) river. The banks of the Mbokodweni River was found to be colonised by various indigenous invasive and alien invasive species inclusive of: *C. dives*, *C. latifolius*, *T. diversifolia*, *C. esculenta*, *Persicaria spp* and *Datura ferox*. The in-stream habitat was severely invaded by *Eichhornia crassipes* (Water Hyacinth). This has resulted in elevated nutrient levels and resultant eutrophication within the river water.

Wetland unit 1 vegetation was comprised of *Cyperus latifolius*, *Phragmites australis* and *Cyclosorus interruptus*. Disturbed edges of the wetland have been occupied by numerous water loving indigenous and alien invasive species namely *Canna indica* (Indian Shot) and *Colocassia esculenta* (Madumbe), more terrestrial alien invasive species such as *Tithonia diversifolia* (Mexican Sunflower) were also found. The lower reaches of the wetland have been completely cleared for subsistence Madumbe cultivation, with furrows and ridges being established to drain and dry out the soils.

Wetland unit 2 and 3 have been recognized as small patches of channelled valley bottom wetland bordering the incised and eroded channel of stream unit 1. While wetland unit 2 was characterised by alien invasive plants, the most prominent of which were *A. houstonianum* and *R. communis*, wetland unit 3 comprised of *C. esculenta* and various alien invasive creepers and herbs.

Wetland unit 4 located in a tributary of the stream unit 1 valley, was highly transformed, bounded and encroached by house platform fill embankments. The vegetation of the wetland comprised of alien invasive and indigenous pioneer plant species, with dominant species identified as the invasive obligate and facultative wetland plants namely: *P. purpureum*, *Cyperus textillis*, *Paspalum urvillei* and *C. esculenta*.

Wetland unit 5 was located within a tributary valley of a larger valley which drains directly into the Mbokodweni River, classified as a predominantly semi-permanent marsh with seasonal margins. This wetland unit comprised of dense monotypic stands of obligate wetland plants such as: *C. dives*, *C. latifolius*, *C. textillis*, *C. esculenta* and *Typha capensis*. The temporary seasonal edges were dominated by alien invasive species including *P. urvillei* and *Ipomoea spp*.

Wetland unit 6, the remnants of an un-channelled valley bottom, comprised of secondary vegetation communities dominated by *Kyllinga spp.*, *Paspalum spp* and *C. latifolius*.

Wetland unit 7 a disturbed and narrow un-channelled valley bottom wetland was characterised by dominant indigenous and alien invasive facultative wetland species such as *Persicaria spp.*, *P. urvillei*, *D. ferox*, *Achyranthes aspera* (Burweed) and *A. houstonianum*.

Wetland unit 8 substantially transformed by the in-filling for the establishment of a house platform and culverted road crossing, was comprised of a dense covering of herbaceous obligate and facultative wetland communities dominated by *Persicaria spp.*, *A. houstonianum*, *Ludwigia octovalvis* and *Kyllinga spp*.

Wetland unit 9 and 10 classified as small, disturbed and channelled valley bottoms bordering stream unit 4. Wetland unit 9 was dominated by various indigenous invasive and alien invasive herbaceous plants, while wetland unit 10 comprised of *Cynodon dactylon* (Bermuda Grass), *Asystasia gangetica* and various alien invasive plants.

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Wetland unit 11 comprises of the floodplain of the Mbokodweni River, this floodplain has been greatly impacted greatly by excavation activities associated with sand mining and past infrastructure establishment and infilling activities. Wetter areas of the floodplain were dominated by *C. dives*, *C. latifolius*, *Pycneus polystachyos*, *Kyllinga spp.*, *C. dactylon*, *Persicaria spp.* And *C. esculenta*. Drier elevated areas more riparian in nature were dominated by mixes of alien invasive terrestrial and facultative wetland plants such as *Phragmites mauritianus*, *D. ferox*, *Sporobolus pyramidalis* and *Senna didymobotrya* (Peanut Butter Cassia). The artificial open water and permanent wetland depressions were dominated by *E. crassipes*.

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	YES	NO	Description
Natural area	X		D'MOSS is located to the north of the proposed study area however no infrastructure falls within the delineated D'MOSS area. The natural area associated with the Mbokodweni River and floodplains has been totally transformed to accommodate the informal settlement (see page 29 of the Watercourse Impact Assessment Report). The Mbokodweni River floodplain was designated as "Freshwater Wetland" within the eThekweni D'MOSS (see page 19 of the Watercourse Impact Assessment Report). A map of the location of D'MOSS is provided in the Watercourse Impact Assessment Report in Appendix D.
Low density residential	YES	NO X	
Medium density residential	YES	NO X	
High density residential	YES	NO X	
Informal residential	YES X	NO	The site is situated within the New City township. Where possible, the pipeline will be constructed between the houses to avoid impacts on these houses.
Retail commercial & warehousing	YES	NO X	
Light industrial	YES	NO X	
Medium industrial	YES	NO X	
Heavy industrial	YES	NO X	
Power station	YES	NO X	
Office/consulting room	YES	NO X	

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Military or police base/station/compound	YES	NO X	
Spoil heap or slimes dam	YES	NO X	
Quarry, sand or borrow pit	YES	NO X	
Dam or reservoir	YES X	NO	The development is inclusive of an upgrade to an existing reservoir. This has been identified as a positive impact as this will allow for more adequate storage of water. The reservoir upgrade will alleviate all water storage problems.
Hospital/medical centre	YES	NO X	
School/ creche	YES	NO X	
Tertiary education facility	YES	NO X	
Church	YES	NO X	
Old age home	YES	NO X	
Sewage treatment plant	YES	NO X	
Train station or shunting yard	YES	NO X	
Railway line	YES	NO X	
Major road (4 lanes or more)	YES	NO X	
Airport	YES	NO X	
Harbour	YES	NO X	
Sport facilities	YES	NO X	
Golf course	YES	NO X	
Polo fields	YES	NO X	
Filling station	YES	NO X	
Landfill or waste treatment site	YES	NO X	
Plantation	YES	NO X	
Agriculture	YES	NO X	
River, stream or wetland	YES X	NO	A section of the proposed upgrade of the existing bulk sewer fall within 32metres of a watercourse. While three points of the existing bulk sewer cross

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			the Mbokodweni River the study site falls within the Mbokodweni River catchment. Pipe bridges are recommended to be placed at these points (Appendix G).
Nature conservation area	YES	NO X	
Mountain, hill or ridge	YES	NO X	
Museum	YES	NO X	
Historical building	YES	NO X	
Protected Area	YES	NO X	
Graveyard	YES	NO X	
Archaeological site	YES	NO X	
Other land uses (describe)	YES X	NO	The local community currently utilises the nutrient rich floodplains for subsistence farming (e.g. <i>Colocassia esculenta</i> (Madumbe) farming). Construction of the proposed infrastructure should not disturb or impact significantly on these crops.

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?

YES	NO
-----	---------------

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

Briefly explain the recommendations of the specialist:

n/a

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

YES	NO
-----	---------------

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO
-----	---------------

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

SECTION D: PUBLIC PARTICIPATION

Public Participation commenced on 06th of December 2013. All proof of public participation has been included in Appendix G. Signboards were placed around the site.

Additional Public Participation was conducted on the 8th of April 2014. All proof of additional public participation has also been included in Appendix G. Signboards were placed at the beginning, middle and end of both the bulk sewer pipeline and bulk water pipeline and reservoir.

The following authorities and interest groups were notified of the application: Department of Water Affairs (DWA), KZN Wildlife, AMAFA and eThekweni Municipality. The Ward Councillor (Mthokozisi Nojijeza) was also notified telephonically of the proposed project. The Background Information Document was distributed to all I & APs on 20 February 2014. Notifications of the additions to the development were released on the 10th of July 2014.

The notice of application was advertised in the Daily News (Regional Newspaper) on the 15th of January 2014 and in the Umlazi Eyethu (Local Newspaper) on the 24th of January 2014. Additional advertisements were placed in the Daily News (Regional Newspaper) on the 29th of July 2014 and in the Umlazi Times (Local Newspaper) on the of 25th of June 2014.

Should a meeting be requested, it may be held with registered interested and affected parties (I&APs).

1. ADVERTISEMENT

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

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the local and district municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that an application for environmental authorization has been submitted to the KZN Department of Agriculture & Environmental Affairs in terms of the EIA Regulations, 2010;
 - (ii)

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- (iii) a brief project description that includes the nature and location of the activity to which the application relates;
- (iv) where further information on the application can be obtained; and
- (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

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

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE PROCESS

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

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

5. COMMENTS AND RESPONSE REPORT

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

6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

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

Has any comment been received from the district municipality?

YES	NO
X	

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

Comments were received from eThekweni Municipality on the BID released on the 4th of February 2014. The EPCDP's comment concentrated on the bulk sewer line that crosses the Mbokodweni River, they have suggested a reduction in pipe size, the use of bridge crossing and manual trench digging be utilised in potentially sensitive areas.

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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):

N/A

Has any comment been received from a traditional authority?

YES	NO
	X

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

N/A

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	NO
	X

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

N/A

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

List the main issues raised by interested and affected parties.

Since this is the Draft BAR, comments received to date have been on the BID. The EPCDP of the eThekweni Municipality suggested a reduction in pipe size, the use of bridge crossings and manual trench digging be utilised in potentially sensitive areas, during the upgrade of the bulk sewer pipeline. The Comments and Response Table has been included in Appendix E of the Draft BAR.

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):

This has been noted, the Engineer has been notified of this and has concluded that pipe bridges will be utilised in the areas where the pipeline traverses the Mbokodweni River. The Comments and Response Table has been included in Appendix E of the Draft BAR.

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

It is the recommendation of the Wetland specialist that all CABs must not be located within any of the watercourses units. The minimum buffer zone between CABs and watercourses should be 5m and a maximum of 20m. It was recommended that all water crossings be minimized and must be done via pipe bridges (see page 40 of the Watercourse Impact Assessment Report, Appendix D). All sewer and water pipes are suggested to be routed so that the wetland (ie Mbokodweni River) be crossed at as close to right angles to the direction of flow as possible, sewer lines are to not be aligned parallel or near parallel to flow.

The proposed upgrade to the existing bulk sewer line crossing the Mbokodweni River is to be aligned outside of tributary/main river confluence zones, as suggested by the Wetland Specialist on page 41 of the Watercourse Impact Assessment Report, Appendix D.

2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

Description Of Environmental Issues Identified, Assessment Of The Significance Of Each Issue And An Indication Of The Extent To Which The Issue Could Be Addressed By The Adoption Of Mitigation Measures [Regulation 22 (2) (i-k)].

a. Site alternatives

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

Alternative A1 and S1 (preferred alternative)

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
SOIL										
Collapse and / erosion of stockpiled material (stone, sand and gravel).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	Material must be stockpiled in such a way that it cannot fall or cause injury or damage to properties or the natural environment. Stockpiles must not exceed 2m in height and must be covered in the event they are exposed to heavy wind or rain. Stockpiles must not be located in close proximity to any streams or drainage lines and must not be allowed to erode into these features. Alternatively, low walls or berms must be constructed around the stockpiles. A site-specific Environmental Management Programme (EMPr) has been designed to manage construction activities (Appendix F).	Low	Low
The onsite erosion of exposed soil before	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	As a general principle, contractors must limit vegetation clearing to the workable corridor/site along the pipelines only. The contractor must	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
rehabilitation is completed.								stabilise cleared areas to prevent and control erosion and/or sedimentation of the watercourses. Only vegetation that needs to be removed to accommodate the proposed sewer infrastructure and pipelines must be removed in a phased and controlled manner. A site specific EMPr has been designed to manage construction activities and is attached under Appendix F.		
Disturbance of soils and vegetation during the construction of pipe bridge piers in the watercourses. (Watercourse Impact Assessment Report, GCS)	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	The number of piers within the watercourses, the Mbokodweni River, and riparian zones must be minimised and watercourses be spanned where possible. Disturbance to the watercourse vegetation and soils along the pipeline route are to be restricted to an established construction right-of-way (ROW) corridor (page 42 of the Watercourse Impact Assessment Report). Every effort should be made to utilise existing roads and associated embankments as running tracks for the laying of the pipes.	Low	Low
Risk of contamination to soil during cement mixing during toilet structure.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	Only minor cement mixing activities will be required but cement mixing must take place on a hard surface or cement mixing trays need to be used. Cement mixing must not be permitted	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								to occur where run-off can enter stormwater drainage lines or streams. Construction must be monitored by an independent ECO who must monitor compliance with the construction EMPr.		
STORMWATER										
Poor stormwater management during construction can lead to erosion and loss of soil.	Direct	Local	Construction phase (short-term)	Yes – can be prevented	No	Medium	High	Temporary stormwater control structures i.e. the use of Hessian bags, silt curtains etc., must be utilised during construction. Construction must be monitored by an independent ECO who must monitor compliance with the construction EMPr (Appendix F).	Low	Low
Washing of construction vehicles on site resulting in contamination of stormwater drainage lines and/or streams	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	No vehicle washing must occur on site unless in a designated wash bay which must then be constructed. Wash bays must be installed with sand and grease traps if required on site.	Low	Low
Vegetation clearing and the exposure of bare soils to the elements thereby increasing erosion and sedimentation	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	High	Clearing activities must only be undertaken during agreed working times and permitted weather conditions. If heavy rains are expected, clearing activities should be put on hold. In this regard, the Contractor is to be aware of weather forecasts. The unnecessary removal	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
(GCS Watercourse Impact Assessment Report).								of groundcover from slopes must be prevented. Where construction is taking place in close proximity to the watercourse, sandbags and silt fences should be established along the downslope edge of the construction zone to slow down runoff and capture sediment. The disturbed area should be monitored for erosion until re-vegetation establishment is acceptable. (Page 44 of the GCS Watercourse Impact Assessment Report).		
FLORA										
Soil disturbance due to construction activities resulting in a proliferation of weeds.	Direct	Local	Long-term	Yes – can be prevented.	No	Medium	High	Following completion of construction, an alien removal programme must be implemented. The site must be re-vegetated with indigenous vegetation. Top soil must be used for rehabilitating the site and must be kept free of alien vegetation.	Low	Low
Damage and removal of indigenous vegetation.	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	Medium	While it is unlikely that the infrastructure will result in the removal of the indigenous vegetation, vegetation should only be cleared from the disturbed area where trenching is to take place. The disturbed area is to be rehabilitated with indigenous grass species.	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Damage and/or removal of local community crops.	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	Medium	The local community are currently using sections of the study site to cultivate crops. Although unlikely, construction should not impact on these crops (e.g. stockpiles/ lay down areas are to not encroach into these areas).	Low	Low
FAUNA										
Potential loss or disturbance to fauna present within the proposed site	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	Low	The proposed construction of the pipelines is a linear activity, in the form of a comparatively narrow pathway extending across the landscape. At the landscape level, the disturbance is relatively small. Due to human presence and the disturbed landscape, it is unlikely that fauna species exist in large numbers at these sites, however, contractors and staff must be trained to avoid impacts on fauna. This must be monitored with an EMPr (Appendix F).	Low	Low
SENSITIVE ENVIRONMENTAL AREAS (i.e. watercourses)										
Potential pollution and contamination of the Mbokodweni River and riparian floodplain with cement and other hazardous	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	High	Pollution and contamination of the watercourses is to be avoided at all times. Designated concrete mixing areas and storage areas for any hazardous materials must be assigned. These areas must not lie directly adjacent to the Mbokodweni River, wetland or sensitive riparian	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
materials used during construction.								areas. Cement mixing is also not permitted in any area where runoff can enter the watercourses and is to be done on a tray, shutter boards or an impermeable surface. The Mbokodweni Riparian Floodplain is to be delineated as a “no-go” area for the duration of the construction phase. Construction must be managed through the site specific EMPr (Appendix F) and compliance must be monitored by an independent ECO.		
Potential diesel and oil spills from machinery utilised in construction leading to the contamination of soils and runoff and eventually the pollution of the Mbokodweni River (Wetland Impact Assessment, GCS)	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	Low	High	As per the recommendations of the Wetland Specialist (page 47), all mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or an impermeable surface and should be protected from the ingress and egress of stormwater.	Low	Low
The poor management of hazardous materials and	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	Medium	High	Areas in which hazardous materials and waste is stored should be bunded prior to this material being stored. The amount and location of the bunds and	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
waste resulting in the contamination of soil and runoff and ultimately the pollution Mbokodweni River.								their subsequent construction should occur during the site setup phase. (page 47 of the Watercourse Impact Assessment Report)		
Erosion from vegetation clearing and exposure of bare soil to the elements resulting in sediment deposition within the drainage lines and subsequent Mbokodweni River during construction.	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	Medium	High	With successful implementation of the recommended mitigation measures provided by the wetland specialist on pages 35 of the Watercourse Impact Assessment Report, the significance of this potential impact is reduced to “low and acceptable”. These recommendations have been included in the attached EMPr but include erosion control measures (silt fences, sandbags etc.) and rehabilitation measures. As soon as possible after construction, exposed areas that have resulted from the construction activities must be re-vegetated to assist in the prevention of erosion.	Low	Low
The washing of construction vehicles on site, leading to the pollution of the Mbokodweni River.	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	Low	High	Vehicles transporting concrete, asphalt or any other bituminous component are prohibited from being washed on site.	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Littering in the Mbokodweni River, contributing to the degradation of the watercourses within the study site.	Direct	Local with the potential to impact regionally should the pollution wash down-stream.	Construction phase (short-term)	Yes – can be prevented and managed.	No	Medium	High	Illegal dumping is not permitted within the site and site staff must remove any waste and litter from the construction site at the end of each day. Bins are to be allocated to all areas that generate waste such as worker eating and resting areas.	Low	Low
WASTE										
Improper storage of hazardous waste i.e. used oil from vehicles, old cement bags etc.	Direct	Local (within construction site)	Construction phase (short-term)	Yes - can be prevented.	No	Medium	High	The volume of pollutants is not expected to be high and the impact on the integrity of the riparian and in-stream habitats within the study area is expected to be low as the habitats are already highly degraded and polluted. Hazardous waste must however be temporarily stored on a hard surface within a bunded area of the site camp and must not be allowed to enter stormwater drains and the surrounding environment. All hazardous waste must be disposed of at an appropriate landfill site and all safe disposal certificates must be obtained and kept on site at all times. This must be monitored through an EMP (Appendix F).	Low	Low
Improper storage and disposal of	Direct	Local	Construction phase	Yes - can be prevented.	No	Medium	High	All solid waste generated during the construction process must be placed	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
general waste resulting in possible contamination of the surrounding environment.			(short-term)					in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent to the skips / bins. All solid waste must be disposed of at the nearest licensed landfill and safe disposal certificates must be obtained and kept on site at all times during construction. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This must be managed through the site specific EMPr (Appendix F) and monitored by the ECO.		
Littering around the site.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Littering on the site should be kept to a minimum and general housekeeping must be enforced. General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.	Low	Low
Improper disposal of rubble i.e.: burying or neglecting building rubble resulting in direct mechanical	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be managed	No	Medium	High	Building rubble is anticipated to be minimal however rubble can be temporarily stored on site in designated skips until it is ready for disposal. All excess material and rubble must be removed from the site so not to restrict the rehabilitation	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
damage to surrounding vegetation and untidiness of the site.								process. Any construction rubble produced must be disposed of at a designated landfill site. Rubble is not to be stored in the Mbokodweni Riparian Floodplain.		
Use of the bush and/ residents properties as toilets by contractors.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Staff must be provided with chemical toilets. The toilet waste must be disposed of at an appropriate disposal site and safe disposal certificates must be obtained. The staff may not use the bush or residents properties as toilets. Workers must be briefed by the person in charge of managing construction activities on the do's and don'ts on the property, when workers arrive at the site. This must be repeated in weekly toolbox talks and monitored through a site specific EMPr (Appendix F).	Low	Low
Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Chemical toilets must be placed within the construction camp and not in close proximity to the Mbokodweni River or Riparian Floodplain. The chemical toilets must be provided by a registered company and all effluent must be regularly disposed of at a licenses facility. Safe disposal certificates must be kept on record.	Low	Low
Increase waste to landfill site.	Cumulative	Regional	Construction phase (short-term)	Yes – can be managed	No	Low	High	Due to the nature of the activity, waste is anticipated to be minimal. Where possible, recycling of waste will take	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								place to limit the amount of waste being added to the landfill site.		
HAZARDOUS CHEMICALS / FUELS										
Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil and stormwater.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Any construction equipment that could leak oil must be placed on a suitably sized drip tray. Stationary construction vehicles must have a drip tray placed beneath them and any oil leaks must be controlled and attended to over a drip tray. All equipment must be in good working order to reduce the likelihood of oil leaks occurring. Any re-fuelling of equipment must occur on a hardened surface, within a designated re-fuelling area where any spills can be contained. Construction must be monitored by an independent ECO must monitor compliance with the construction EMP.	Low	Low
NOISE										
Noise generated by construction workers, machinery and construction vehicles disturbing	Direct	Local (within construction site)	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Excessive noise must be controlled on site. Workers will be trained regarding noise generation on site and construction hours will be kept to working hours (07h00 to 17h00).The construction activities will be monitored by an ECO who will ensure compliance with the construction	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
surrounding residents.								EMPr. All precautions must be taken to ensure that noise generation is kept to a minimum. If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event.		
AIR QUALITY										
Emissions generated from construction vehicles	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Low	High	The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities or the environment. Regular maintenance of construction vehicles must be undertaken to ensure they are good working order and thereby reducing the amount of emissions generating from vehicles.	Low	Low
Generation of dust being a nuisance to surrounding residents.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Emissions will only be generated from construction vehicles. Emissions will be minimal and not expected to significantly affect surrounding communities. Dust control measures must however be implemented to ensure that excessive dust levels are not experienced on site. Measures to control dust generated during construction must be put controlled through the EMPr i.e. cleared surfaces to be replanted as soon as possible behind the working front or	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								dampening of dirt access roads, stockpiles and cleared areas. The dust levels must be kept below the required SANBS standard to ensure minimal impact on the surrounding community and the environment.		
RESOURCE USE & CONSERVATION										
Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining operations causing significant environmental damage.	Direct	Local (potential to become regional)	Construction phase (short-term)	Yes – can be managed	No	Low	High	All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO, where applicable. Municipal water will most likely be used for dust suppression however should water be extracted from the watercourse, the amount must not exceed 50 000 litres per day. If this limit is exceeded, a permit is required from DWA.	Low	Low
TRAFFIC										
Increased use of roads by construction vehicles increasing the risk of an accident.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Clear signs, flagmen and/ signals must be set up where necessary. Access to residential properties shall be maintained and speed limits established. Where roads are used by children to reach school, vehicle traffic must be minimized during hours	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								that children are travelling to and from school.		
SOCIO-ECONOMIC										
Interruption or damage to services (electricity, water etc.).	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	High	This impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance. A site-specific EMPr has been designed to manage construction activities (Appendix F).	Low	Low
Damage to surrounding neighbours' properties i.e. houses, fence lines, gardens and accesses.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Surrounding neighbours must be consulted prior to construction to discuss the construction process and potential impacts on nearby properties, as well as opportunities regarding employment. Should unplanned impacts occur, the contractor will be responsible for the necessary repairs.	Low	Low
Safety of construction workers and local community members in close proximity to the trenches.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Construction workers must be made aware of these areas where safety may be a concern (i.e. open trenches). Open trenches must be clearly demarcated during the day and night. Contractors must ensure that all workers are made aware of the associated dangers through an awareness / weekly toolbox training programme. This must be monitored	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								through a site specific EMPr (Appendix F).		
Positive impact. Potential temporary employment during construction.	Direct	Local	Construction phase (short-term)	Positive impact no mitigation required. Skilled local community members may be granted employment during the construction phase.						
CULTURAL										
Potential unearthing and damage to items of cultural or historical significance	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	High	If any item of cultural or historical significance are discovered construction must cease immediately and AMAFA must be contacted. Construction should hen cease until further notice. Staff must be made aware of what archaeological objects of significance may look like, e.g. pottery, etc.	Low	Low

No-Go Alternative:

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
IMPACTS OF THE NO-GO OPTION										
Residents and households of the New City informal settlement will continue to have limited access to proper sanitation and thus will remain exposed to a high risk of infection by excreta-related diseases.	Direct	Local.	Long- term	Yes – can be managed.	No	High	High	Formalisation of sanitation facilities will result in the residents and households of the New City informal having access to proper sanitation. Thereby, reducing the high risk of infection by excreta-related diseases. Formal sanitation facilities will improve the overall health and quality of life for the residents and households of this informal settlement.	Low	Low
Further degradation and pollution of the Mbokodweni River, associated floodplain and streams. Resulting in eutrophication and loss of fauna and flora species.	Direct	Local with the potential for regional impact should contamination occur.	Long- term	Yes – can be managed	Yes	Medium	High	Further degradation through pollution and contamination entering the Mbokodweni River has been identified as being unacceptable by the Wetland Specialist (Pages 52- 53 of the GCS Watercourse Impact Assessment Report). Implementation of formal sanitation facilities will allow for a reduction in the loss of fauna and flora negatively impacted by pollution and contamination and will result in an improvement to the health of the Mbokodweni River and associated floodplain.	Low	Low
Positive impacts such as employment	Direct	Local	Long- term	Yes – can be managed	No	Medium	High	Through provision of formal sanitation facilities to this area temporary (during the construction phase of the activity)	Low	Low

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Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
creation and an improved standard of living will not be established.								and permanent (caretakers from the local community will be appointed to maintain the CAB) employment will be created for local members of the community.		

2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

Alternative A1 and S1 (preferred alternative)

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

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
The potential for leakages at joints and manhole connections resulting in soil / groundwater contamination due to development of cracks in the pipelines.	Direct	Local with the potential for a regional impact should contamination occur.	Long – term	Yes – can be prevented and managed.	No	Medium	High	It is anticipated that pipelines will develop cracks over time and this will be accelerated if the pH is above 10 or less than 7. It is recommended that a maintenance procedure be implemented to ensure that the pipelines are checked on a regular basis. Should any cracks be identified, the portion of pipe must be immediately replaced to ensure that there is no surface or groundwater contamination. The pipeline must be designed as per engineering specifications. The pipeline must be constructed according to the relevant	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								SABS standards. Should any cracks be identified, it is recommended that a groundwater study be conducted to determine if there has been any contamination.		
Potential blockage increasing the risk of spillages along the pipe as well as manhole overflow.	Direct	Local	Long - term	Yes – can be prevented.	No	High	High	The pipeline must be regularly inspected as part of a maintenance/ inspection procedure to ensure 100% integrity of the structure. eThekweni Water and Sanitation (EWS) employ and train a local community member to be a “caretaker” for the toilet blocks. The caretaker is responsible for operation maintenance and general up keep. The caretaker is to inform EWS of any maintenance issues. The caretaker is to inform EWS of any operational maintenance. The maintenance programme must specify the frequency and timing of manhole inspections, aimed at identifying and clearing up material deposited during overflow events. Ablution facilities must also be included in the maintenance programme and must be regularly inspected for blockages and leaks. An abluion maintenance team must be set-up using local labour.	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
The potential of surcharge events will lead to a growing catchment-scale water quality impacting on local aquatic ecology, predominantly the Mbokodweni River.	Direct	Local	Long-term	Yes – can be	No	Medium	High	In order to reduce the risk of surcharging sewer manholes onsite and downstream, a gully trap should be installed in order to prevent the entrance of foreign objects into the main internal line of the site and instigate blockage problems at the source. This is to be done prior to the connection of the toilets with the bulk line (page 49 of the Watercourse Impact Assessment Report, GCS). Manholes planned within 10m of a watercourse must be elevated by 1m above the land surface thereby increasing storage volume during potential surcharge events.	Low	Low
Spill of raw sewage resulting in eutrophication of stagnant pools onsite or downstream, degradation of the local in-stream habitat, domination of particular floral species, dieback of floral and faunal species increase the competitive	Indirect	Local	Long - term	Yes – can be prevented.	No	High	High	Given the current state of the watercourse, the specialist rated this impact to have moderately-low significance, provided the recommended mitigation measures are adhered to. The specialist lists a number of mitigation measures to reduce the significance of the impact further (page 40 of the Watercourse Impact Assessment Report). For example, measures to reduce the risk of surcharging sewer manholes onsite and downstream and the employment of a caretaker to monitor the pipeline and report any leaks to	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
advantage of alien species (Wetland Assessment Report, GCS).								EWS. These measures have been incorporated into the EMPr.		
Cumulative degeneration in the integrity and ecosystem functioning of the local freshwater systems of the Mlazi River over time (Watercourse Impact Assessment Report, GCS).	Indirect	Regional	Long - term	Yes – can be prevented and managed.	No	High	High	The significance of this impact was assessed as being medium-low and acceptable but undesirable. Successful implementation of specialist recommendations will reduce the potential impact to acceptable levels. The wetland specialist's recommendations have been included in the attached EMPr.	Low	Low
Erosion of surrounding areas due to increase in stormwater from ablation block sites. Runoff generated will likely follow existing erosion rills and gullies onsite or create new ones (Watercourse Impact	Indirect	Local	Operational phase (long term)	Yes – can be managed.	No	High	Medium	The wetland specialist rates this impact as having a medium-low significance, provided that the mitigation measures, listed on pages 36 and 37 of the report, are adhered to. These have been included in the attached EMPr. Stormwater control measures will need to be implemented prior to the completion of the construction (i.e. vegetation reinstatement and stone-filled infiltration ditches).	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Assessment Report, GCS).										
Potential increase in volume of waste (sludge) sent to the South Durban Waste Water Treatment Works (WWTW).	Direct (Cumulative)	Regional	Operational phase (long term)	Yes – can be provided for.	No	High	Medium	There will be an increase in the amount of sludge directed to the South Durban WWTW however there is enough capacity to handle the increase (see proof of capacity in Appendix G).	Low	Low
Positive Impact. Local community households connection to waterborne sewerage.	Direct	Local	Long - term	Positive impact, no mitigation required. The result of the infrastructure provision is the reduced exposure to unsanitary conditions and a decrease in potential infection by excreta-related diseases.						
Positive Impact. Reduced risk to the catchment due to the containment of existing raw sewage.	Indirect	Regional	Long – term	Positive impact, no mitigation required.						
Positive Impact. Improved service delivery to this section of the uMlazi informal settlement.	Direct	Local	Long – term	Positive impact, no mitigation required.						
Positive Impact. Improvements in the living	Direct	Local	Long – term	Positive impact, no mitigation required.						

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
conditions and standards for the local community through the installation of waterborne sewerage system.										

No-Go Alternative:

IMPACTS OF THE NO-GO OPTION

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Potential for raw sewage to continue to flow from informal toilets polluting the watercourse.	Direct	Regional	Long – term	Yes – can be prevented and managed.	No	High	High	By providing formal sanitation facilities to this area of the informal settlement, the raw sewage entering the watercourse will be reduced.	Medium	Low
Continual establishment and growth of weeds along the riparian zone.	Indirect	Local	Long – term	Yes – can be managed.	No	High	Low	Alien vegetation and weeds are required to be removed during construction activities should the formalisation of the ablution facilities be approved. While the proposed activity will not eradicate the alien vegetation completely, there is an opportunity to establish indigenous grasses along the stream units.	Low	Low

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

The prefabricated abluion facilities are temporary solutions to the sanitation requirements of the community in the area and are intended to be decommissioned at a later stage when formal housing developments are implemented in the area. The abluion blocks will therefore be decommissioned in the future should the system be converted to a full water borne sewage system. The pipelines and reservoir are however highly unlikely to be decommissioned.

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Potential contamination of the wetland, Mbokodweni River and drainage lines with raw sewage.	Direct	Local	Short – term	Yes – can be managed.	No	Medium	High	It must be ensured that that all pipes and abluion facilities are pumped empty prior to decommissioning. When removing the abluion facilities and pipes, any spills or leaks must be immediately cleaned up. All piping leading to the abluions must be carefully removed if necessary, ensuring that the material contained in the pipes is not allowed to leak or enter watercourses. All trenches along the pipes must be covered. If the tanks or pipes have to be washed prior to removal, the wastewater must be treated as contaminated.	Low	Low
If any tanks are not completely emptied prior to decommissioning there is potential	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	The tanks and pipelines must be pumped empty by an approved contractor prior to decommissioning.	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
for sewage to contaminate soil and nearby water resources.										
Potential contamination of the wetland, Mbokodweni River or drainage lines with rubble and waste.	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	Rubble can be temporarily stored on site in a designated skip until it is ready for disposal. All excess material and rubble must be removed from the site so not to restrict the rehabilitation process. Any rubble produced must be disposed of at a designated landfill site. This must be monitored through a site specific decommissioning EMPr.	Low	Low
Decommissioning activities causing erosion near the wetland, river or drainage lines.	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	Temporary erosion control measures must be implemented to prevent erosion to any watercourse during decommissioning. All exposed areas resulting from decommissioning activities must be rehabilitated with indigenous vegetation to prevent potential erosion on the exposed areas. Decommissioning must be managed with an EMPr that has been designed specifically for the site. A site specific EMPr must be designed to guide the decommissioning process should decommissioning need to occur.	Low	Low
The onsite erosion of	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	As a general principle, contractors must limit vegetation clearing to the	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
exposed soil before rehabilitation is completed.								workable corridor/site along the pipelines only. The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. Only vegetation that needs to be removed to accommodate the decommissioning must be removed in a phased and controlled manner.		
Poor stormwater management during decommissioning can lead to erosion and loss of soil.	Direct	Local	Short – term	Yes – can be managed.	No	Medium	High	Temporary stormwater structures i.e. the use of Hessian bags etc. must be utilised during decommissioning. Decommissioning must be monitored by an independent ECO who must monitor compliance with the decommissioning EMPr	Low	Low
Local community households will no longer be connected to waterborne sewerage resulting again in exposure to unsanitary conditions and an increase in potential for infection by excreta-related diseases.	Direct	Local	Long – term	Yes – can be prevented.	No	High	Low	Local community households will again have no waterborne sewage connections in close proximity resulting in community members again being exposed to potential disease, infection and unsanitary conditions. The decommissioning will only take place should formal housing be developed in this area with access to formal sanitation facilities.	High	High

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Direct impacts on the Mbokodweni River and associated floodplain by community members.	Direct	Local with the potential to impact regionally.	Long – term	Yes – can be prevented.	No	High	Low	With no waterborne sewage, community members will again be forced to use alternative forms of effluent disposal resulting in further potential for contamination of watercourses and the surrounding environment by raw sewage. The decommissioning will only take place should formal housing be developed in this area with access to formal sanitation facilities.	High	Medium
Risk of spills from equipment (oils, fuels etc.) contaminating soil and stormwater.	Direct	Local	Short – term	Yes – can be managed.	No	Medium	High	Any demolition equipment that could leak oil must be placed on a drip tray. Construction vehicles must have a drip tray and any oil leaks must be attended to over a drip tray. All equipment must be in good working order to reduce the likelihood of oil leaks occurring. Any re-fuelling of equipment must occur on a hardened surface, within a designated re-fuelling area where any spills can be contained.	Low	Low

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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.

Alternative A1 and S1 (preferred site)

Construction phase: It is recommended that monitoring be done through monthly environmental construction audits ensuring compliance with an Environmental Management Programme (EMPr). An independent ECO must be appointed to undertake this monitoring process.

Operation phase: The applicant must ensure inspections and scheduled maintenance of infrastructure. A Post Construction Audit (PCA) must be undertaken by the ECO to ensure the EMPr requirements have been met. It is further recommended that a second PCA take place 3/4 months after rehabilitation to monitor the efficiency of the rehabilitation and erosion control.

Assumptions, Uncertainties and Gaps in Knowledge [Regulation 22 (2) (m)]

There are no uncertainties or gaps in the information provided and the EAP is confident that sufficient information has been provided to allow an assessment of the proposal.

3. ENVIRONMENTAL IMPACT STATEMENT

Environmental impact statement with a reasoned opinion as to whether the activity should be authorised or not be authorized; [Regulation 22 (2) (n)]

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

It is the opinion of the EAP that the application submitted for the proposed sewer infrastructure (Alternative S1 and A1) be approved. Wetland specialist recommendations have been incorporated into the Environmental Management Programme (EMPr), which is to be strictly adhered to during construction, the proposal would result in minor environmental impacts. The activity would have a positive social impact on the local community by providing them access to formal sanitation facilities and reducing their exposure to unsanitary conditions that are currently experienced in the area. Employment opportunities for construction and maintenance of the pipelines within the local community will also benefit this area.

Alternative A1 and S1 (preferred alternative)

As part of the "Provision of Water and Sanitation to Informal Settlements within eThekweni Municipality", EWS propose to construct ablution facilities, as well as the upgrade of: the bulk sewer pipeline, bulk water pipeline and reservoir in order to serve the communities immediate needs. The proposed upgraded pipes (water and sewer) will tie-into existing reticulation and will provide future reticulation when the area is developed.

This application has assessed the construction of a number of pipelines, twenty nine communal ablution blocks and the upgrade of: the bulk sewer pipeline, the bulk water pipeline and reservoir, within a section of Kwamakhutha B which are located within 32m of the Mbokodweni River and associated riparian floodplain which form part of the Mbokodweni River catchment.

All potential impacts that may occur during the construction and operational phase of the sewerage facilities have been identified in Section E above and key impacts and mitigation measures are discussed below.

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The potential contamination of the watercourses through poor construction practises, lack of stormwater management and increased risk erosion and sedimentation were identified as main construction impacts associated with this development. The EMPr, attached in Appendix F, has been intended to mitigate pollution/contamination and should be strictly adhered to by the contractor to ensure pollution is avoided. All areas prone to erosion should include the use of temporary stormwater and erosion controls, as indicated in sections 3.4 and 3.10 of the attached EMPr. The rehabilitation of disturbed areas must also be carried out to further ensure the stability of cleared areas and to thus prevent potential erosion and sedimentation of the stream units.

A Watercourse Impact Assessment Report was undertaken by GCS Water and Environmental Consultants and is summarised in Section C of above with the full report available in Appendix D. The wetland specialist acknowledged the degraded state of the stream units and associated vegetation however a number of site specific recommendations were made by the specialists which must be adhered to throughout the construction process. These have been incorporated into the attached EMPr.

With regards to the operational phase of the proposed activity, all rehabilitation measures must be fulfilled upon completion of the construction activities. The rehabilitation will ensure that sedimentation of the Mbokodweni River and associated floodplain does not occur. Through the provision of formal sanitation facilities, the community will have access to formal sewage and ablution facilities which will enhance the living conditions and quality of life for the community. Regular maintenance and monitoring of the pipelines and ablution facilities must be undertaken to identify and prevent any potential spills/damage to pipelines and thereby the surrounding environment during the operational phase.

Both the construction and operational phase of the proposed development are projected to create employment opportunities for members of the community thereby aiding in the reduction of poverty in this area and also improving the community's health and safety.

Methods and protocol to be adhered by all participants, involved during the construction phase, have been indicated in the EMPr attached in Appendix F, recommendations of the Wetland Specialist have also been included in this EMPr. It is predicted that as long as the EMPr is strictly adhered to during the construction process, the proposed development is not expected to have significant impacts on the environment. Provided all the suggested mitigation methods outlines in this report are adhered to, the impacts can be rated as low.

Alternative A2 and S1

N/A

No-go alternative (compulsory)

The 'No-Go' alternative (i.e. not upgrading the sanitation facilities in the Kwamakhutha B area) will continue to lead to the further degradation of the environment and all associated wetland and riparian habitats. The primary goal of providing formal sanitation to the informal settlement within eThekweni Municipality will not be achieved. The implication of this is that the local community members and households will be forced to continue to use other forms of informal ablution facilities and would thus continue to be exposed to unsanitary conditions and potential excreta-related disease. While the risk of leaking sewerage pipelines would not be an impact for the no-go alternative, the Mbokodweni River and associated streams and wetlands would continue to receive raw sewage from the informal facilities currently in use.

Employment which would otherwise be created for local residents during construction and operation will not be created if the 'No-Go' alternative is selected.

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SECTION F. RECOMMENDATION OF EAP

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

YES X	NO

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

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:

1. It is recommended that layout Alternative A1 and S1 (i.e. formalisation of ablution facilities in Kwamakhutha B) be accepted from an environmental perspective.
2. The applicant must ensure that mitigation measures and controls specified in the EMPr are adhered to. The construction of the ablution blocks, upgrade of: the bulk sewer pipeline, bulk water pipeline and reservoir must be monitored by an independent ECO who should ensure compliance with the construction EMPr.
3. It is recommended that environmental construction audits be conducted on a monthly basis. In addition a pre-construction audit and post-construction audit (PCA) must be conducted. A second PCA must take place 3/4 months after rehabilitation to monitor the efficiency of the rehabilitation and erosion control.
4. The contractor and his staff must attend an environmental awareness training course, presented by the site engineer or a suitably qualified EO from the engineers / contractors, prior to construction commencing. The environmental awareness training course should cover the following key aspects: (a) basic awareness and understanding of key environmental features of the work site and the surrounding environment, (b) understanding the importance of, and reasons why, the environment must be protected, (c) ways to minimize environmental impacts, and (d) requirements of the Environmental Authorisation and EMPr. The EAP must be available to aid with any environmentally-based questions.
5. Construction activities must comply with designated working hours and surrounding residents must be informed prior to commencement of construction activities.
6. Emergency contact numbers must be placed at each construction site.
7. Adequate chemical toilet facilities must be provided for all staff members as standard construction practice. The chemical toilets must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
8. Existing infrastructure (i.e. electricity lines, water pipelines) must be identified prior to construction. Any costs associated with negative impacts to these services must be borne by the applicant and should the need arise to disrupt these services for any reason, the relevant authority must be contacted for permission and details of the disruption must be communicated to the affected residents.
9. As there are no formal stormwater drainage facilities on site, the contractor must prepare a Stormwater Control Method Statement (MS) to ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion. The designated responsible person on site, as indicated in the Stormwater MS (usually the contractor) should ensure that no construction work takes place before the stormwater control measures are in place. The Stormwater MS must be submitted to the ECO prior to implementation.
10. The duration of exposed soil must be kept to a minimum and rehabilitation of the disturbed area must be initiated as soon as construction is completed.
11. Materials must be stockpiled in appropriate areas where storm water runoff cannot erode into the stockpile.

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12. Dust control must be implemented throughout the construction phase.
13. Any alien vegetation found within the construction site must be cleared to ensure that invasion of disturbed areas does not occur.
14. Cement mixing must take place on a hard surface or on cement mixing trays. Cement mixing will not be permitted to occur where run off can enter the Mbokodweni River. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
15. Littering must not be permitted on the site and general housekeeping must be enforced.
16. Waste must be stored in the bins within the waste collection area in the construction camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent to the skips / bins and must be disposed of at an appropriate land fill site.
17. Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses and the surrounding environment.
18. All excess material and rubble must be removed from the site so as not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained.
19. Recycling should be undertaken where possible to limit waste added to the landfill site.
20. The watercourse may not be used as a water source by staff unless water abstraction is approved and permitted by DWA.
21. A spill response procedure must be designed to manage spills during construction. Suitable spill kits must be available and staff must be made aware of the spill response procedure.
22. In the event of Heritage resources or artefacts being uncovered during construction, activities around the site must cease immediately and AMAFA must be contacted to investigate the findings.
23. A maintenance plan for the operational phase of the development must be drawn up to monitor and identify any potential spills or leaks along the pipeline or at the ablution facilities and reservoir.
24. Strict adherence to the mitigation measures recommended by the Wetland Specialist, will lead to the magnitude and significance of all the potential impacts being reduced to acceptable levels.
25. No CABs and pipeline structures are permitted from being placed within any sensitive areas in particular, the 1:100 year floodline.
26. A caretaker from the local community, who is trained by EWS, should be appointed following completion of construction. The role of the caretaker includes the education and monitoring of local users, as well as, reporting back to EWS.
27. To reduce the risk of surcharging sewer manholes, the Wetland Specialist (Appendix D), has recommended the use of a gully trap to be installed before the connection of the toilets with the bulk line, this will isolate blockage problems at the source.
28. No manholes are to be established within the watercourse units, with a small buffer zone (+/- 10m) being preserved as far from the watercourse edges as possible.
29. All hazardous storage and refuelling areas must be bunded prior to use on site in order to prevent contamination and pollution entering the watercourses.

SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information

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Appendix A – Site Plan(s)

- Topographical Map indicating the proposed site and adjacent land uses.
- GIS Map illustrating affected land portions.
- Aerial image indicating current land use, existing services & environmental features.
- Aerial image showing the contour intervals.
- Aerial photograph showing location of photographs in Appendix B.

Appendix B – Site Photographs

Appendix C – Facility Illustration(s)

- Proposed Layout of Alternative A1 and S1 (preferred alternative)
- Prefabricated Toilet Layout

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Appendix D – Specialist Reports

- Proposed Mlazi WP 189 New City Sanitation Project: Watercourse Impact Assessment Report (GCS Water and Environmental Consultants, March 2014).

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Appendix E –Comments and Responses Report

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Appendix F – Draft Environmental Management Programme

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Appendix G – Other Information

Public Participation Process

- Signboards
- Notification of Landowner
- Notification of Authorities
- Newspaper adverts
- Distribution of BID and BID
- Registered I & APs
- Notification of release of Draft BAR (To be included in Final BAR)
- Additional project information from the applicant