



water & sanitation

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REPUBLIC OF SOUTH AFRICA

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WATER USE LICENCE APPLICATION SUMMARY

DRAFT

NAME OF APPLICANT:

George Municipality

Compiled by:

James Dabrowski
(Confluent Environmental)

Signature:

Date: 16 January 2025

1. Applicant Details

Name of applicant: George Municipality
Address: 90 York Street, Old Town Hall, George, 6529
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2. Person Submitting Application

Dr J.M Dabrowski (Ph.D., Pr.Sci.Nat. Water Resources)

Registration Number: 114084
Date of registration: November 2015

3. Background and Purpose

The Herolds Bay Pump Station no. 1 (PS1) is located at the Herold's Bay beachfront, at the main parking lot on Uitspanning Street and can be accessed by following the R404 into Herolds Bay. The pump station was refurbished in 2004 and is the main sewage pump station in Herolds Bay, receiving all sewage gravity flows from the area and pumped flows from two smaller pump stations along the cove. The sewage is subsequently pumped to the Herolds Bay Wastewater Treatment Works (WWTW) (Figure 1). The pump station's current operating capacity is 19 L/s. The pump station was originally designed to convey 11 L/s of flow per pump (duty standby operation) with a head of 190 m. Both pumps feed into a single 160 mm diameter uPVC class 12 pipe rising main. The length of the pipeline is 1 375 m and discharges into the Herolds Bay WWTW located at 138 masl.

The harsh operating conditions (highly corrosive environment and sand loading) result in high maintenance requirements and frequent breakdowns of operations. The lack of critical spares and high variations in seasonal inflows compound the situation. Based on the development plans received from the George Municipality, the sewage that this pumpstation will have to accommodate in the future will increase to 52 L/s to service the full developable area in and beyond the current urban edge. Based on these challenges, the municipality therefore plans to construct a new pump station (PS4) and associated rising main (Figure 1).

The development will take place within the regulated area of a watercourse and triggers Section 21 I and (i) water uses as defined by the National Water Act.

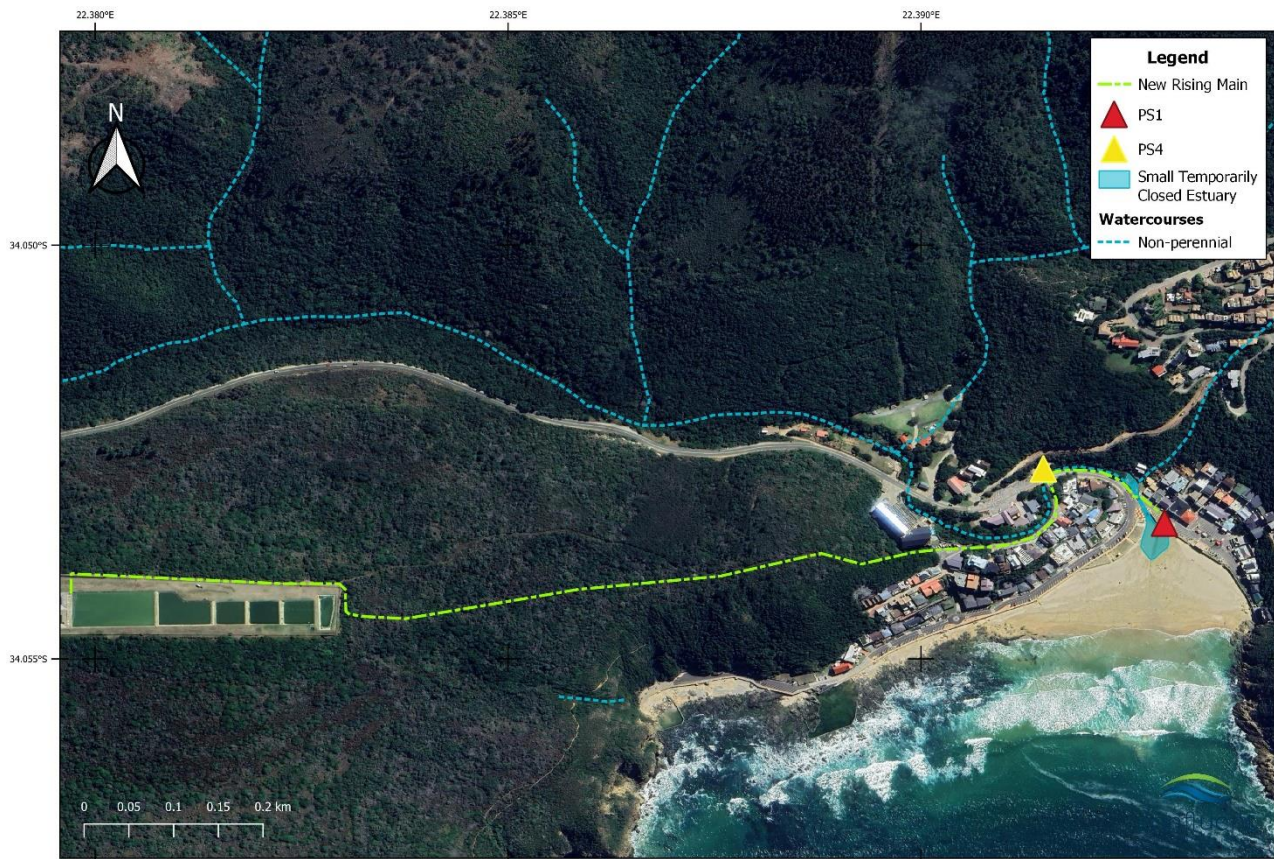


Figure 1: Map indicating the location of PS1 and the proposed PS4 and the new rising main.

4. Location of Water Uses

Herolds Bay is situated in quaternary catchment K30B of the Breede-Gouritz Water Management Area (Figure 2). The catchment area falls within the South-Eastern Coastal Belt (Ecoregion Level 1: 20). The terrain is described as low mountains and moderately undulating plains with moderate relief. Altitude ranges between 0 - 1300 m.a.m.s.l. The Mean Annual Precipitation (MAP) is relatively high, ranging between 500-800 mm and is a-seasonal, occurring throughout the year. The properties on which the pumpstation and rising main will be constructed and that fall within the regulated area of the watercourse (i.e. within 100 m) include the following (see Table 1):

- Erf 116 (pump station)
- RE/236 (pump station and rising main)
- RE/237 (rising main)
- Portion 10 and 36 of Farm 236 (rising main).

The watercourse follows the alignment of the rising main along Skimmelkrans Land and Spekie Gericke Crescent. The watercourse is classified as a non-perennial stream with a distinct channel, characterised by a bedrock and boulder substrate. The channel is narrow and confined by a steep, well vegetated slope to the north. Skimmelkrans Lane runs immediately along the southern edge of the watercourse (**Error! Reference source not found.**). The southern banks have been filled in and lined with concrete retaining walls to support the road. Further upstream the watercourse runs beneath Skimmelkrans Lane and then runs along Spekie Gericke Drive, before cutting underneath the R404 and up towards its catchment area to the north. Further downstream the watercourse transitions into a very small temporarily closed estuary. This estuarine zone is located below the 5 m contour, which is typically used to delineate the Estuarine Functional Zone (EFZ). It is perched above normal tidal levels and is only occasionally influenced by extreme tidal events (e.g. spring tides and storm surges). The bed substrate is sandy (of marine origin) and flooding from the catchment area occasionally opens up a narrow, shallow channel that can pass through the Herolds Bay Beach to the sea. The banks of this estuarine zone have been stabilised by various methods,

including gabion baskets and retaining walls. Freshwater flows from the catchment area are intermittent and as a result there is frequently no open surface water body present. Occasional tidal surges or freshwater inflows can result in a temporary open surface water body of no more than 1 000 m² in extent.

Water uses are associated with the construction of the rising main and pumpstation, which are located within the regulated area (i.e. 100 m) of the non-perennial stream. While the rising main will cross the estuarine zone, an estuary is not defined as a watercourse and the crossing is therefore not considered a Section 21 (c) or (i) water use.

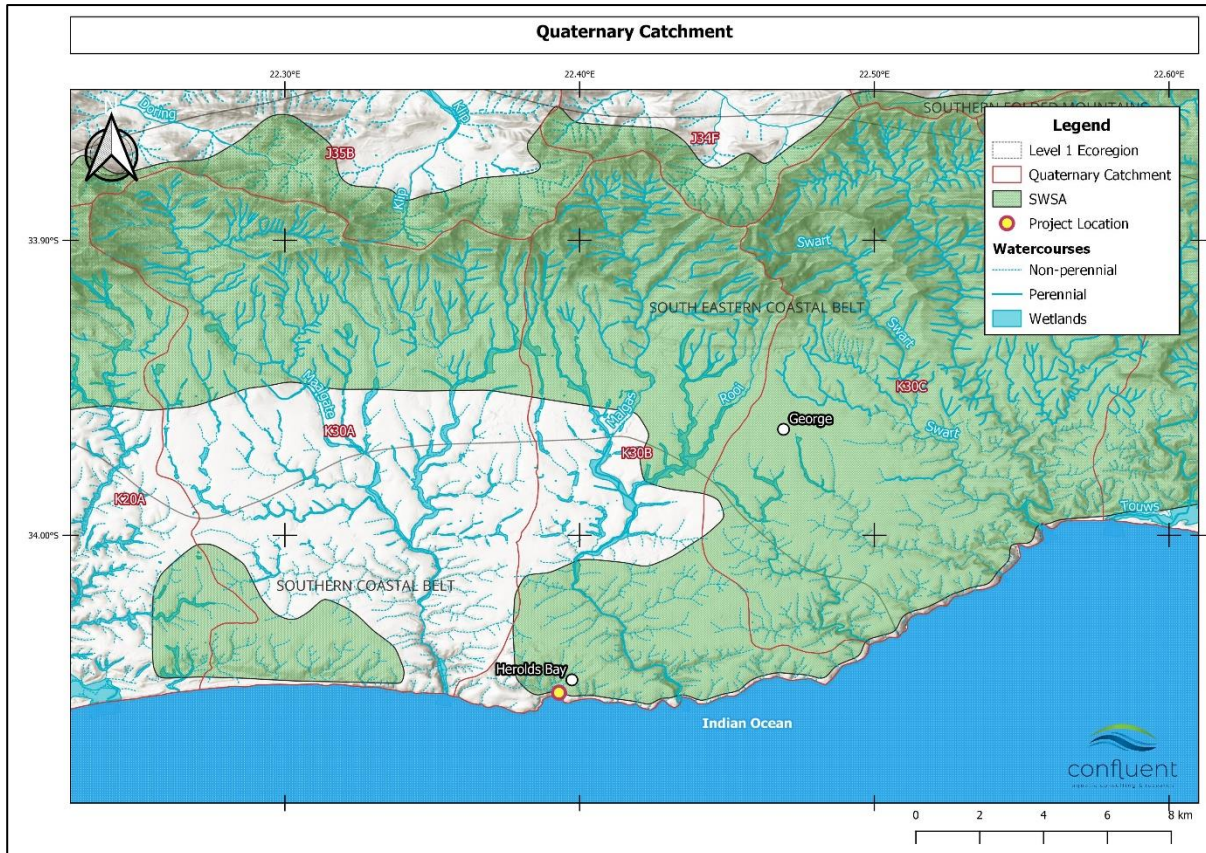


Figure 2: Map indicating location of project area in quaternary catchment K30B

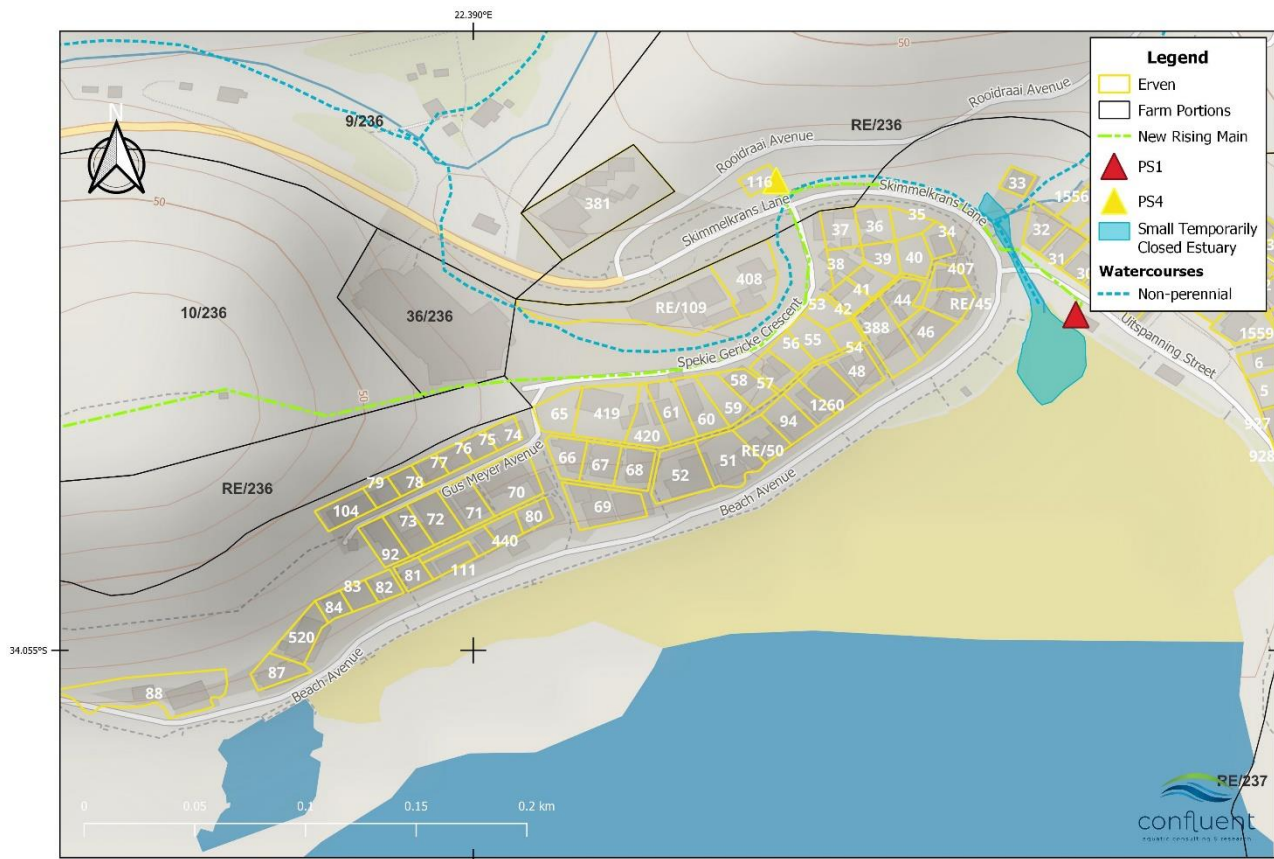


Figure 3: Map indicating the location of the pump stations and alignment of the new rising main relative to property boundaries, watercourses and estuaries.

Table 1: Property details

Property description	Title Deed number	Owner
Erf 116	T4239/1929	George Municipality
Portion 10 of Farm 236	T9585/2022	Clearwater Inv Ltd
RE/236	T5208/2017	Summer Sixteen (Pty) Ltd
RE/237	T5208/2017	Summer Sixteen (Pty) Ltd

5. Administrative Documents and Technical Reports Submitted by Applicant

Administrative Documents

The following administrative documents will be submitted in support of this application:

- Letter of appointment
- Title deeds of properties
- Tax invoice of Breed-Olifants Catchment Management Agency (BOCMA) administration fee
- Applicant's company registration certificate
- Applicant's contact details

Table 2: Technical Reports

Technical documents	Compiled by	Date compiled
Appendix 1 – Specialist Aquatic Assessment	James Dabrowski (Confluent Environmental)	May 2024
Appendix 2 - Design Report	SMEC South Africa (Pty) Ltd	December 2024
Draft WULA Summary Report	Confluent Environmental	January 2025

6. Project Description

Pipeline between Pump Station 1 (PS1) to Pump Station 4 (PS4)

The new rising main will start at PS1 and be installed adjacent to the existing pipeline and will be approx. 175m - 200m in length. The new pipeline route will follow the alignment of the existing pipeline with an offset of 2m. The existing pipeline runs in the Skimmelkrans Lane reserve and is installed below ground level. The new pipeline will be directly buried in the road reserve and will require a minimum cover of 1m. The pipeline will be designed to accommodate the ultimate flow of 20L/s; however, the line will be evaluated against the interim design flow of 19L/s. The estuary crossing at Uitspanning Road will be done at the same position as the existing pipe crossing, which is upstream from the roadway. The suspended section of pipe will be of 316L stainless steel and will be self-supporting. The minimum internal diameter of the new pipeline will be upgraded to 200mm. The existing rising main will be utilised to convey sewage to the emergency storage tank that will be constructed in the parking space directly next to PS 1. Please refer to Figure 4.



Figure 4: Map indicating configuring of pipelines between PS1 and PS4

Pipeline between PS4 and Herold's Bay WWTW

The new pumping main will leave PS4 and follow Spekie Gericke Crescent up to the intersection of Gus Meyer Avenue (0-220m). From there, it will follow the existing pipeline and servitude up the

ridge to the WWTW (220m - 1,470m) – see Figure 5 for the alignment. Although the existing pipeline runs within the servitude, the width of the servitude is insufficient to accommodate the second pipeline. Accordingly, an additional servitude will have to be applied for. The extent of the additional servitude is 4m on the northern side of the existing servitude. The pumping main will follow the road reserve for the first 200 m. The route will cut through thick coastal shrubs and up a steep slope to the WWTW. A 10-meter-wide area will need to be cleared to allow for adequate working space during construction. The disturbed area through the vegetation will be rehabilitated, and there will be no permanent vehicle access along the pipeline route. The only way to access the area will be via the existing jeep track from the WWTW to the cellular mast. The pipeline will be designed to accommodate the ultimate flow of 52L/s. The minimum internal diameter of the new pipeline will be 300mm. The existing rising main between PS4 and the WWTW will be retained as a backup in the event of an issue with the new rising main.

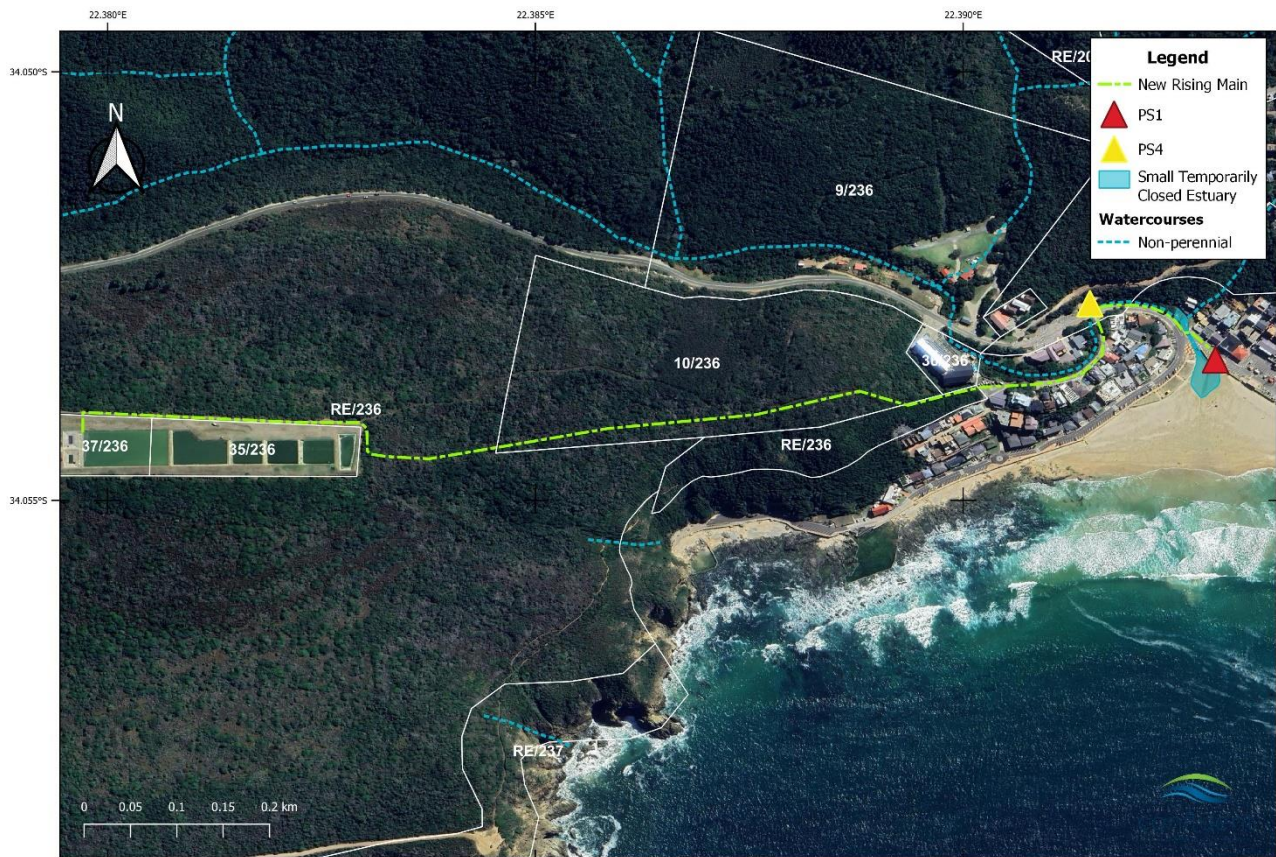


Figure 5: Map showing the alignment of the new rising main from PS1 to PS4 and from PS4 to the WWTW.

New Herold's Bay PS 4

The new pump station will consist of a first floor and ground floor:

First Floor

- A flow stilling basin into which a gravity and pumping main will discharge and exit into the screening channels.
- Three inlet channels with manual screens (Two duty channels and an emergency channel)
- Allowance for future installation of automated mechanical front raked screens, conveyors and washer compactors.
- Two vortex degritters
- One grit classifier to the vortex degritters.
- Odour control system.
- Motor Control Center (MCC) room

Ground floor

- Pump room

- Sump
- Generator room
- Screenings collection room

The raw sewage will be drained under gravity to the PS4 site from the higher areas of Herold's Bay along Rooidraai Road, with PS1 pumping the remaining flow from the lower zones of Herold's Bay to PS4. The pump station will be designed with a dry well end-suction pump configuration. To ensure redundancy, it will operate with a duty standby pump setup. Emergency storage has been incorporated into the building design, with overflow from PS4 going to the larger emergency storage tank at PS1. The PS4 will be built on a portion of ERF 116 and a portion of Erf 236/0 situated along Skimmelkrans Lane, across from Spekie Gericke Crescent. Skimmelkrans Lane bounds the site to the south, a channelised stream to the east, and a steep retaining wall and Rooidraai Road to the north and west, respectively.

Pipe Bridge

A 200mm diameter gravity sewer line draining sewerage from the higher areas of Herold' Bay along Rooidraai Road must be connected to the inlet works on the first floor of the new pump station. Due to the elevation difference between Rooidraai Road and ERF 116, a pipe bridge spanning 25m will be required to support the pipeline. This bridge will consist of a 2m deep, 1.5m wide galvanised lattice steel structure supported on reinforced concrete foundations and plinths as support. As part of the pump station construction contract, the new pipeline along Rooidraai Road needs to be connected to the pump station, and the existing reticulation needs to be changed over to the Rooidraai Road outfall sewer.

Sump and emergency storage

The sump provided at PS4 will act as both an operational and emergency storage sump. Sizing of the sump is in the region of 25-30m³ with an emergency volume of 170m³. This will provide sufficient storage and suction head for the pumps to operate at their best efficiencies. The sump will be located adjacent to the pump room to reduce suction pipe lengths as well as to ensure minimal secondary losses in the suction pipework. By having the sump adjacent to the pump room rather than below it, the pump suction pipework will be flooded, removing the need for self-priming pumps and making operations and required maintenance easier.

The emergency overflow from the sump will utilise the existing pumping main to drain the overflowing sewage from PS4 to the emergency storage tank at PS1. If the emergency overflow and generators fail, the sewage will discharge to the environment. The pumping main from PS4 to the WWTW, will scour back into the pumpstation sump.

7. Methods Statement (only for c and i activity)

The construction of the new rising main and the pump station will occur within the regulated area of a non-perennial watercourse that drains towards the Herolds Bay main beach. No infrastructure will however be constructed within the bed and banks of the watercourse.

8. Stormwater Management Plan

Construction Phase

Stormwater runoff will be managed carefully during construction to prevent input of sediment and pollutants into the watercourse: The following techniques will be implemented:

- Works should preferably be scheduled for the dry season to reduce the likelihood of flooding and or stormwater flows through construction areas;
- A construction schedule must be clearly defined and broken down into phases, to avoid multiple sites being exposed simultaneously. The completion date for each phase of

development must be indicated and all excavation and final/temporary road resurfacing operations must be completed before moving onto the next phase;

- During excavation of the road surface for installation of the rising main surface runoff from the originating from the road surface upslope of the construction area, must be diverted (by means of a barrier – e.g. sandbags) to avoid stormwater flows through any excavated section of the road surface;
- Any diversion of surface runoff must not cause erosion to the bed and banks of the watercourse;
- A silt fence must be placed along the length of the watercourse adjacent to Skimmelkrans Lane and Spekie Gericke Crescent.
- A silt fence must be placed along the length of the watercourse adjacent to the pump station construction area;
- Inlets of existing stormwater culverts located along Skimmelkrans Lane and Spekie Gericke Crescent must be protected through placement of a filter fabric fence at the inlet to trap and minimise the transport of sediment and debris from the construction area;

Operational Phase

No stormwater impacts are anticipated during the operational phase and no stormwater infrastructure is planned

9. Rehabilitation Plan

No aquatic habitat was identified within the boundaries of the proposed site and no watercourses will be directly affected by the development. No rehabilitation measures are therefore required for watercourses.

10. Water Uses Applied For

Table 3: Water Uses

Water use(s) activities	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)/ dimension	Property Description	Co-ordinates
Section 21 c				
Construction of Pump Station 4	Conveyance of sewage to WWTW	52 L/s	Erf 116 RE/236	22.391, -34.052
Construction of New Rising Main	Conveyance of sewage to WWTW	52 L/s	RE/237 RE/236 Erf 116 Portion 10 of 236	22.393, -34.053 to 22.380, -34.054
Section 21(i)				
Construction of Pump Station 4	Conveyance of sewage to WWTW	52 L/s	Erf 116 RE/236	22.391, -34.052
Construction of New Rising Main	Conveyance of sewage to WWTW	52 L/s	RE/237 RE/236 Erf 116 Portion 10 of 236	22.393, -34.053 to 22.380, -34.054

11. Impacts and Mitigation Measures

The potential impacts and mitigation measures that are expected from the proposed activities are presented in Table 3.

Table 3: Summary of impacts and mitigation measures

Water Use activity	Possible causes of impacts to the water resources	Possible Impacts to the water resource and other water users	Mitigation Measures
Constructing of Pump Station & Rising Main	Leakage of fuels, oils, and other pollutants from vehicles and construction machinery, or from washing of equipment and vehicles;	Pollution of watercourses	- Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work in the watercourse; - No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed within 30m of the banks of the watercourse; - Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills;
	The presence of construction workers on site will require the need for appropriate ablution facilities. Poor management of these facilities could potentially lead to sewage spills or leaks;	Pollution of watercourses	- Chemical toilets should be provided on-site at 1 toilet per 10 persons; - Waste from chemical toilets must be disposed of regularly (at least once a week) in a responsible manner by a registered waste contractor; - Workers must be properly instructed in the proper care of the environment, especially with respect to poaching, disturbance of nesting and roosting areas, disposal of human waste, garbage etc.;
	Storage of construction materials or the temporary lay-down of equipment within an area that drains in the direction of the watercourse;	Pollution and degradation of habitat quality	The area(s) chosen for the stockpiling of imported building materials should be demarcated, and notices put up declaring what must be stockpiled where.
	- Dumping of excavated material into the watercourse; - Poor management of waste generated during construction activities;	Degradation of habitat quality	- No dumping of waste materials in the watercourse; - The watercourse should be inspected on a regular basis (at least weekly) by an appropriately qualified ECO for signs of disturbance, sedimentation and pollution during the construction phase. If signs of disturbance, sedimentation or pollution are noted, immediate action should be taken to remedy the situation and, if necessary, a freshwater ecologist should be consulted for advice on the most suitable remediation measures.
	Mixing of concrete or cement in or in close proximity to watercourses.	Pollution and degradation of habitat quality	Cement/concrete used in the construction must not be mixed on bare ground or within the watercourse. An impermeable/bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment, the stream or riparian zone or contaminate the soil;
	Surface runoff through excavated section of the road surface.	Input of sediment and pollutants into the watercourse.	- Works should preferably be scheduled for the dry season to reduce the likelihood of flooding and or stormwater flows through construction areas; - Surface runoff from the originating from the road surface upslope of the construction area, must be diverted (by means of a barrier – e.g. sandbags) to avoid stormwater flows through any excavated section of the road surface; - Any diversion of surface runoff must not cause erosion to the bed and banks of the watercourse; - A construction schedule must be clearly defined and broken down into phases, to avoid multiple sites being exposed simultaneously. The completion date for each phase of development must be indicated and all excavation and final/temporary road resurfacing operations must be completed before moving onto the next phase;

Water Use activity	Possible causes of impacts to the water resources	Possible Impacts to the water resource and other water users	Mitigation Measures
			• A silt fence must be placed along the length of the watercourse adjacent to Skimmelkrans Road and Speckie Gericke Drive. • Inlets of existing stormwater culverts located along Skimmelkrans Road and Speckie Gericke Drive must be protected through placement of a filter fabric fence at the inlet to trap and minimise the transport of sediment and debris from the construction area;



12. Water Demand and Water supply

Not applicable

13. Appendices

Appendix 1: Draft Specialist Aquatic Assessment

Appendix 2: Design Report

