

Case Study: Lanseria Corporate Estate Wastewater Treatment Works



Customer's Query

As part of Lanseria Corporate Estate's R200 million investment in infrastructure, a new wastewater treatment works (WWTW) was needed to comply with the City of Johannesburg's extensive wastewater management regulations.

The goal was to create a sustainable solution that would allow treated domestic sewage to be reused for irrigation, thereby reducing the demand on potable water supplies. Lanseria Corporate Estate, a joint venture by an investment consortium including Efcon Capital and New Property Ventures, needed a partner to develop a world-class wastewater treatment solution.

Our Approach

Design and Construction Phases

The project commenced with thorough documentation of client requirements, leading to a preliminary design approved by the City of Johannesburg. The construction phase included mechanical design aspects and the integration of patented technology from Tecrover.

Technological Innovation

Tecroveer's patented horizontal aerators efficiently transfer oxygen into the biomass and mix wastewater, ensuring effective treatment. The high-volume, low-lift aeration pump automatically adjusts aeration proportional to flow, optimizing power consumption and preventing over-aeration. This unique pumping feature reduces the need for multiple pump sets, simplifying maintenance and operational inputs.

Challenges and Solutions

- **Security:** Ensuring the new WWTW met all regulatory and operational requirements was crucial. The secure design and efficient technology mitigated future risks.
- **Sustainability:** Implementing advanced treatment processes ensured long-term environmental benefits, aligning with the estate's sustainability goals.

Our Solution

Tecroveer was approached to develop the best solution to meet Johannesburg Water's specifications and future requirements. This led to a dedicated mechanical biological wastewater application, implemented over three phases.

The solution included:

- Phase 1: Inlet works, manually raked bar screens, de-gritting channels, a flow meter, and primary anaerobic and oxidation ponds.
- Phase 2: A balancing tank with mixers and recirculation pumps, an aerobic/anoxic reactor with horizontal brush aeration, a secondary sedimentation tank, a chlorine contact tank, and a chlorine tablet dispenser.
- Phase 3: Extensions to inlet works, an additional activated sludge aerobic/anoxic reactor, and an upgraded disinfection stage with an automatically controlled chlorine gas application.



The Results



Sustainable reuse of treated sewage for irrigation.



Reduced demand on potable water supplies.



Efficient and cost-effective wastewater treatment.



// We believe we have embarked on the best possible approach for our wastewater management and treatment. The technology application from Tecroveer requires less capital investment, fewer mechanical components, and reduced civil infrastructure. This means lower energy costs, less maintenance, and ease of operation.

Willem Hofmeyr

WorleyParsons' Technical Director of Water and Civil Infrastructure