



agriculture, environmental affairs & rural development

Department:
Agriculture, Environmental Affairs
& Rural Development
PROVINCE OF KWAZULU-NATAL



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

DC/
KZN/EIA/

BASIC ASSESSMENT REPORT

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

This template may be used for the following applications:

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

Kindly note that:

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Agriculture, Environmental Affairs & Rural Development. 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 Agriculture, Environmental Affairs & Rural Development may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture, Environmental Affairs & Rural Development 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):	KZN/EIA/0001466/2014
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:	EnviroPro		
Physical address:	1a Leinster Place, Gillitts		
Postal address:	P.O. Box 1391 Kloof		
Postal code:	3640	Cell:	082 568 3687 082 887 4362
Telephone:	031 765 2942	Fax:	086 549 0342
E-mail:	josette@enviropro.co.za iain@enviropro.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)
Josette Oberholzer	BSc (Hons) MSc	Member of IAIASA EAPSA certified	10
Iain Jourdan	BSoc Sci (Hons)	Member of IAIASA	6
Stephanie Williams	BSc (Hons) MPhil		2

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
Clayton Cook	MSc Zoology UP Pr.Sci.Nat. 400084/08 DWAF accredited to undertake wetland delineations (2008).	Wetlands	Section C	Wetland Assessment for Proposed Sewer Pumping Station; Illovo South, Southern Kwazulu-Natal.

SECTION B: ACTIVITY INFORMATION

1. PROJECT TITLE

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

Construction of the Sewer Reticulation Pipeline in Illovo, eThekweni Municipality.

2. PROJECT DESCRIPTION

Provide a detailed description of the project:

The applicant proposes to construct approximately 3.8 km of sewer pipeline which will be 250mm in diameter. The pipeline consists of a 500m Gravity Main which will originate from the current Illovo Country Club (in the process of being upgraded to the Illovo Country Estate) to a proposed Pump Station. From the Pump Station, a 3.2km Rising Main will connect the pipeline to the existing South Coast Sewer Pump Station. Sewage will then be transferred to the Kingsburgh Wastewater Treatment Works via existing infrastructure.

The sewer pipeline will provide waterborne sewerage to the future Illovo Country Estate's residential development and at a later stage, the municipality will connect a number of other local residences to the upgraded sewer pipeline (approximately 30 new contributors at this stage). The entire pipeline will be placed underground with the majority being located within road reserves. There is an existing subway (un-used) which will be used to cross underneath the National Road (N2) and R102 before the pipeline ties into the existing Pump Station. The proposed pipeline route crosses one stream and three small artificially created drainage furrows. The water is piped underneath a road draining into the transformed valley bottom or sugarcane plantations. The proposed Pump Station will also be located adjacent to a transformed hillslope seepage wetland and therefore environmental authorisation is required for the construction of infrastructure within 32m of a watercourse. A water use licence will also be required for development within 500m of a wetland.

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:

The proposed pipeline route is located within 32m of a watercourse, including a wetland. There are four potential pipeline watercourse crossings. The following Listing Notice 1 activities therefore apply:

11. The construction of:

(xi) infrastructure or structures covering 50 square meters or more Where such construction occurs within a water course or within 32 meters of a watercourse, measures from the edge of a watercourse, excluding where such construction will occur behind the development setback line.

18. The infilling or depositing of any material of more than 5m³ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5m³ from:

(i) a watercourse

According to the South African National Biodiversity Institute's online Geographical Information System, the site falls within the "Southern Coastal Grassland" Ecosystem which is considered "Critically Endangered". Activity 12 under Listing Notice 3 is therefore applicable

and is outlined below:

12. The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.
(a) within a critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA.

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.

Layout Alternatives

Two layout alternatives were submitted to the EAP during the initial stages of the Environmental Impact Assessment (EIA). In both layout alternatives the sewer pipeline begins at the Illovo Country Estate and terminates at the existing South Coast Sewer Pump Station, east of the N2 and R102. Maps showing both layout alternatives have been included in Appendix C and are described below.

Alternative Layout 1 (preferred): A Gravity Fed Sewer Main extends out from the western boundary of the Country Club to a proposed Pump Station. A Rising Main extends from the Pump Station cutting east through Illovo Sugar sugarcane fields. The pipeline continues east towards the N2. It is located on the southern side of Dipping Tank Road (a gravel road). An existing subway will allow the pipeline to travel underneath the N2 and R102 to tie in at the South Coast Sewer Pump Station. Two Pump Station locations were investigated by the engineers and the EAP:

Pump Station Position A (PS A; alternative): Originally, the proposed pump station was to be located at the intersection of Main & Dipping Tank Road, as shown in Figure 1 below. This proposed site fell within the 1:100 year floodline of the Lovu River which could result in the pump station being submerged should a flood of this scale occur (see maps in Appendix A). Secondly, the proposed pump station site would result in the pipeline needing to cross Main Road on two occasions. The engineer has indicated that deep trenching would be required in order to keep up with the sewer design (i.e. gravity fed). These two factors contributed to the relocation of the pump station to a preferred location shown in Appendix C and discussed below.

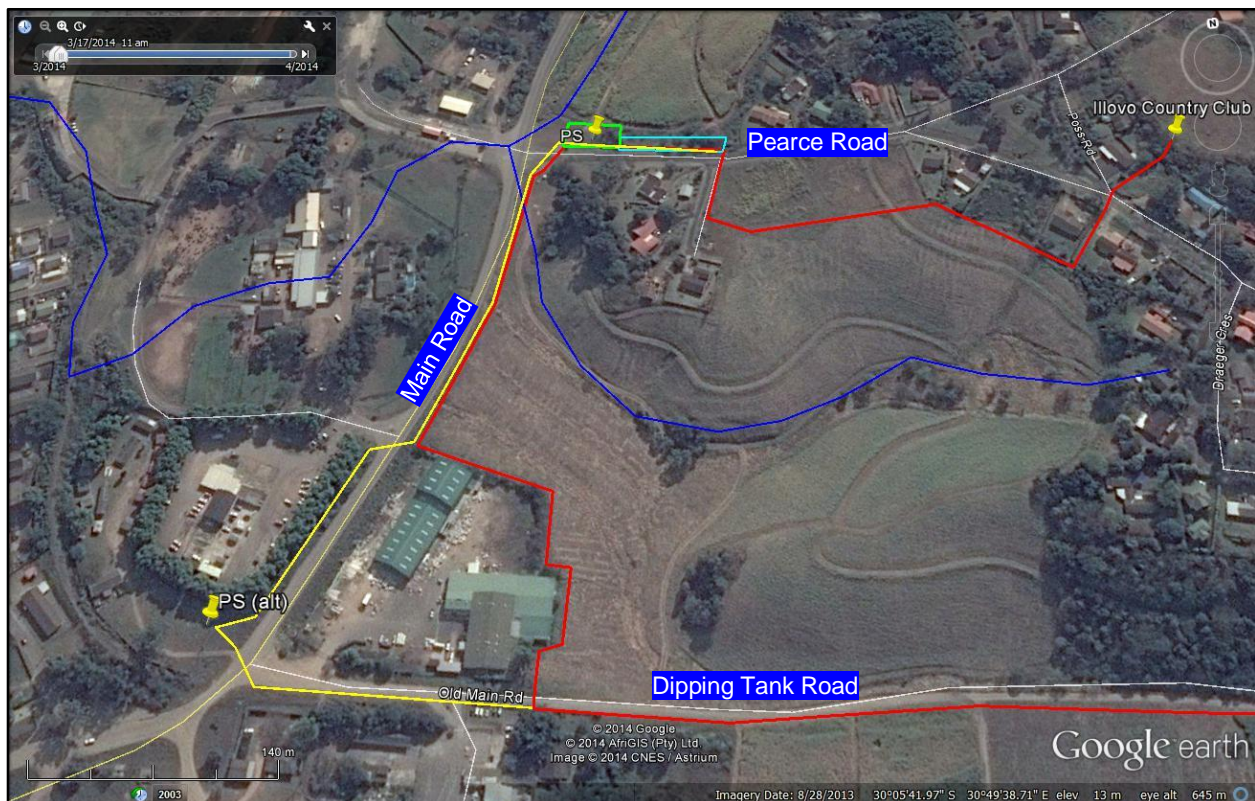
Pump Station Position B (PS B; preferred): The preferred position of the pump station is located at the intersection of Main and Pearce Road (shown in green in Figure 1 below). The new pump station site falls outside of the 1:100 year floodline however is situated within 35m

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of a wet area. A wetland specialist was therefore commissioned to assess the impact of the preferred pump station site on the adjacent drainage line (see section C below).

The proposed Alternative Layout 1 pipeline route crosses **one** major watercourse delineated by eThekweni Municipality's online GIS and **three** drainage lines within the sugarcane fields (Figure 2 below). The pump station is 35m south-east of a wet area where water from the sugarcane fields drains underneath Main Road through an existing culvert in a westerly direction. The pipeline route originally travelled through two sections of coastal forest along Dipping Tank Road however one of these areas has been avoided by re-routing the pipeline to the opposite side of the road. Both layout alternatives pass through the second section of coastal forest (approximately 30m in extent).

Figure 1: Pipeline route Alternative Layout 1 showing the originally proposed route and pump station location in yellow and the newly proposed pump station and route in red (source: Google Earth, 2014)



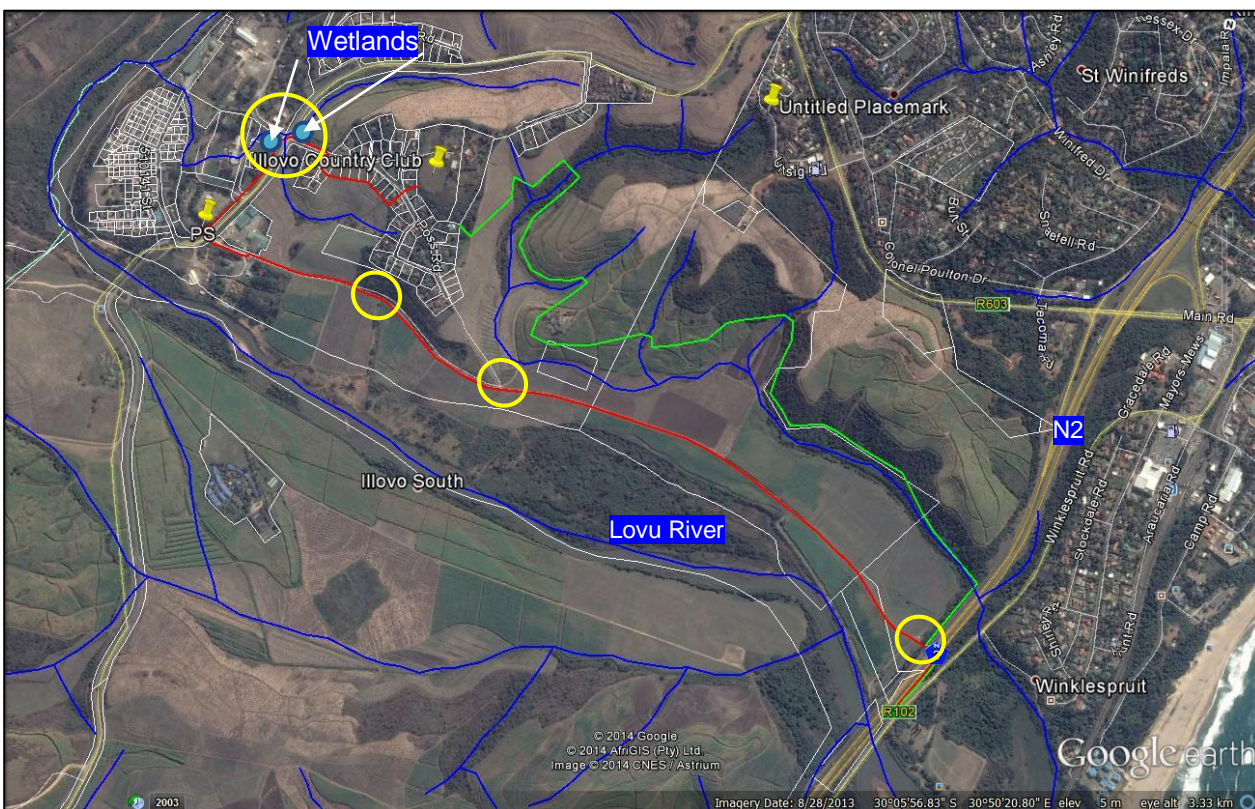
Alternative Layout 2 (alternative): Initially proposed route extending east of the Country Club through Illovo Sugar sugarcane fields (see Figure 2 below and layout in Appendix C). The pipeline would be entirely gravity fed following the contours of the land, which are much steeper compared to Alternative Layout 1. The general route follows a tributary to the Lovu River and crosses **six** major watercourses delineated by eThekweni Municipality's online GIS and various drainage lines throughout the sugarcane fields. Approximately half of the pipeline traverses KZN Coastal Forest before crossing underneath the N2 Highway and R102 before terminating at the South Coast Sewer Pump Station, similar to the preferred layout.

Due to the increased number of watercourse crossed as well as the presence of coastal forest, the EAP recommended that Alternative Layout 1 (L1) be the preferred layout from an environmental perspective. Since the pipeline falls within various road reserves in L1, the disturbance is further reduced compared to L2 where significantly more vegetation would require clearing.

No Go

The proposed sewer pipeline and pump station will not be constructed to provide the Illovo Country Estate and other contributors with a waterborne sewerage connection.

Figure 2: Google Earth Image illustrating the two pipeline route alternatives. Layout 1 (preferred) is illustrated in red and Layout 2 (alternative) in green. Watercourses delineated by eThekweni Municipality are show in blue. Identified drainage lines within the sugarcane fields along L1 are circled in yellow.



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

Alternative S1¹ (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

Latitude (S):

Longitude (E):

0	'	"	0	'	"
0	'	"	0	'	"
0	'	"	0	'	"

In the case of linear activities:

¹ "Alternative S" refer to site alternatives.

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Alternative:

Alternative L1 (preferred route alternative)

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

Latitude (S):

Longitude (E):

30°	05'	38.07"	30°	49'	52.93"
30°	05'	57.49"	30°	50'	18.89"
30°	06'	21.55"	30°	50'	55.97"

In the case of linear activities:

Alternative:

Alternative L2 (route alternative)

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

Latitude (S):

Longitude (E):

30°	05'	41.22"	30°	49'	57.97"
30°	05'	55.12"	30°	50'	41.43"
30°	06'	21.55"	30°	50'	55.97"

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 (please see [Appendix A](#) with co-ordinates taken every 500m) .

6. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred layout as well as alternative activities/technologies (footprints): **N/A**

Alternative:

Alternative A1² (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

	m ²
	m ²
	m ²

or, for linear activities:

Alternative:

Alternative L1 (preferred activity alternative)

Alternative L2

Length of the activity:

	3 712 m
	3 840 m

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

Alternative:

The excavated trench will be approximately 0.6m wide.

Alternative L1 (preferred activity alternative)

Alternative L2

Size of the servitude:

	2227 m ²
	2304 m ²

7. SITE ACCESS

Does ready access to the site exist?

YES x	NO
m	

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

Describe the type of access road planned:

² "Alternative A.." refer to activity, process, technology or other alternatives.

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.

The roads associated with accessing the site include Old Main Road, Dipping Tank Road, Pearce Road and Poss Road, Illovo (indicated in Appendix A).

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;
- 8.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers, streams, drainage lines or wetlands;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 8.10. the positions from where photographs of the site were taken.

9. SITE PHOTOGRAPHS

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

10. FACILITY ILLUSTRATION

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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?

R 2.5
million

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

R 2.82
million

Will the activity contribute to service infrastructure?

YES	NO
x	

Is the activity a public amenity?

YES	NO
x	

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

15

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

R 350 000

What percentage of this will accrue to previously disadvantaged individuals?

100 %

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

1

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

R 978 620

What percentage of this will accrue to previously disadvantaged individuals?

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 primary purpose of the proposed pipeline is to provide a sewage connection for the Illovo Country Estate currently under development. The proposed gravity main will also provide a waterborne sewerage connection to approximately 30 new contributors from residents surrounding the Illovo Country Estate who do not have access to waterborne sewerage. This is not including potential contributors upstream in the higher catchments, for which the proposal has made allowance for. There are areas occupied by light industry and residential components towards the south of the study site, which are currently on municipal sewerage which gravitates to Copesville Pump Station. This Pump Station currently pumps to the South Coast Pump Station via the **south** bank of the Lovu River. It is the intention of the City to do away with this Rising Main, which is vulnerable to the flooding of the Lovu River and impacts negatively on the planned developments on the south bank. The City has therefore requested that the newly proposed Pump Station be oversized to allow the Municipality to develop other areas further upstream. The proposed Pump Station will thus contribute greatly to the development of the Lower Illovo Region.

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

The proposed development will provide a variety of households with waterborne sewerage connections in the immediate area as well as contributors higher up in the catchment. The Pump Station will stimulate development of sewerage connections further upstream of the Lower Illovo Region.

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

As above, the development will provide the local community with waterborne sewerage connections.

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:
1. National Environmental Management Act	All government bodies	1998
2. National Water Act	DWA	1998
3. National Environmental Management Waste Act	DEA	2008
4. Environmental Conservation Act	DEA	1996
5. National Environmental Management Biodiversity Act	DEA	2004

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 x	NO
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If yes, what estimated quantity will be produced per month?

5 m³

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

Since the pipeline will be buried in a trench, construction rubble is likely to be minimal. Any waste will however be collected in a skip and disposed of at a registered landfill site by the appointed construction contractor or by a certified waste contractor.

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

Should any material require disposal, this will be disposed of at either the Lovu Landfill or incorporated into the Illovo Municipal Waste Stream.

Will the activity produce solid waste during its operational phase?

YES	NO x
-----	---------

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

N/A m³

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

N/A

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

N/A

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

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

YES	NO x
-----	---------

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

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

YES	NO x
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facility?

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If yes, contact the KZN Department of Agriculture & 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
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If yes, what estimated quantity will be produced per month?

N/A m ³	
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Will the activity produce any effluent that will be treated and/or disposed of onsite?

Yes	NO x
-----	---------

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

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

YES	NO x
-----	---------

If yes, provide the particulars of the facility: N/A

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

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

N/A

13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

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

YES	NO
-----	----

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

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

N/A

13.4. Generation of noise

Will the activity generate noise?

YES x	NO
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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:

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There will be limited, temporary noise generated from the construction vehicles used during construction. The Pump Station will not generate any noise during operation.

14. WATER USE

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

Municipal x	water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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This will only be during the construction phase.

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 litres

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

YES x	NO
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If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

The relevant application forms are to be submitted to the Department of Water Affairs. The wetland specialist has stated on page 41 of the wetland assessment that "as the proposed sewerage pumping station is situated within transformed hillslope seepage wetlands and adjacent to artificially created drainage channels and drainage lines; development will usually require a Water Use Licence". The EAP is of the opinion that provided the recommended mitigation measures are followed during the construction and operational phases (page 41 of wetland assessment), it is unlikely that the pump station will impact the wetland functionality or health.

15. ENERGY EFFICIENCY

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

N/A

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

N/A

SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION

Important notes:

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

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

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative L1:

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

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

Alternative L1 (preferred):

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain x	Undulating plain/low hills	Dune	Sea-front
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3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

YES x	NO
----------	----

If YES, please complete the following:

Name of the specialist:	Clayton Cook		
Qualification(s) of the specialist:	MSc Zoology UP Pr.Sci.Nat. 400084/08 DWAF accredited to undertake wetland delineations (2008)		
Postal address:	-		
Postal code:	-		
Telephone:	-	Cell:	082 688 9585
E-mail:	Giant.Bullfrog@gmail.com	Fax:	-

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

YES	NO x
-----	---------

If YES, specify and explain:

The majority of the pipeline route will travel through road reserves which are already cleared of vegetation apart from where the pipeline traverses a section of sugarcane field. A 30m section of "coastal forest" is traversed however the site inspection shows that the pipeline will be run adjacent to the road where there is a high level of disturbance and invasion and no tree species requiring removal during construction.

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

YES x	NO
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If YES, specify and explain:

According to the South African National Biodiversity Institute's (SANBI) online Geographical Information System (GIS), approximately 500m of the pipeline

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falls within the Lovu Coastal Wetland (see map in Appendix A). This section of pipeline is located within the Dipping Tank Road reserve in sugarcane fields. The Lovu Coastal Wetland has been identified as a National Freshwater Ecosystem Priority Area (NFEPA). The aim of delineating NFEPA's is to feed into the National Biodiversity Assessment (2010) to ensure that the importance of conserving biodiversity in these areas is highlighted on a national scale as well as maintaining a certain water quality associated with the river. Due to the sand mining activities along the Lovu River Estuary, it is likely that this Estuary was declared a NFEPA. The pipeline will however be located underground and will not impact on the biodiversity of the area, specifically the Lovu Coastal Wetland.

The traditional material for sewerage infrastructure is an unplasticized Poly(vinyl) chloride (uPVC) pressure pipe, with the appropriate pressure rating. The sewer pipes will therefore be made from uPVC, which is commonly used as it requires little maintenance, has a strong resistance to chemicals as well as water therefore no rust and no cathodic protection needed. There are however sections where the pipeline is exposed above ground; where the pipeline crosses underneath the N2 and R102 subway and a small section where a culvert will be built along Dipping Tank Road (see engineering drawings in Appendix C). The engineer has stated that galvanised mild steel lined coated with Copon and wrapped in Denso and reflective tape will be used in these exposed sections as it is structurally better compared to uPVC. Along with this pipeline design and the required maintenance during operation, the proposal should not impact the NFEPA.

The wetland specialist rated this section of wetland as "highly modified" with the sugarcane fields and various roads resulting in a transformed drainage system with seasonally inundated channelled valley bottom wetlands and non-perennial drainage lines. The specialist concluded on page 38 of the wetland assessment report (Appendix D) that the "construction of the pump station on the alternative site should not impact the wetland functionality or health provided that the prescribed mitigation measures are implemented". These measures have been included in the EMPr attached under Appendix F. The pipeline itself bisects four drainage lines which have been artificially created to drain surface and subsurface water from the sugarcane plantations (see Figure 2 above). The drainage channels and drainage lines are seasonally inundated or wet.

Initially, the majority of the pipeline and pump station was located within the 1:100 year floodplain of the Lovu River however the pump station has been relocated to avoid the 1:100 year floodline. Since the pump station site no longer falls within the 1:100 year floodline, the alternative pump station site is the preferred alternative from a wetland perspective (page 40 of the wetland assessment provided in Appendix D).

The project engineer has acknowledged the location of the 1:100 year floodline and provided various design measures to ensure that the pipeline can withstand a 1:100 year flood as well as preventing corrosion which could potentially be associated with high saline content of the soils. The engineer has stated that the section of rising main is a closed system which is always kept in a filled condition, with the use of non-return valves at the pump stations. The closed system stabilises the pipeline in the event of a flood. Additionally, as stated above, uPVC will be used to construct the pipeline, which is traditionally used for waste water pipelines due to its resistant characteristics.

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

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If YES, specify: -

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

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
--------------------------------------------	--------------------------------

Signature of specialist: - Date: -

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

	Alternative L1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	YES <input type="checkbox"/>
Dolomite, sinkhole or doline areas	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>
Seasonally wet soils (often close to water bodies)	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	YES <input type="checkbox"/>
Unstable rocky slopes or steep slopes with loose soil	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>
Dispersive soils (soils that dissolve in water)	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>
Soils with high clay content (clay fraction more than 40%)	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	YES <input type="checkbox"/>
Any other unstable soil or geological feature	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>
An area sensitive to erosion	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>

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

4. GROUND COVER

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

YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
---------------------------------	-------------------------------------------

If YES, please complete the following:

Name of the specialist:	N/A		
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
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 <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	

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If YES, specify and explain:

According to the SANBI GIS, the pipeline falls within sections of “Interior South Coast Grassland”, a critically endangered ecosystem in terms of section 52 of the National Environmental Management: Biodiversity Act. After consulting aerial photography and a site visit to the area, it is evident that natural vegetation is highly restricted along the route of the pipeline with the majority of the route falling in sugarcane fields or disturbed road reserves. The wetland specialist has also stated that the vegetation associated with the proposed pump station site “comprised of regularly maintained mowed lawns with a few pioneer weedy plant species”.

One patch of potentially intact coastal forest was identified north of Dipping Tank Road and has been avoided by rerouting the pipeline to the other side of the road. Another section delineated as coastal forest occurs between the N2 and R102 before the pipeline terminates at the South Coast Sewer Pump Station. The EMPr is to ensure that all trench excavation in this 32m stretch is manually carried out preventing unnecessary clearance of vegetation. Photographs in Appendix B show that there is little undergrowth below the canopy and therefore minimal clearance is required. There was also substantial coverage by invasive creeper species and *Solanum Mauritanum* (Bugweed).

Due to the sites close proximity to the Lovu River, sections of the pipeline route fall with eThekweni Municipality’s Durban Metropolitan Open Space System (D’MOSS) however, all D’MOSS delineated areas relevant to this application are currently cultivated sugarcane fields. The pipeline runs adjacent to an existing road through this D’MOSS area and will be located underground. This will result in any biodiversity corridors, still associated with this disturbed section of D’MOSS, remaining intact once construction is complete.

Maps indicating all the above sensitive areas have been provided in Appendix 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

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).

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy infestation ^E	Veld dominated by alien species ^E	Gardens
	Cultivated land <input checked="" type="checkbox"/>	Paved surface	<input checked="" type="checkbox"/>	Bare soil <input checked="" type="checkbox"/>

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

5. LAND USE CHARACTER OF SURROUNDING AREA

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

Land use character	YES	NO	Description
Natural area	YES x	NO	<p>The majority of the proposed pipeline (98%) and pump station will be located within road reserves which have already been cleared and disturbed however natural areas are located within 500m of the route. These areas include a small wetland (Figure 3 below), the Lovu River, drainage lines and two section of KZN coastal forest.</p> <p>Due to the small footprint that will be associated with the pipeline (trench approximately 0.6m in width), the natural areas can be avoided. During the construction phase, spoil sites, erosion control and waste management are to be monitored according to the attached Environmental Management Program (EMPr; Appendix E) to ensure the natural areas are avoided and thus there will be little change to these areas and the surrounds.</p> <p>There should be no operational impacts on the natural areas provided that the pipeline and pump station are constructed according to the engineering drawings attached under Appendix C. uPVC will prevent rusting and ensure that there are no leaks in the pipeline in the event of a flood.</p>
Low density residential	YES	NO x	
Medium density residential	YES x	NO	The pipeline runs through an area of medium density residential units when it leaves the Illovo Country Club and runs adjacent to Pearce Road before intersecting with Main Road.
High density residential	YES	NO x	
Informal residential	YES	NO x	
Retail commercial & warehousing	YES	NO x	
Light industrial	YES x	NO	A section zoned as light industry exists where the Rising Main leaves Main Road and ties in at Dipping Tank Road / Old Main Road. Calicom Trading (Pty)

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			Ltd. currently occupies this site.
Medium industrial	YES	NO x	
Heavy industrial	YES	NO x	
Power station	YES	NO x	
Office/consulting room	YES x	NO	There are potentially offices within 50m of the proposed pump station and pipeline route. These are accessed off Dipping Tank Road, south of the proposed pipeline.
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	NO x	
Hospital/medical centre	YES	NO x	
School/ crèche	YES	NO x	
Tertiary education facility	YES	NO x	
Church	YES x	NO	There are two places of worship located within 500m of the south-west corner of the pipeline route (near Dipping Tank Road). A church and a temple are located approximately 250m west of the pipeline.
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 x	NO	The pipeline crosses underneath the N2 Highway before it terminates at the existing South Coast Sewer Pump Station. The South African National Rail Agency Limited (SANRAL) have been notified of the project and included in the I & AP register in Appendix E.
Airport	YES	NO x	
Harbour	YES	NO x	
Sport facilities	YES	NO x	

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Golf course	YES	NO x	
Polo fields	YES	NO x	
Filling station	YES	NO x	
Landfill or waste treatment site	YES x	NO	The eThekweni Waste and Sanitation Illovo Depot is located west of Main Road, approximately 50m from the pipeline route.
Plantation	YES	NO x	
Agriculture	YES x	NO	The majority of the pipeline route is located within Illovo Sugar sugarcane fields (approximately 75%) of the route. Illovo Sugar has been notified of the application and included as an I & AP (see Appendix E).
River, stream or wetland	YES x	NO	<p>The Lovu River lies approximately 88 m to the proposed pipeline route at its closest proximity.</p> <p>An eThekweni delineated stream, which is a tributary to the Lovu River, flows underneath Main Road. The pipeline will be constructed underneath this stream. Wetland areas have established around this tributary which is show in Figure 3 above and Figure 4 below. The pipeline route was amended to avoid the wetland on the west of Main Road, which is now located approximately 30m away from the pipeline. The proposed pump station is positioned 35m of a transformed hillslope seepage wetland where water drains off the sugarcane fields and accumulates adjacent to Main Road. The pump station has been positioned 30m away from the road to avoid impacting any stormwater runoff currently associated with the road. The wetland specialist concluded that the construction of the pump station should not impact on the functionality and health of the wetland system which was rated as “highly modified” in this section.</p> <p>The pipeline crosses three drainage lines within the sugarcane fields also indicated in Figures 3 & 4 below. The project engineer has stated that the pipeline will be laid approximately 1.5m below ground and will therefore travel underneath the drainage lines not impacting surface flow during operation.</p>

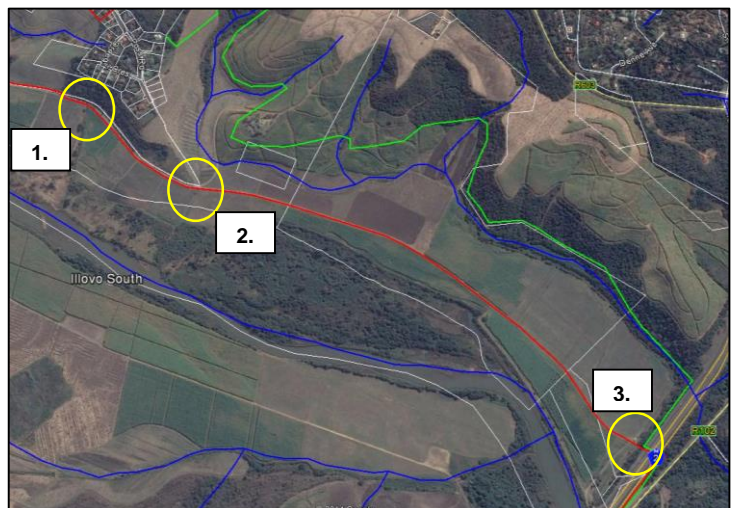
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			<p>These drainage lines have been impacted by the planting of sugarcane and carry storm water run-off during rainfall events. Please refer to photographs in Appendix B.</p> <p>The construction of the pipeline will be carefully managed through provisions within the EMPr which are monitored by an independent Environmental Control Officer. Since the pipeline is located within road reserves or existing sugarcane fields, there will be minimal vegetation clearing. The gentle topography will also decrease the erosion potential during construction.</p>
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	NO x	

Figure 3: Wetland areas shaded in blue with the pipeline route illustrated in red. The proposed pump station is shown in green.



Figure 4: Yellow circles indicating the position of the drainage lines crossed.



TOGETHER WE HAVE MADE KZN A BETTER PROVINCE TO LIVE IN.

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

YES	NO x
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If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

SECTION D: PUBLIC PARTICIPATION

The following steps were followed during the public participation process.

- The landowners of the properties which the proposed pipeline passes through were notified of the application.
- Signboards were placed in the vicinity of the proposed pump station site and at the intersection of Main Road and Pearce Road visible to passing traffic and residents close to the Illovo Country Club.
- Notices were hand delivered to all residents and neighbours adjacent to the pump station site and pipeline route. Where notices could not be delivered, they were placed in post boxes.
- A meeting was held with the Ward Councilor to discuss the project details.
- An advert was placed in the south Coast Fever (community) newspaper.
- Relevant authorities and stakeholders were notified by e-mail including eThekweni Municipality, Department of Water Affairs, Department of Agriculture Forestry and Fisheries, EKZN Wildlife, Department of Transport and the South African National Road Agency Limited.
- A copy of the BAR will be made available to all registered 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—

- 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—
 - the site where the activity to which the application relates is or is to be undertaken; and
 - any alternative site mentioned in the application;
- giving written notice to—

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- (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)
 - (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.

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Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE PROCESS

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

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

5. COMMENTS AND RESPONSE REPORT

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

6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

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

Has any comment been received from the district municipality?

YES	NO x
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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

N/A

Has any comment been received from the local municipality?

YES	NO x
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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

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

South African National Road Agency Limited (SANRAL) commented on the notice of application stating the requirement for a wayleave for the portion of pipeline crossing the National Road and running parallel to it. Further details can be made available during the design phase.

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.

All relevant identified stakeholders have been notified and provided with a copy of this report. Any comments received will be included in the comments and response table in Appendix E, which is to be submitted with the Final 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):

N/A

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

There are no impacts associated with the planning and design phase.

2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

- a. Site alternatives
- b. Process, technology, layout or other alternatives

2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

- a. Site alternatives
- b. Process, technology, layout or other alternatives

LAYOUT ALTERNATIVES

Layout Alternative 1 (Preferred); Pump Station Position B (Preferred)

Proposed pipeline route and pump station positioned on at the intersection of Main and Pearce Road.

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CONSTRUCTION PHASE

Impacts The following lists the potential impacts associated with the construction phase and is applicable to the proposed site.	Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<ol style="list-style-type: none"> 1. Generation of emissions from construction vehicles. 2. Dusty conditions generated by construction vehicles travelling over exposed soil. 3. Damage to properties, fencing sugarcane crops during laying of pipework. 4. Excavation of trenches resulting in large areas of land being cleared increasing the risk of erosion of the exposed soil prior to the rehabilitation of the construction area. 5. Trenches remaining open for long periods of time, causing them to collapse, creating an erosion and safety hazard. 6. Incorrect filling of trenches on completion creating points of erosion, especially on slopes and near the drainage lines. 	<ol style="list-style-type: none"> 1. All construction vehicles will be fitted with the appropriate silencers and exhausts. Emissions generated from these vehicles will be negligible and are not expected to significantly affect surrounding residents. A complaints register is to be kept on site during construction and any complaints received are to be addressed promptly. 2. A water cart will be used to dampen dusty surfaces and suppress dust. 3. For the most part, the pipeline will be laid within the road reserve. However if any residential properties are likely to be affected, the contractor will liaise with the neighboring residents. Sugarcane will be required to be cleared where the Dipping Tank Road reserve is not wide enough to accommodate the trench. The pipeline trench will be approximately 0.6m wide and 1.5m deep. 4. The gradient of the entire study site is very gentle and therefore the risk of erosion is reduced however, disturbed areas will be rehabilitated and re-vegetated as soon as possible during construction. Cleared areas may not be left exposed for long periods of time and should be re vegetated in stages on completion of a section of the pipework. 5. Trenches must not remain open indefinitely. Trench work must be completed in sections and then closed once the pipe has been laid in that section. Small inspection holes may be left open along the route but the rest of the trench must be closed. Cleared areas may not be left exposed for long periods of time and must be re vegetated as each stage of pipework is completed. Trenches must not remain open during building shut down periods i.e. over Christmas and Easter. Trench work must be planned so that trenches are closed before these shut down periods as there is a risk that the trenches will either collapse or fill with water if left unattended and this can create a hazard for children and animals. Sections of trench near homes and pedestrian walking areas must be clearly demarcated. 6. Care must be taken to ensure that when closing trenches, soil is compacted sufficiently and left so that the level of the trench is slightly higher

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<p>7. Stormwater runoff during construction of the proposed pump station platform impacting the adjacent wetland (i.e. water with increased velocity resulting in scouring, increase in sediments and potential pollutants).</p> <p>8. Damage to the three drainage lines within the sugarcane fields crossed by the sewer pipeline during trenching.</p> <p>9. Damage to the wet area adjacent to the proposed pump station position (e.g. sediment and waste input during construction).</p>	<p>than the surrounding land, to allow settling. Should soil settle below the level of the surrounding land, it will leave a depression along which water will travel and this could create a focal point for erosion. Rehabilitation through replanting of indigenous grass species soon after closure will aid in stabilising soil and preventing erosion and will also assist in controlling dust release.</p> <p>7. The platform has been positioned 35m from the wetland boundary creating a buffer for stormwater to diffuse prior to draining into the wetland however the wetland specialist recommends that a gabion basket and mattress should be installed adjacent to the artificially created drainage channel to prevent surface stormwater runoff rich in sediments and other pollutants from entering the drainage line. The pump station has also been positioned 30m away from the road to avoid impacting any stormwater runoff currently associated with the road. The wetland specialist concluded that the construction of the pump station should not impact on the functionality and health of the wetland system which was rated as “highly modified” in this section. The storing of equipment or soil is not permitted in or adjacent to the wet areas. This has been included in the site specific EMP.</p> <p>8. Where the pipeline crosses the three drainage lines, the trench will be excavated 1.5m deep which will allow the pipeline to be buried underneath the stream. The trench is to be limited in extent (footprint) as well as the duration that areas are exposed. No storage of materials may occur within the drainage line or within 32m of it. No vehicles may park or drive through this area. Excavated material must be re-used or removed on completion of these sections to avoid entry of material into the drainage lines, especially during heavy rainfall events. The wet areas identified during the site visit appeared to be a collection point for water runoff from the sugarcane fields, however they should be treated as sensitive areas during construction (see Appendix A and B) and must therefore be avoided. Layouts in Appendix C indicate how the pipeline will cross the existing gravel road culvert (on Dipping Tank Road).</p> <p>9. The wet area is to be demarcated prior to construction of the pump station commencing to ensure that no workers or construction material encroach into the wetland. No stockpiling is to occur directly adjacent to this area and stormwater is to be controlled to ensure excess</p>
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<p>10. Clearing of vegetation within the Interior South Coast Grassland ecosystem during laying of the pipeline route and access road resulting in loss of indigenous vegetation and coastal forest.</p> <p>11. Temporary increase in waste and litter due to the construction process.</p> <p>12. Contamination of the receiving environment due to inappropriate storage and usage of hazardous materials and substances (cement, fuel etc.)</p> <p>13. Improper disposal of construction rubble i.e. illegal burying or dumping of rubble preventing rehabilitation.</p>	<p>sediment or waste does not drain into the wetland. The wetland specialist has stated that a gabion basket and mattress should be installed adjacent to the artificially created drainage channels and drainage lines to prevent surface stormwater rich in sediments and other pollutants from entering the system.</p> <p>10. During the site visit, it became evident that the site has been completely transformed compared to its original vegetative state. The majority of the pipeline will be located within road reserves which results in limited vegetation requiring clearance. Where the pipeline is not in a road reserve, it passes through sugarcane fields where there is no indigenous vegetation. The middle section of the pipeline avoids a natural forest patch on the northern side of Dipping Tank Road however crosses approximately 30m of vegetation demarcated as coastal forest adjacent to the N2. No large trees will be removed as the trench is only 600mm in width and runs adjacent to the road where vegetation is primarily invaded and disturbed bush. In order to reduce the footprint, no vehicles will be allowed in this section during construction and the trench will be dug by hand. Only limited undergrowth will be cleared along the length of the trench. During the site visit, it was noted that the patch of coastal forest is heavily invaded by Bugweed and other invasive species. The Pump Station is located on a patch of grass adjacent to Main Road. Where vegetation has been removed, this is to be replaced with indigenous species.</p> <p>11. Littering will not be permitted along the length of the site with adequate waste receptacles being available. Waste management will be controlled through the implementation of the EMPr.</p> <p>12. There will be limited hazardous materials and substances required for construction however any materials of a hazardous nature will be stored within a secured area in the construction camp. No storage of material is to occur within 15m of any water course/ drainage line. The storage area will be a hard surfaced, bunded and covered area. It is anticipated that limited cement mixing will be required however this must be done on a hard surface that is protected from storm water runoff.</p> <p>13. Contractors will be required to dispose of construction rubble at an appropriate landfill site. Delivery notes and safe disposal certificates to prove appropriate disposal will be required during the construction audits</p>
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<p>14. Insufficient number of toilet facilities resulting in unsanitary conditions on site.</p> <p>15. Inappropriate disposal of toilet waste resulting in the contamination of the environment.</p> <p>16. Generation of noise during excavation and construction of the pump station.</p> <p>17. Contaminated run off polluting the adjacent water course and drainage lines.</p> <p>18. Encroachment of alien vegetation into areas disturbed during construction.</p> <p>19. Speeding construction vehicles creating unsafe working conditions and putting pedestrians at risk.</p> <p>20. Damage to existing services along the length of the pipeline route (e.g. bulk water pipelines and electricity poles).</p> <p>21. Construction along the 500m section of pipeline where the pipeline bisects the Lovu Coastal Estuary, a NFEPA, potentially impacting on the priority area.</p>	<p>conducted by an independent environmental consultant.</p> <p>14. Appropriate and sufficient toilet facilities will be provided by the contractor and will be controlled through the EMPr.</p> <p>15. Toilet facilities must be provided by a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates will be kept on record. Any spills must be immediately contained and the spilled material disposed of appropriately. Toilets may not be located within 15m of any water course or drainage line.</p> <p>16. All construction vehicles must be fitted with standard silencers. The noise generated will be a temporary impact during construction. A complaints register is to be made available on site during construction and complaints addressed promptly.</p> <p>17. It is unlikely that there will be any contaminated run off from the proposed development however, the engineer must ensure that only clean storm water runoff enters the environment. Any contaminated run off resulting from construction must be collected and disposed of.</p> <p>18. The construction EMPr specifies that alien vegetation will not be allowed to encroach onto the site and must be continually removed. The trench is to be vegetated as soon as construction is complete.</p> <p>19. Speed limits must be obeyed and enforced. As above, a complaints register is to be made available on site during construction.</p> <p>20. Existing services are to be identified prior to construction commencing. The engineer has indicated electrical poles and a water meter that will need to be re-positioned (see drawings in Appendix C). The relevant authorities are to be contacted by the Contractor.</p> <p>21. The aim of delineating NFEPA's is to ensure that the importance of conserving biodiversity in these areas is highlighted as well as maintaining a certain water quality associated with the river. Since the pipeline will however be located underground, it will not impact on the biodiversity of the area, specifically the Lovu Coastal Wetland. Provided that the mitigation measures are adhered to it the EMPr during construction, it is unlikely that the pipeline will</p>
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<p>Indirect impacts: 22. Unsustainable sourcing of raw materials such as gravel, sand, water etc. which could result in the promotion of illegal mining operations which can cause significant damage to the environment.</p> <p>Cumulative impacts: 23. Construction pollution and increased sediment draining into the Lovu estuary from across the site.</p>	<p>have any impact on the water quality associated with the Lovu River, 130m from the pipeline in this section.</p> <p>Indirect impacts: 22. The implementation of the EMPr will manage these issues. Contractors must provide proof of sustainable sourcing of materials i.e. permits for quarries and sand winning operations from which stone and sand have been obtained where applicable.</p> <p>Cumulative impacts: 23. Provided the EMPr is effectively during construction, this should ensure the control of erosion and stormwater runoff which would mitigate this cumulative impact. Construction vehicles are not to be washed in/near the Lovu River.</p>
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OPERATIONAL PHASE

Impacts The following lists the potential impacts associated with the operational phase and is applicable to the proposed site.	Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<ol style="list-style-type: none"> 1. Improved service delivery in the form of a municipal sewerage connection for residents who are currently utilizing septic tanks and provision of waterborne sewage for the new Illovo Country estate development. 2. Erosion around the drainage lines where the pipe has crossed underneath. 3. Placement of pipes in the beds of water 	<ol style="list-style-type: none"> 1. This is a positive impact. 2. The flat topography and current size of the drainage lines (approximately 1m wide) will significantly reduce the risk of significant erosion from occurring however the construction method will contribute to erosion avoidance. Once the pipe has been laid, the engineer has indicated that it will be underneath the drainage lines and there should not be any associated ongoing impact. The area of disturbance will be minimal due to the small pipe and trench size. It must also be ensured that trench rehabilitation has been effectively carried out before contractors leave the site, especially when approaching the drainage line crossings. Soil in the trenches must be compacted effectively to the same level or slightly higher than the surrounding land to prevent settling which could create depressions for water to travel along, creating erosion funnels and exposing the pipeline. It must be ensured that indigenous grasses are replanted after the soil has been compacted and that this vegetation has taken successfully before contractors leave the site. The pipeline is to be maintain by the Municipality, who is to report any significant erosion to the relevant personnel. 3. Due to the nature of the drainage line, which is

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<p>courses impacting on the flow regime of the drainage line through the sugarcane fields.</p> <p>4. Long term impact on vegetation and biodiversity within the immediate area.</p> <p>5. Potential leak of sewage into the surrounding environment and draining into the wetlands and Lovu River Estuary.</p> <p>6. Noise from the Pump Station disturbing adjacent properties.</p> <p>Indirect impacts:</p> <p>7. Potential future sewerage connection for the Lower Illovo Region.</p> <p>Cumulative impacts:</p> <p>8. Increase in sewage directed to the Kingsburgh Wastewater Treatment Works.</p>	<p>mainly driven by stormwater run-off, and the small footprint of the trench, it is highly unlikely that the flow regime will be altered. The pipeline will run underneath the drainage line and will be encased in a galvanized mild steel as shown in the drawings in Appendix C.</p> <p>4. In terms of what is proposed and what was noted during the site visits, it is not expected that the pipeline and Pump Station will have a significant impact on biodiversity. Once the pipeline is in the ground, there will be no further impacts during operation as the pipeline will be buried and the cleared area re-planted. Furthermore the pipeline route is focused along road reserves keeping it within more disturbed areas.</p> <p>5. The pipeline will be constructed out of uPVC (class 9), which is the traditional material used to construct waste water pipelines due to its resistant nature. The pipeline and pump station will also be monitored and maintained during operation. Leaks or faults in the pipeline are to be reported to the relevant personnel as soon as detected.</p> <p>6. The Pump Station will be designed to meet the legal noise level limits that have been set and will not be a disturbance to neighboring properties. The Pump Station will be enclosed in a building which will provide a shield to further minimize the noise level. The closest residential unit to the Pump Station is approximately 40m away.</p> <p>Indirect impacts:</p> <p>7. This is a positive impact. The Municipality has requested that the Pump Station and pipeline be bigger than currently required in order to make provisions for a future extension into the Lower Illovo Region, which currently do not have a municipal connection.</p> <p>Cumulative impacts:</p> <p>8. eThekweni Water and Sanitation have confirmed capacity for the Illovo Country Estate provided that the sewers are designed to their standards and drawings approved by the Department (Appendix G).</p>
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LAYOUT ALTERNATIVES

Layout Alternative 1 (Preferred); Pump Station Position A (Alternative)

Proposed pipeline route and pump station positioned at the intersection of Main Road and Dipping Tank Road.

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CONSTRUCTION PHASE

<p>Impacts The following lists the potential impacts associated with the construction phase and is applicable to the proposed site.</p> <ol style="list-style-type: none"> 1. Construction impacts (apart from impact 9) will be the same as those discussed in the previous section for Layout Alternative 1, Pump Station Position B. 2. Damage to Main Road where the pipeline crosses underneath the road on two occasions. 	<p>Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:</p> <ol style="list-style-type: none"> 1. Mitigation measures will be the same as those discussed in the previous section for Layout Alternative 1, Pump Station Position B. 2. The road is to be returned to its original state once the pipeline has been laid. Road work to be carried out during low peak traffic hours to reduce the delay during construction. This impact can be avoided by relocating the pump station to Position B as it is no longer necessary to cross the road.
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OPERATIONAL PHASE

<p>Impacts The following lists the potential impacts associated with the operational phase and is applicable to the proposed site.</p> <ol style="list-style-type: none"> 1. Operational impacts will be the same as those discussed in the previous section for Alternative Layout 1, Pump Station Position B. 2. Since the proposed pump station position is within the 1:100 year floodline, there is the possibility of a leak or rupture in the event of a 1 in 100 year flood. 	<p>Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:</p> <ol style="list-style-type: none"> 1. Mitigation measures for impacts will be the same as those discussed in the previous section for Alternative Layout 1, Pump Station Position B. 2. In order to avoid this impact, the pump station was relocated to the preferred alternative, PS A, which is outside of the 1:100 year floodline.
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LAYOUT ALTERNATIVES

Layout Alternative 2 (Alternative)

CONSTRUCTION PHASE

<p>Impacts The following lists the potential impacts associated with the construction phase and is applicable to the proposed site.</p> <ol style="list-style-type: none"> 3. Construction impacts will be the same as those discussed in the previous section for Layout Alternative 1. 4. Disturbance of a 1.3km stretch of coastal forest due to placement of the pipeline route along the contours. 5. Increase risk of erosion associated with the steeper gradient associated with Layout Alternative 2. 	<p>Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:</p> <ol style="list-style-type: none"> 3. Mitigation measures will be the same as those discussed in the previous section for Layout Alternative 1. 4. Contractors will be required to clear vegetation along the pipeline route where it passes through vegetation demarcated as coastal forest. It is recommended that a vegetation specialist be commissioned to identify any protected tree species prior to construction in the event that Alternative Layout 2 is authorized as permits may be required. Vegetation will be required to be manually cleared and restricted to the trench servitude. 5. The gradient is steeper along Alternative Layout 2 and therefore there is a higher risk of erosion associated with the construction and operational phase. The Contractor would need to implement erosion control measures, particularly where the pipeline crosses through valleys with the
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<p>6. Potential increase in sedimentation of watercourses and drainage lines crossed by the pipeline compared to Alternative Layout 1.</p>	<p>potential for high water flows during rainfall events. Stockpiles are to be located on flat areas, where possible and not within close proximity to the watercourses to prevent siltation and the material getting washed away. Berms are to be used where stockpiling occurs or alternatively, the piles should be covered during high rainfall events.</p> <p>6. As above, stockpiles are to be located at least 15m away from the watercourses to prevent material from washing away.</p>
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OPERATIONAL PHASE

Impacts The following lists the potential impacts associated with the operational phase and is applicable to the proposed site.	Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<p>3. Operational impacts 2 – 5 and 8 will be the same as those discussed in the previous section for Alternative Layout 1.</p> <p>4. Accessibility to the pipeline during maintenance.</p> <p>5. The sewer pipeline will not pass near the surrounding properties who will not benefit from a waterborne sewage connection.</p>	<p>3. Mitigation measures for impacts 2 – 5 and 8 will be the same as those discussed in the previous section for Alternative Layout 1.</p> <p>4. Layout Alternative 1 will follow the existing road and will therefore be more accessible compared to Layout Alternative 2, where sugarcane field contour roads will be used to access the pipeline.</p> <p>5. An alternative sewer pipeline will be required to service these residents to the south of the Illovo Country Estate.</p>

No-go alternative (compulsory)

<p>1. If the development does not go ahead then the Illovo Country Estate will not have a municipal sewerage connection.</p> <p>2. Surrounding residential units and sites further upstream of the proposed site will continue to not have access to waterborne sewerage.</p> <p>3. There will be no construction-related impacts such as an increase in waste, dust, noise and heavy vehicles in the area.</p>

2.4 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

a. Site alternatives

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

Impacts The following lists the potential impacts associated with the operational phase and is applicable to the proposed site.	Mitigations The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<p>Direct impacts:</p> <p>1. Potential contamination of the surrounding environment (drainage lines, properties etc.) with construction rubble and waste.</p> <p>2. Potential for alien vegetation encroachment into the disturbed area where the pipeline and pump station were located.</p> <p>3. Potential generation of noise and dust.</p>	<p>Direct impacts:</p> <p>1. All construction rubble and waste would need to be disposed of appropriately at an appropriate land fill site.</p> <p>2. Alien species would need to be removed and replaced with indigenous species suitable to the area.</p> <p>3. The noise and dust generated would be a temporary impact during decommissioning only</p>

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<p>4. Potential erosion around the areas where the pipes are removed.</p> <p>5. Sewage spill from decommissioning of the Pump Station and pipeline.</p> <p>Indirect impacts:</p> <p>6. Potential damage to the Lovu River estuary during decommissioning.</p> <p>Cumulative impacts:</p> <p>7. Increase in the amount of waste sent to the landfill site.</p>	<p>and would be negligible. Significant dust would be controlled through the use of a water cart.</p> <p>4. Exposed area would need to be rehabilitated and re-vegetated as soon as possible after decommissioning.</p> <p>5. Pipes are to be pumped clean before decommissioning takes place. A method statement is to be submitted to an Environmental Control Officer prior to decommissioning to ensure that the Contractor can dismantle the pipes without a sewage spill. Any wastewater is to be disposed of at an appropriate facility.</p> <p>Indirect impacts:</p> <p>6. Provided that the Contractor submits a Method Statement, as described above, it is unlikely that a sewage spill will enter the Lovu River (approximately 88m away).</p> <p>Cumulative impacts:</p> <p>7. The only material sent to the landfill would be broken concrete and pipework which would be a negligible amount of waste.</p>
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No-go alternative (compulsory)

The impacts associated with operation of the sewerage pipeline and Pump Station have been discussed in the above section.

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 L1 (preferred site)	Alternative L2
Construction phase: It is suggested that monitoring be done through monthly construction audits to ensure compliance with the Environmental Management Programme (EMPr).	Construction phase: It is suggested that monitoring be done through monthly construction audits to ensure compliance with the Environmental Management Programme (EMPr).

3 ENVIRONMENTAL IMPACT STATEMENT

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

Alternative L1 (preferred layout)

It is the opinion of the EAP that all potential impacts that could occur during the construction and operational phase of the proposed Illovo Sewer Pipeline and Pump Station have been identified with key impacts and their mitigation measures provided below. This is the preferred layout alternative from an environmental perspective as the majority of the pipeline will be located within road reserves resulting in fewer watercourse

crossings and less indigenous vegetation requiring clearance. Socially, the preferred layout provides surrounding residents with a waterborne sewage connection and an opportunity for the Municipality to expand the sewerage infrastructure to the Lower Illovo Region in the future.

Although the location of the Pump Station has been relocated to within a closer proximity to a wet area, this is due to the original location being well within the 1:100 year floodline (see map in Appendix A). The adjacent wet area is approximately 35m away from the proposed pump station site and has been rated as “highly modified”. A high change in ecosystem processes and loss of natural habitat and biota has therefore occurred. This is a result of the sugarcane fields and roads which have transformed the natural hydrological inputs. The surface and groundwater is directed through a concrete pipe underneath Main Road into a remnant patch of transformed seasonally inundated footslope seepage wetland through artificially excavated drainage trenches. The water then flows underneath Main Road again into poorly defined drainage lines situated within sugarcane fields. The wetland specialist has however concluded that “construction of the pump station on the alternative site should not impact the wetland functionality or health provided that the prescribed mitigation measures are implemented especially during the construction phase of the project”.

Damage to drainage lines and watercourse crossings.

At the intersection of Pearce and Main Road, there is a small wet area associated with a non-perennial tributary to the Lovu River. The pipeline also intersects three other drainage lines located within the Illovo sugarcane fields. There should be no impact on the watercourses during operation as the pipe is buried underground and constructed out of uPVC, a resistant material commonly used for wastewater pipelines. Excavation of the trench through the wet areas should however be strictly monitored using the attached EMPr to ensure that no erosion or unnecessary siltation takes place within the drainage lines. Mitigation measures include the exclusion of vehicles within the watercourses, burying the pipeline 1.5m underground to prevent interference with surface water flows and promptly re-vegetating the disturbed area adjacent to the drainage line. A Method Statement is to be submitted to the Environmental Control Officer prior to construction through the watercourses commencing.

Provided that the mitigation measures outlined in the EMPr are followed and taking into consideration the current condition and function of the watercourses, this impact is rated as medium.

Trenches remaining open for a long period of time creating an erosion and safety hazard.

Since the trenches are to be excavated within a road reserve, there is a possibility that pedestrians utilise the same route as there are no formalised walkways. Since the trench is 1.5m deep, should there be a significant rainfall event, the trench may fill up with water resulting in a potential safety risk especially for small children. The Contractor is therefore to ensure that the trenches are demarcated with red and white tape during construction and filled in as soon as the pipeline is installed.

Trench work must be completed in sections and closed once the pipe has been laid. The impact was rated as low since the majority of the pipeline is located in a private sugarcane field and specific mitigation measures are outlined in the EMPr.

Incorrect filling of the trench creating erosion and potential sedimentation of the watercourses.

Should the level of soil within the trench be lower than the surrounding land, this will create a preferential water runoff and encourage erosion along the trench. Soil could potentially be directed into the existing drainage lines intersected by the pipeline resulting in an increase in sedimentation. The mitigation measure to prevent this form erosion is to ensure that the soil is compacted sufficiently and left so that the trench is slightly higher than the surrounding land. It is also to be re-vegetation immediately after construction to aid in

stabilisation and assist dust control.

These measures are covered in the EMPr and provided they are followed, these impacts can be mitigated. However, if the trenches are not properly closed and rehabilitated post-construction, they may cause a long-term impact. This impact was rated as medium.

Construction waste and soil contaminating the surrounding environment.

Contractors working on the site have the potential to litter and dispose of construction waste incorrectly should waste management not be managed according to the EMPr. Since the trench is 1.5m deep, the soil removed from the trench is to be stockpiled immediately adjacent to the trench excluding where trenching occurs through the watercourses. In this instant, soil is to be removed from the wet area and stored approximately 15m away to ensure that soils are not washed into the wet area in the event of rain. The trench is to be filled in using existing soil as soon as the pipeline has been installed to reduce the amount of time required for stockpiling. The Pump Station site and pipeline route is to be kept clean and tidy during construction.

Taking into consideration the flat topography and that the waste and stockpiles are managed according to the measures provided in the EMPr, this impact can be significantly mitigated and therefore is rated as low.

Loss of vegetation due to clearance impacting on biodiversity.

There are a number of factors to consider when determining the extent of vegetation to be cleared. These factors are:

1. The width of the trench;
2. The location of the infrastructure and
3. The composition of the vegetation

Firstly, the trench is less than 1m and therefore the clearance footprint is relatively small. The Contractor is to ensure that the soil excavated from the trench does not significantly extend into the adjacent vegetation however, the pipeline will be located within existing road reserves which are either maintained (resulting in insignificant clearance of vegetation) or consist of sugarcane. In the latter case, the sugarcane will be removed to excavate the trench. The vegetation is composed of grass and sugarcane along the entire length of the pipeline apart from the final 30m where a section of invaded coastal forest is encountered. No tree species will be required to be removed as there is an existing footpath underneath the forest. Manual clearance will take place in this section and an ECO is to monitor clearance in this area.

Since the clearance of indigenous vegetation is very minimal, if at all, this impact was rated as low however due to the endangered status of coastal forest, the impact was raised to medium.

Potential leak of sewage from Pump Station or pipeline during operation.

Measures to mitigate this impact are associated with the design phase pre-construction. The engineers are aware of the infrastructures location within the 1:100 year flood line of the Lovu River and have acknowledged the location through the design of the pipeline. The material that the pipeline is constructed out of is uPVC which is designed to accommodate high pressures that will be associated with the Rising Main section. The maintenance requirements are reduced however the engineer has stated that Pump Station will be monitored daily with an employee cleaning the inlet sleeve every day. Any detection of a leak or pressure change will be reported to the relevant personnel.

It is unlikely that a significant sewage leak will occur due to the construction standards, with are to be approved by eThekweni Water and Sanitation prior to construction, and therefore the impact was rated as low. Due to the pipelines location within the 1:100 year floodplain as well as its close proximity to a NFEPA, the rating was however raised to medium.

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Further to the above mitigation methods, an EMPr (Appendix G) has been developed to manage and control potential impacts. The EMPr should be implemented through monthly construction audits during which time recommendations within the EMPr should be enforced. If the EMPr is implemented correctly and the mitigation measures listed in this report are adhered to then the potential impacts associated with construction can be rated as low. It is thus the opinion of the EAP that there are no significant environmental impacts associated with the proposal which cannot be mitigated.

Alternative L2

The main construction and operational impacts are the same as Layout alternative 1, described above however the preferred layout alternative ensures that there are fewer watercourses crossed by the pipeline as well as avoiding a large patch of coastal forest. Given the steep nature of the site associated with Layout Alternative 2, there is a greater potential for erosion and sediments to wash into the drainage lines. The location of the alternative route, north of the Illovo Country Estate, would not provide the surrounding local residents and communities with waterborne sewage connections. It is therefore recommended that Layout Alternative 1 be authorised as the preferred option.

No-go alternative (compulsory)

The main impact associated with the no-go alternative is a social aspect in that the residents of the Illovo Country Estate and surrounding properties will not be provided with a waterborne sewerage connection and will continue to utilise the septic tank system. The potential to provide sanitation services to the Lower Illovo Region will also be postponed.

From an environmental perspective, provided that construction is tightly monitored according to the EMPr, there should be no significant impacts, similar to the no-go alternative where the environment will remain in its existing condition.

SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAP 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.

If "YES", please attach the draft EMPr as Appendix F to this report and list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

The EAP recommends that the preferred option to construct the sewer pipeline and Pump Station be approved, with Layout Alternative 1 being approved, provided that the following recommendations and the requirements of the EMPr are followed.

Stakeholders, Properties & Services

1. Surrounding land owners and stakeholders should be notified prior to disruptive activities during construction.
2. As standard construction practice the engineer and contractor should identify all existing services that may be affected prior to construction.

Traffic & Construction Vehicles

3. All construction vehicles should be fitted with the appropriate silencers and exhausts to prevent disturbance.
4. Speed limits must be obeyed.
5. Existing roads must be used and vehicles are not to drive through the identified

watercourses.

Housekeeping, waste management, storage and materials handling

6. Littering must not be permitted on site.
7. All hazardous materials and substances should be stored within a secured area in the construction camp. The storage area should be a hard surfaced, bunded and covered area.
8. Cement mixing must be done on a hard surface that is protected from storm water runoff.
9. Contractors to dispose of construction rubble at an appropriate landfill site. Delivery notes and safe disposal certificates to prove appropriate disposal should be available.
10. Appropriate and sufficient toilet facilities must be provided by the contractor.
11. Toilet facilities must be provided by a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record. Toilets must be stored more than 15m away from any water course.

Dust and erosion control

12. A water cart should be used to dampen dusty surfaces and suppress dust.
13. Exposed areas should be rehabilitated and re-vegetated as soon as possible during construction.
14. Areas exposed to erosion must be protected through the use of sand bags, berms and efficient construction processes i.e.: limiting the extent (footprint) and duration period that areas are exposed.

Stormwater management and protection of water courses

15. The engineer/contractor must ensure that only clean storm water runoff enters the water courses and the environment. Any contaminated run off must be collected and disposed of.
16. No vehicle washing or servicing may be conducted on site or close to the Lovu River. Only emergency repairs may be carried out on site. In such cases, the vehicle or equipment must be repaired further than 15m buffer from any the watercourses.
17. Only the area directly in the path of construction may be cleared and excavated.
18. Heavy vehicles should avoid working near the water courses as much as possible.
19. No tracked vehicles (i.e. excavators) should be permitted within 15m of a water courses.
20. No excavated material or fill material may be stored within / directly adjacent to the water courses.
21. Once construction is complete, it must be ensured that no material whatsoever is left where it may be washed into the water courses in a high flood event.
22. Vegetation clearance on the banks of the water courses, even of alien species, should be kept to a minimum as this cover is performing a role in bank stabilization. Where possible vegetation should be replaced with indigenous species.
23. A suitably qualified contractor must be appointed to handle any temporary stream diversion work.
24. Care must be taken to manage potential erosion and introduction of sediment into the water courses. This can be managed by using appropriate materials for the stream diversion and using sediment traps to capture dislodged sediment.
25. Details of methods to excavate trenches with the drainage lines must be provided by the contractor.
26. The wet area adjacent to the proposed pump station site is to be demarcated to prevent workers and construction material from encroaching into the wet area.

Protection of biodiversity

27. The route should follow close to the road (providing this is permitted by the authority administering the road i.e. DOT and municipality).
28. Trench size to be restricted to that required for laying the pipe.
29. Trenches are to be dug by hand where the pipeline route passes through the section of coastal forest adjacent to the N2.
30. No indigenous trees are to be removed along the entire pipeline route and Pump Station

site.

31. The contractor must ensure that invasive species do not gain a foothold along the cleared route until the indigenous vegetation has had time to re-establish itself.

Protection of Heritage Resources

32. Attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) and the KwaZulu-Natal Heritage Act (Act no 4 of 2008) which, requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage agency.

Trenching

33. Trenches must not remain open indefinitely.
34. Trench work must be completed in sections and then closed once the pipe has been laid in that section.
35. Cleared areas may not be left exposed for long periods of time and must be re vegetated as each stage of pipework is completed.
36. Trenches must not remain open during building shut down periods i.e. over Christmas and Easter.
37. Trench work must be planned so that trenches are closed before these shut down periods as there is a risk that the trenches will either collapse or fill with water if left unattended and this can create a hazard for children and animals.
38. Sections of trench near homes and pedestrian walking areas must be demarcated.

Site Specific Mitigations

39. The pipeline is to be laid underneath the water courses to ensure that surface water flow is not hindered during operational phase.

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: Public Participation

- Comments and response report and comments
- Proof of Notification of I & APs:
 - Notice Boards
 - Adverts
 - Notification & Communication with I & APs
- I & AP register

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist Reports

Appendix E: Public Participation

Comments & Response Report & Comments Received

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Proof of Notification of I A&Ps

Notice boards

1. 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—
2. (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—
3. (i) the site where the activity to which the application relates is or is to be undertaken; and
4. (ii) any alternative site mentioned in the application;

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Adverts

- (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.

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Notification and communications with I &APS

- (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;

Registered I &APs

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information