
USE OF SEWAGE TREATMENT PACKAGE PLANTS FOR INDIVIDUAL DEVELOPMENTS IN THE BITOU MUNICIPALITY

1. EXECUTIVE SUMMARY

The Bitou Municipality faces a critical developmental bottleneck in that the Ganse Vallei Wastewater Treatment Works (WWTW) is reaching its full design capacity, with planned extensions unlikely to be operational until 2032.

To bypass moratoriums on development, private developers are proposing decentralized, site-specific Sewage Treatment Package Plants. While financially attractive to developers, these plants present severe risks to the Municipality, including long-term financial liabilities, environmental crises if the systems fail, and a heavily strained municipal oversight capacity.

1.1. The Legal Reality: Municipal Supremacy

A common misconception among developers is that possessing an Environmental Authorization (EA) via an EIA and a Water Use License (WUL) from the national Department of Water and Sanitation (DWS) grants an automatic right to install a package plant.

Legally, this is incorrect. In South African law, the principle of parallel authorizations applies:

- a) **The DWS Mandate:** Validates only macro environmental safety and water resource protection.
- b) **The Municipal Mandate:** Under the Water Services Act (Act 108 of 1997), the Municipality acts as the Water Services Authority (WSA). Under Sections 19 & 22, no private entity can operate as a water services provider or discharge sewage without explicit local authority approval.
- c) **SPLUMA & Bylaws:** The Municipal Planning Tribunal can outright reject applications based on zoning, local infrastructure standards, or conflicts with the Spatial Development Framework (SDF), completely overriding national permits.

1.2. Strategic Policy Options for Bitou Municipality

The Municipality essentially has three paths forward to handle the capacity crisis:

- a) Stop all further development within the Municipality until the capacity of the Ganse Vallei WWTW has been extended. This is an extreme policy and should only be implemented once all other options have been exhausted.
- b) Allow limited, controlled expansion of developments so that the treatment works and reticulation infrastructure does not become severely overloaded. Some excess capacity exists, but this over capacity is finite and must be carefully managed. Under the current circumstances it would be in the Municipality's interests to appoint a professional Consulting Engineering practice to perform an assessment of the overall current capacity of their

sewerage infrastructure so that informed decisions can be made of what and where developments can be accommodated without severe overloading.

- c) Allow package plants for new developments. These should however only be allowed with the restraints listed in the body of the report below.

1.3. **Proposed Regulatory Framework for Approving Package Plants**

Should the Bitou Municipality choose to permit package plants to sustain economic growth, it must enforce a strict, aggressive risk-mitigation strategy:

- a) **Affluence & Scale Thresholds:** Package plants should be strictly barred for small or mid-tier developments. They should only be permitted for large, high-end estates (e.g., eco-estates, golf estates) that possess the financial reserves and property-value incentives to maintain them.
 - b) **Pro-Equity Reallocation:** By allowing only high-end developments to install private package plants, the Municipality frees up the finite remaining capacity of the Ganse Vallei WWTW to absorb affordable and lower-cost housing.
 - c) **Independent Engineering Audits:** The developer's plant design, technology longevity, and biosolid (sludge) handling protocols must be strictly vetted by an independent professional consulting engineering practice appointed by the Municipality (funded via developer application fees).
 - d) **Mandatory Sunset Clauses:** All approved package plants should include a legal clause mandating connection to the municipal bulk sewer grid—and the decommissioning of the private plant—at the developer's/HOA's expense as soon as the Ganse Vallei upgrade is online.
 - a) **Rotational Sampling:** Homeowners Associations (HOAs) must employ qualified process controllers. Effluent quality samples should be taken every 8th day (ensuring testing days rotate through weekends and weekdays) and could be analysed by the Municipal laboratory at the estate's expense.
 - b) **Random Municipal Audits:** Utilizing rates budget revenue generated by these new developments, Bitou should fund internal compliance officers to perform unannounced, random site visits and independent sampling.
 - c) **Punitive Penalties:** Escalating, legally binding financial fines and criminal or administrative directives should be implemented for estates that repeatedly discharge substandard effluent (high E. coli, ammonia, or COD).
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2. **INTRODUCTION**

The Municipal Ganse Vallei Wastewater Treatment Plant serving most of Plettenberg Bay within the Bitou Municipality is reaching its full design treatment capacity and this is being used as a primary argument for why developments within the town should be controlled until the planned extension to Ganse Vallei is operational. At the current rate of development of the design of the extension, this is unlikely to be achieved much before 2032.

When confronted with this limitation developers are proposing to provide their developments with dedicated small package plants designed to treat only the sewage generated on their sites.

This presents the Municipality with a dilemma:

- a) Package treatment plants on a residential estate represent a significant cost centre, and unless there is sufficient budgetary provision made by the HOA for their operation and maintenance they inevitable fail.
- b) Operation and monitoring of these plants requires trained staff on site and should ideally be monitored on a regular basis by a professional staff with dedicated skills in this field. This imposes and additional administrative load on the municipality.

3. LEGISLATIVE REQUIREMENTS TO INSTALL A PACKAGE PLANT

In order for a development to make use of a package sewage treatment plant it is required to have a valid Environmental Impact Assessment (EIA) and a Water Use License (WUL), and developers often use the possession of these two documents as full justification for installing package plants.

However, a municipality can still ban or reject a package sewage treatment plant even if it has received Environmental Authorization (EA) via an EIA and a WUL.

An EIA approval only satisfies environmental legislation. The developer must still obtain separate municipal planning and land use approvals. A municipality holds distinct constitutional authority over local sanitation, waste disposal, and zoning, allowing them to reject the plant based on any of the following factors:

- a) **Municipal Bylaws:** Specific local laws may outright prohibit private onsite sewage treatment if a municipal connection is available or preferred.
- b) **Engineering Standards:** The municipality can reject the specific technology or design if it fails to meet their technical requirements for long-term operations, maintenance, or safety.
- c) **Spatial Planning and Land Use (SPLUMA):** The Municipal Planning Tribunal can deny the land-use rights or subdivision required for the development if the package plant conflicts with the local Spatial Development Framework (SDF).
- d) **Accountability:** Municipalities often reject package plants over concerns that the local authority will inherit a failing, poorly maintained private system if the developer or homeowners' association defaults or simply fails to operate and maintain the plant adequately.

To install a package sewage plant a developer typically needs to apply for a WUL under Section 21(f) (discharging waste or water containing waste into a water resource) and/or Section 21(g) (disposing of waste in a manner which may

detrimentally impact a water resource) of the National Water Act 1998 (Act No 36 of 1998).

As with the EIA the municipality can still rule against the package plant or reject the development for the following reasons, even if the national Department of Water and Sanitation (DWS) grants a WUL.:

- e) **The Principle of Parallel Authorisations:** In South African law, national departments and local municipalities operate with different, independent mandates.
- f) **The DWS mandate:** When granting a WUL, the DWS is only confirming that the package plant meets national water resource protection standards (i.e., it won't destroy a nearby river or contaminate the local water table).
- g) **The Municipal mandate:** The municipality looks at local capacity, local planning, and local bylaws. A WUL approval does not absolve a developer from complying with municipal by laws. If a local council rejects an application, the national license cannot override them.
- h) **The Water Services Act (WSA) vs. National Water Act (NWA):** While the DWS governs the natural resource via the NWA, the Water Services Act (Act 108 of 1997) governs how actual water and sanitation services are delivered to the public. Under the WSA, your local municipality acts as the Water Services Authority (WSA). Section 19 & 22 of the WSA strictly states that no person may operate as a water services provider, or connect to/dispose of sewage, without the explicit approval of the designated local Water Services Authority. If the municipality's Water Services By-laws state that all new developments must tie into the bulk municipal sewer grid (or if they refuse to grant "Water Services Provider" status to the developer/HOA running the package plant), the package plant cannot legally operate.
- i) **SPLUMA and Land-Use Rejection:** Even with a WUL in hand, the developer must submit a land-use or subdivision application to the municipality via SPLUMA (Spatial Planning and Land Use Management Act). The Municipal Planning Tribunal can outright reject the application based on municipal technical guidelines.

A WUL is a national environmental permit protecting rivers and groundwater. A municipality holds constitutional authority over local sanitation and zoning. If the municipality rules against the package plant based on their local bylaws, technical infrastructure standards, or SPLUMA frameworks, the WUL cannot force them to change their minds. The developer must have both approvals to proceed.

Environmental and Licensing approval are just two hurdles; municipal approval is an independent legal requirement.

4. DILEMMA FACING MUNICIPALITIES

It is clear from the foregoing that the final decision on whether to permit the use of package plants rests with the Municipality. The dilemma facing Municipalities, particularly those whose centralised bulk sewage treatment facilities are already overloaded, is whether they should allow package plants or halt development within the Municipality.

Generally, Municipalities should be deeply cautious of private package plants because if they fail mechanically or the Homeowners Association (HOA) goes bankrupt, the municipality legally inherits the environmental crisis and the financial burden of fixing it. The ongoing onus of monitoring the performance of the plant also puts an additional responsibility on the Municipality, and judging by Bitou's on going inability to provide legally required staffing on their large treatment plants, this represents a real problem.

The following factors need to be taken into consideration when making his decision:

4.1. **Appropriate Design and Technology on which the Package Plant is Based**

The standard for the effluent quality required of the package plant will have been set by the EIA and WUL.

Whereas there are well designed, robust package plants available on the market that make use of sound engineering principles and which produce satisfactory effluent qualities, there are also those that tend to be significantly less expensive, that are less reliable, require more maintenance and do not produce acceptable quality effluent. It is of vital importance that the Municipality interrogate both the capacity and the technology proposed in an application and it is recommended that the design be subject to the approval of a qualified consulting engineer.

Special attention should be given to the treatment and disposal of biosolids (sludge) generated on the plant.

4.2. **Monitoring of Plant performance**

Monitoring a package sewage treatment plant involves a layered hierarchy of accountability. Because these plants are small-scale but pose a high environmental risk if they fail, responsibility is split between the private owner, the local municipality, and the national government.

- a) **The Primary Responsible Party: The Plant Owner/Developer.** The ultimate day-to-day responsibility for monitoring and compliance lies with the legal owner of the infrastructure. This is usually a Homeowners Association (HOA), a commercial property developer, a body corporate, or a designated

private entity acting as a Water Services Intermediary (WSI). They are legally mandated by their WUL to contract qualified process controllers. They must perform routine compliance monitoring, which includes:

- i. Taking monthly water samples at the inflow and discharge points. This may be considered to be inadequate, and consideration should be given to ensuring more regular monitoring.
 - ii. Testing for key parameters like pH, Chemical Oxygen Demand (COD), Electrical Conductivity (EC), suspended solids, ammonia, nitrates and E. coli.
 - iii. Submitting these water quality laboratory reports monthly or quarterly to the Department of Water and Sanitation (DWS). The bye laws should also require them to be submitted to the Municipality.
- b) **The Local Oversight: The Municipality (Water Services Authority)** Even if a plant is privately owned, it sits within a municipal boundary. Under the Water Services Act, the local municipality acts as the Water Services Authority (WSA) and has a legal duty to protect public health and the local environment. Municipal health inspectors and water pollution control units have the right to audit private package plants. They ensure the plant complies with local Water Services By-laws. It is recommended that the Municipality inspectors inspect the site and draw regular, independent samples at random times to measure compliance. Non-compliance should be subject to substantial fines.
- a) **The National Regulator: Department of Water and Sanitation (DWS)** The DWS is the ultimate custodian of South Africa's water resources under the National Water Act. They monitor package plants to protect rivers, streams, and groundwater tables. The DWS is meant to track the water quality data submitted by the plant owners. They also deploy Environmental Management Inspectors (commonly known as the "Green Scorpions") to conduct random, independent compliance audits.
- b) **The Green Drop Programme:** While the national Green Drop certification primarily benchmarks large municipal wastewater systems, the DWS uses its data systems to track smaller package plants. If a private plant routinely fails its discharge limits or fails to submit data, the DWS will issue administrative warnings, legally binding Directives, or initiate criminal prosecution for environmental pollution.

In short: The developer/HOA does the daily running and testing; the municipality polices local by-law and health impacts; and the national DWS regulates the macro-impact on the country's water resources.

While the laws and technical requirements set out above are world-class, the massive chasm between regulatory intent and on-the-ground enforcement creates a high risk that package plants will pollute the environment before anyone notices or takes action.

The current landscape reveals why this framework is fundamentally strained:

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- a) **Municipalities are Regulatory Blindspots:** The framework assumes the local municipality will act as a vigilant policeman. In reality, although Bitou is one of the better Municipalities in the country with regard to managing its wastewater infrastructure, even it currently cannot adequately staff its treatment facilities and its capacity to conduct proactive audits will be limited. The danger is that they will tend to be reactive, only showing up if a severe odour or ecological disaster forces their hand.
 - b) **DWS is Strained and Overwhelmed:** The national Department of Water and Sanitation (DWS) has made decent strides recently in clearing up its massive administrative backlog. However, the DWS Compliance, Monitoring and Enforcement unit (the "Green Scorpions") is severely understaffed relative to the thousands of water users across the country. They cannot realistically verify that monthly or quarterly laboratory reports submitted by private operators haven't been manipulated or not submitted at all.
 - c) **The "Self-Regulation" Trap:** Because state oversight is weak, the entire framework defaults to self-regulation. The developer or Homeowners Association (HOA) is expected to hire an independent laboratory, draw the samples honestly, and report themselves if their effluent quality drops below legal standards. If a package plant breaks down or requires an expensive specialised repair an HOA under financial pressure has a strong incentive to delay repairs and quietly dump substandard effluent into a nearby stream or soak-away, hoping no one notices.

4.3. What actually happens in practice

- a) Package plants usually produce good quality effluent only if the private entity running them is highly affluent and strictly managed (such as high-end golf estates or premium eco-estates that have the budget available and the self interest to protect their own property values).
- b) For mid-tier developments, smaller commercial hubs, or sectional title complexes, the framework usually only "works" post-facto. The plant will tend to underperform, discharging poor-quality water containing high levels of E. coli, ammonia, and chemical oxygen demand (COD). It is usually only when downstream neighbours, local farmers, or civil society groups conduct their own independent water testing and threaten litigation that the DWS or municipality finally steps in to issue a Directive or fine.

5. CONSIDERATIONS FOR THE BITOU MUNICIPALITY

With the current constraints on the capacity of the Ganse Vallei WWTW the Bitou Municipality has the following options:

- d) Stop all further development within the Municipality until the capacity of the Ganse Vallei WWTW has been extended. This is an extreme policy and should only be implemented once all other options have been exhausted

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- e) Allow limited, controlled expansion of developments so that the treatment works does not become severely overloaded. By their nature WWTW tend to be conservatively designed and if carefully managed and controlled can generally accommodate loads larger than what they were designed for. However, this over capacity is finite and must be carefully managed. It must also be appreciated that it is not just the capacity of the treatment works itself that should be managed and assessed, but also the capacity of the reticulation and pumping facilities. Under the current circumstances it would be in the Municipality's interests to appoint a professional Consulting Engineering practice to perform an assessment of the overall current capacity of their sewerage infrastructure so that informed decisions can be made of what and where developments can be accommodated without severe overloading.
 - f) Allow package plants for new developments. These should however only be allowed with the restraints listed below.

If package plants are to be allowed within the Bitou Municipality they should be managed under the following constraints:

- a) They should only be allowed for large, affluent estates which will have the budget and self interest of the inhabitants to preserve their property values by ensuring that the plants operate efficiently. The excess capacity of the current facilities can be used to absorb the flow from lower cost developments. Small developments should always be barred from using package plants as the efficiency and reliability of plants tend to deteriorate directly in proportion to their size.
- b) The design of the plant submitted by developers should be properly vetted by an independent professional consulting engineering company that can properly assess the capacity and longevity of the proposed plant as well as the suitability of the technology being employed.
- c) The Municipality should use part of the rates budget produced by the developments to appoint a process controller to properly monitor the performance of the plants. This should include for regular, random site visits and monitoring of the effluent quality.
- d) The Estates must be forced to appoint properly qualified process controllers who are capable of properly operating the plants. Their appointment should be continuously monitored. Regular samples of the effluent quality should be taken every 8th day so they is not always taken on the same day of the week. An arrangement could be made with the Municipality whereby their laboratory analyses the samples and the Estate's cost.
- e) Provision should be made for developments to be connected to municipal bulk treatment facilities and the package plants decommissioned once the capacity of the infrastructure has been upgraded and can accommodate the additional load.
- f) Severe penalties must be imposed on Estate's that repeatedly produce substandard effluent quality.

In the final analysis the decision on whether to allow package plants depends largely on the capability and the will of the municipality to vet their design and monitor and enforce their proper operation.