

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED SOLIDS REMOVAL AND TREATMENT FACILITIES UPGRADE AT THE SOUTHERN WASTE WATER TREATMENT WORKS, MEREWENT, IN THE ETHEKWINI METROPOLITAN MUNICIPALITY



BACKGROUND INFORMATION DOCUMENT (APRIL 2014)

KZN DAEA REF NO.: DM/0032/2014 and DM/WML/0050/2014

What does this document tell YOU?

This document aims to provide you, as an **Interested and Affected Party (I&AP)**, with background information regarding the proposed **Southern Waste Water Treatment Works (SWWTW) Solids Removal and Treatment Facilities Upgrade** being undertaken by **eThekweni Municipality**.

The document also provides information regarding the **Environmental Impact Assessment (EIA)** process to be undertaken. The document also advises you how you can become involved in the project – by reviewing information, and making inputs thereon, including raising any possible issues. This sharing of information forms the basis of the **public participation process** and offers you the opportunity to become actively involved in the project from the outset. Public participation allows for local knowledge to be integrated into the EIA as generated.

What does the project entail?

The project can be summarised as follows:

Project name	Southern Waste Water Treatment Works (SWWTW) Solids Removal and Treatment Facilities Upgrade Environmental Impact Assessment
Local authority	eThekweni Metropolitan Municipality – KwaZulu Natal
Landowner(s)	eThekweni Metropolitan Municipality
Location	SWWTW is located at 2 Byfield Road, Merewent, on the north-eastern bank of the Umlaas Canal. Forms part of a mixed development node of both residential and industrial developments.



Current Treatment Process

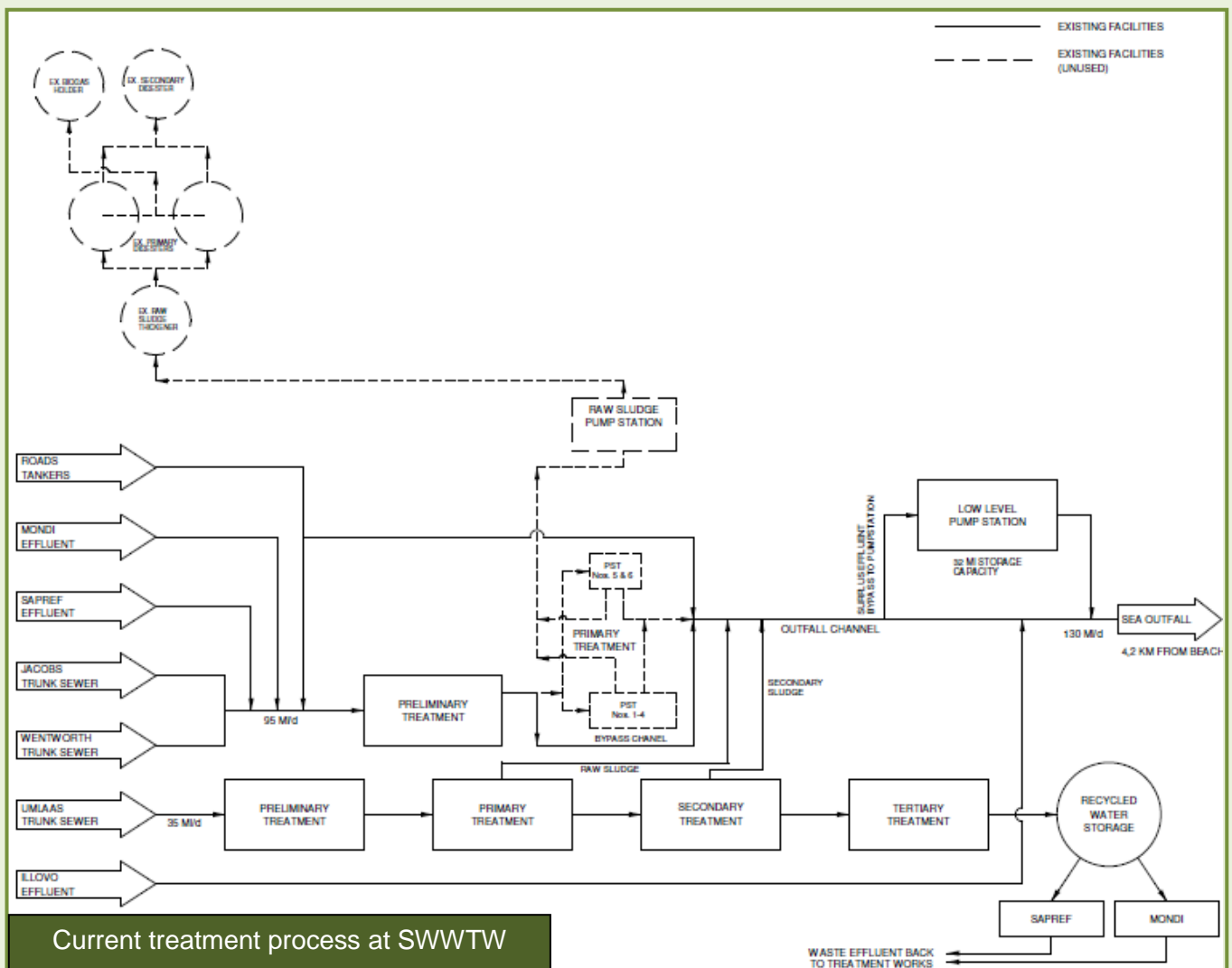
The SWWTW receives the majority of its raw sewage effluent through three large (1,500 mm diameter) trunk sewers, i.e. Main Southern (“Jacobs”), Wentworth Valley, and, Umlaas Trunk Sewers. Other smaller diameter pipelines coming to the Works includes those from Mondi, SAPREF and Illovo.

The total average daily flow to this works is ± 130 Ml/day. All treated flows leaving the site are currently discharged directly to sea through a 4.2 km long 1,500 mm diameter sea outfall.

The Umlaas trunk sewer, serving Chatsworth and Umlazi, is predominantly domestic in origin. The discharged flow from this source (currently ± 35 Ml/day) is immediately directed to a separate treatment facility where it undergoes preliminary, primary, secondary, and, tertiary treatment. The secondary and tertiary treatment processes are managed by Veolia Water (a private entity). The secondary treated (or reclaimed) effluent is stored and sold to industry. The remaining waste is in the form of sludge – all of this is currently discharged to sea.

The Jacobs trunk sewer, serving (a) the residential areas of Yellow Wood Park and Woodlands, and (b) the industrial areas of Jacobs and Mobeni, is thus a combination of domestic and industrial effluent. The Wentworth Valley trunk sewer, serving the Bluff, Wentworth, Clairwood, Bayhead, and Island View, is also composed of both domestic and industrial effluent. The flows conveyed by these two trunk sewers (currently ± 95 Ml/day) currently combine at the main inlet works and undergo preliminary treatment only (i.e. removal of screenings and grit) before being discharged to sea.

In addition to the pipeline discharge of sewage effluent to this works, smaller volumes of effluent are also brought to the SWWTW by road tankers. The effluent from these road tankers undergoes preliminary treatment only, again before being discharged to sea.



Scope of Work Proposed for the Upgrade of the SWWTW

The aim of the proposed upgrades to the SWWTW is to reduce the amount of suspended solids being disposed of to sea. This is to be done by providing primary treatment to the combined Jacobs and Wentworth Valley trunk sewers effluent discharges.

Physical treatment, through primary settling, will result in the organic load to sea being drastically reduced. Settled solids (“primary/raw sludge”) will then be removed, stabilised via anaerobic digestion, and, then finally dewatered.

The options proposed for the disposal of the dewatered sludge are:

- ✚ Removal off-site to agriculture and/or landfill;
- ✚ Thermal drying, then removal off-site for agricultural use; and
- ✚ Manufacture of fertilizer by a separate sludge pelletizing process – such an on-site facility would be operated by as yet unconfirmed private entity, then removal off-site. *Note: This option, if followed will be considered in a separate EIA and engineering process, that is, it does not form part of this study or the scope of work described hereunder.*

The work will be undertaken in two phases:

- ✚ **Phase 1: immediate required upgrades**, and,
- ✚ **Phase 2: future required upgrades.**

Phase 1 will result in the primary treatment of ±60 Mℓ/day (63.5%) of the present combined flow (±95 Mℓ/day) from the Jacobs and Wentworth Valley trunk sewers.

The solids (“sludge”) removed will be combined with that currently generated from the Umlaas trunk sewer, with the combined result being pumped to the anaerobic digesters.

Biogas (±60% methane / 40% carbon dioxide) from the anaerobic digestion process will be stored in gas holders. The biogas may be used as follows:

- ✚ Consumption of at least $\frac{1}{3}$ of the stored volume for heating of the sludge as part of the digestion process, the balance flared (burnt).
- ✚ Using most of the stored gas to dry the sludge through a mechanical thermal drying process.
- ✚ Using the waste heat from the drying process to pre-heat the sludge before drying.

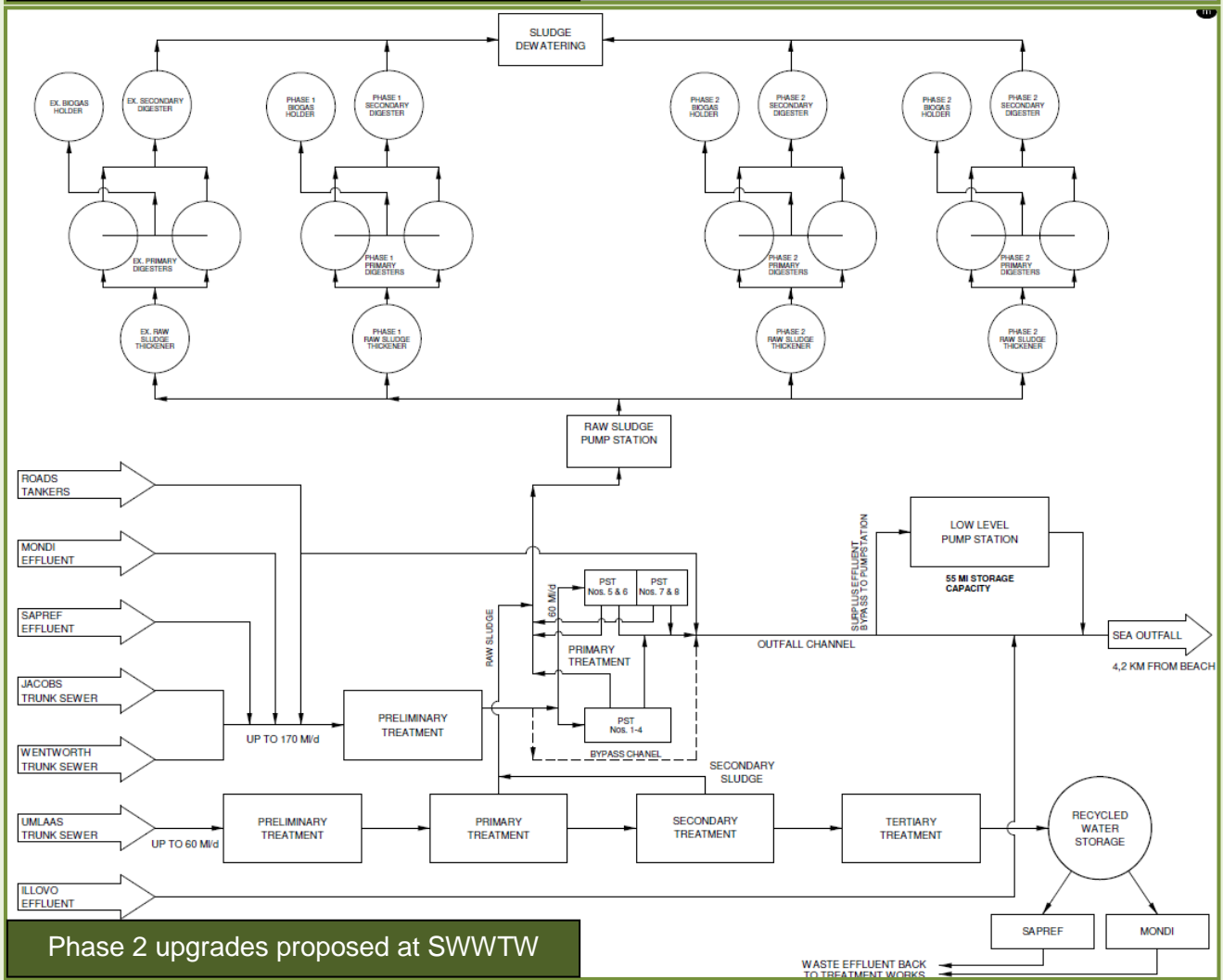
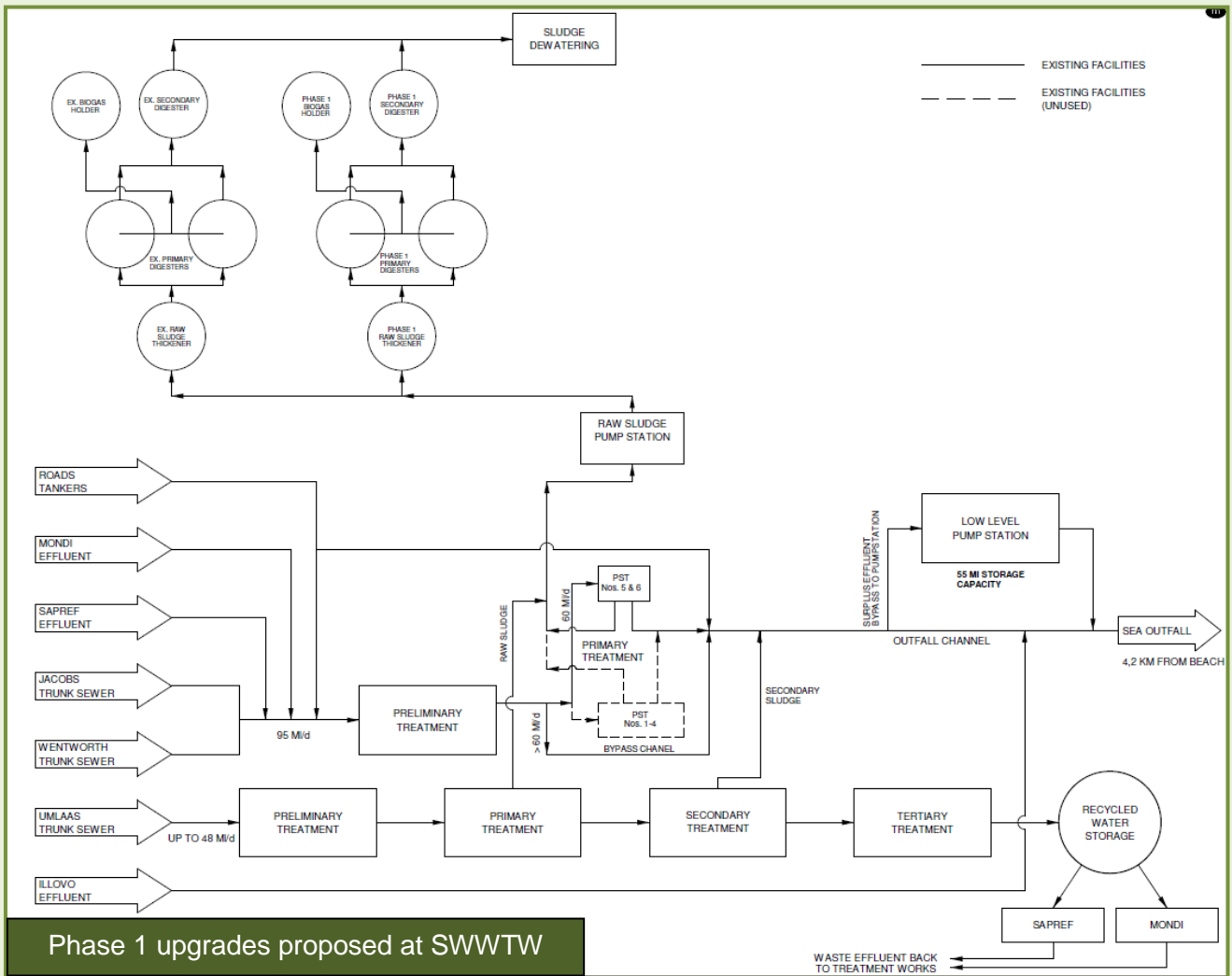
It is important to note that drying of the sludge will greatly reduce the road transportation requirements for removal of sludge off-site.

Phase 1 – work to be completed in this phase

- ✚ Refurbish and bring back on line two out of six existing primary settling tanks.
- ✚ Refurbish and bring back on line existing two anaerobic primary digesters and secondary digester and construct two new primary digesters and one secondary digester, all of same capacity as existing.
- ✚ Refurbish and bring back on line existing raw sludge gravity thickener and construct a new gravity thickener of the same capacity.
- ✚ Refurbish and bring back on line existing gas holder and construct a new gas holder of the same capacity.
- ✚ Refurbish and bring back on line various existing (currently unused) electrical substation buildings and small pump stations.
- ✚ Establishing a new mechanical sludge dewatering facility on site and two 150,000ℓ fully enclosed steel sludge storage silos.
- ✚ Establishment a new mechanical sludge thermal drying facility on site.
- ✚ Provide additional effluent storage capacity of 23,000,000ℓ at an existing low level pumping station, and installation of two new 350kW pumps.
- ✚ Replace the last 70m of the landline section of the sea outfall pipeline with two new 1,000mm diameter pipe.
- ✚ Construct new road tanker effluent discharge bays in close proximity to the entrance of the Works.
- ✚ Install new medium voltage and low voltage electrical cables and equipment.
- ✚ Minor road works and a new access road

Phase 2 – work to be completed in this phase

- ✚ Refurbish and bring back on line remaining four of the existing six primary settling tanks, and, construct two new primary settling tanks of the same capacity as existing.
- ✚ Construct four new anaerobic primary digesters and two new secondary digesters, all of the same capacity as existing.
- ✚ Construct a new raw sludge gravity thickener, of the same capacity as existing.
- ✚ Construct a new gas holder.
- ✚ Install additional mechanical sludge dewatering equipment.
- ✚ Construction of a third storage sump of 23Mℓ.



What are the potential environmental impacts associated with the proposed project?

A number of potential environmental impacts associated with the project have been identified.





As part of the EIA, these potential impacts will be assessed through the following specialist studies:

Specialist Study	Organisation
Biodiversity Scan	The Ecological Project
Major Hazardous Installation Risk Assessment	Ishecon
Heritage Impact Assessment	eThembeni Cultural Heritage
Air Quality Assessment	Royal HaskoningDHV
Life Cycle Risk Assessment	Royal HaskoningDHV
Integrated Waste Water Management Plan	Royal HaskoningDHV
Social Impact Assessment	Royal HaskoningDHV
Water Use Licence Compliance Assessment	Royal HaskoningDHV
Coastal Waters Discharge Permit Compliance Assessment	Royal HaskoningDHV

In the Environmental Scoping Study (ESS), desk-top specialist studies combined with a site visit, will identify potential issues which require further investigation within the EIA phase. Input from the public (I&APs) through the public participation process will provide valuable input in the identification of issues requiring investigation within this EIA process.

The ESS will highlight areas that should be avoided in order to minimise potential impacts, and evaluate the layout alternatives recommended.

The second phase of the EIA process will then aim to achieve the following:

-  Provide an overall assessment of the social and biophysical environments of the affected area by the proposed construction of the project;
-  Undertake a detailed assessment of the preferred site(s) in terms of environmental criteria including the rating of significant impacts;
-  Identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
-  Undertake a fully inclusive public participation process to ensure that I&AP issues and concerns are recorded and commented on.

Why are environmental studies needed?

In terms of the **Environmental Impact Assessment (EIA) Regulations** Government Notice Regulation (GNR) No. 544 to 546 of 2010 (as amended), published in terms of Section 24(5), and read with Section 44, of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), **eThekwini Municipality** requires **environmental authorisation** from the KwaZulu-Natal Department of Agriculture & Environmental Affairs (KZN DAEA) for undertaking the proposed project.

Such an approval is needed as the project includes activities listed under GNR 544, 545 and 546, as well as under Schedules A and B of GNR 921. GNR 921 of 2013 includes the waste activities in terms of the National Environmental Management Waste Act (Act No. 59 of 2008) (as amended).



Activities under these listings may have a detrimental effect on the environment, and includes activities from GNR 545 and 921: Schedule B, hence a full EIA process as prescribed by GNR 543 is to be undertaken.

An EIA is an effective planning and decision-making tool, which allows for the identification of potential environmental consequences of a proposed project, and its management through the planning process.

eThekwini Municipality has via **AECOM** (as lead engineers), appointed **Royal HaskoningDHV** (RHDHV) as independent Environmental Assessment Practitioners (EAP) to undertake the required environmental studies.

As part of these environmental studies, all I&APs will be actively involved through a public participation process.

The environmental studies will follow a two-phased approach:

-  Phase 1: Environmental Scoping Study (ESS) and Plan of Study (PoS); and
-  Phase 2: Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr).

Public Participation Process

It is important that relevant I&APs are identified and involved in the public participation process from the outset of the project.

To ensure effective public participation, the process includes the following steps during the Scoping Phase:



How can you get involved?

- By responding (by phone, fax or e-mail) to our invitation for your involvement in the process.
- By completing the attached comment form and mailing or faxing it to Novashni Sharleen Moodley at RHDHV.
- By attending the meetings to be held during the course of the project. Should you register as an I&AP you will be invited to attend these meetings. The meeting dates will also be advertised in local newspapers and registered I&APs will be notified by email as well.
- In writing contacting consultants if you have a query, comment or require further project information.
- By reviewing and commenting on the draft Scoping and EIA Reports within the allowed 60-day review periods.

If you consider yourself an I&AP for this proposed project, we urge you to become involved.

Please make use of the opportunities created by the public participation process to become involved in the process and provide comment. If you have issues and/or concerns which affect and/or interest you, please raise them. Or, if you would simply like more information, let us know.

Your input into this process forms a key part of the environmental studies and we would like to hear from you to obtain your views on the proposed project.

By completing and submitting the accompanying response form, you automatically register yourself as an I&AP for this project, and ensure that your comments, concerns and/or queries raised regarding the project will be noted.

Comments and queries on the project can be directed to

Ms Novashni (Sharleen) Moodley	PO Box 55, Pinetown, 3600		Royal HaskoningDHV <i>Enhancing Society Together</i>
	Tel	031 719 5532	
Fax	031 719 5505		
Email	novashni.moodley@rhdhv.com		
Royal HaskoningDHV			

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YOUR COMMENTS AND QUERIES ARE WELCOME

Please **complete** this Comment Form **in full before** and return to:

Ms Novashni (Sharleen) Moodley	PO Box 55, Pinetown, 3600		
	Tel	031 719 5532	
Royal HaskoningDHV	Fax	031 719 5505	
	Email	novashni.moodley@rhdhv.com	

Title (Prof/Mr/Mrs)		First name	
Surname			
Capacity (e.g. Secretary / Director)			
Organisation			
Postal address		Postal code	
Tel No. ()		Cell No.	
Fax No. ()		Email address	

What comments / concerns would you like to raise regarding this proposed project? (Please use additional pages, if required)

PLEASE REGISTER THE FOLLOWING PERSON(S) ON THE PROJECT DATABASE:

Title (Prof/Mr/Mrs)		First name	
Surname			
Capacity (e.g. Secretary / Director)			
Organisation			
Postal address		Postal code	
Tel No. ()		Cell No.	
Fax No. ()		Email address	

Signature	
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IF YOU PREFER **NOT TO RECEIVE** ANY FURTHER INFORMATION REGARDING THIS PROPOSED PROJECT, AND, WOULD PREFER TO BE REMOVED FROM THE PROJECT DATABASE, PLEASE TICK THE BOX BELOW AND RETURN THE FORM TO THE PUBLIC PARTICIPATION CONSULTANTS (CONTACT DETAILS AS PROVIDED ABOVE).

Yes, remove my name
