

# BIOZONE SEWAGE & WASTEWATER TREATMENT



## Capability Brief

Engineering Reliable On-Site Treatment Solutions for Commercial Facilities and Developments



# INTRODUCTION

Commercial Sewage & Wastewater Treatment Systems

Biozone Manufacturing designs and integrates engineered sewage treatment systems for commercial and industrial environments. Our systems are developed to :

- **Treat wastewater efficiently**
- **Meet environmental discharge standards**
- **Enable water reuse where required.**

With more than two decades of experience in water purification and ozone-based treatment technologies, Biozone delivers modular treatment architectures that provide reliable, scalable wastewater management for facilities where municipal infrastructure is unavailable or insufficient.



The expansion of commercial developments, hospitality facilities, estates and remote infrastructure has created increasing demand for reliable on-site sewage treatment systems.

Where municipal sewer infrastructure is unavailable or insufficient, facilities must implement treatment systems capable of processing wastewater safely and consistently while meeting environmental compliance requirements.

Biozone designs commercial sewage treatment systems that treat wastewater generated from facilities such as lodges, schools, office parks, estates and industrial sites.

Our systems are engineered to ensure reliable treatment performance, minimise environmental impact and provide treated water suitable for discharge or reuse applications.

# UNDERSTANDING SEWAGE TREATMENT CHALLENGES

Understanding Sewage Treatment Challenges

Wastewater generated from commercial facilities contains a mixture of organic waste, suspended solids, nutrients, and microorganisms that must be treated before discharge or reuse.

Typical challenges associated with sewage wastewater include:

- **High organic load (BOD and COD)**
- **Suspended solids and sludge accumulation**
- **Odour generation**
- **Pathogenic microorganisms**
- **Environmental discharge compliance requirements**
- **Reuse for irrigation**

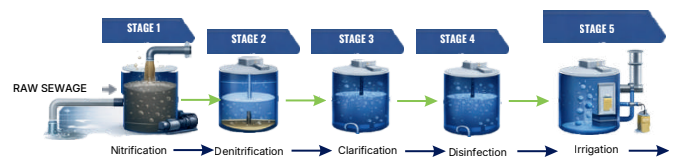
Effective sewage treatment requires the integration of multiple treatment stages designed to stabilise organic content, separate solids and disinfect treated water prior to discharge.

Biozone designs sewage treatment systems that address these challenges through integrated biological treatment, clarification processes and advanced disinfection technologies.

## Sewage Wastewater Contaminants



## Sewage Treatment Stages



# THE RIGHT TREATMENT ARCHITECTURE

System Design Driven by Wastewater Analysis

Every sewage treatment system begins with an evaluation of the wastewater characteristics and operational requirements of the facility.

Biozone engineers design treatment systems based on:

- **Daily wastewater flow rates**
- **Facility occupancy and usage patterns**
- **Organic loading characteristics**
- **Discharge or reuse requirements**
- **Environmental compliance standards**

By analysing these parameters, Biozone determines the most appropriate treatment configuration to deliver consistent wastewater treatment performance.

## TYPICAL SEWAGE TREATMENT PROCESS

Multi-Stage Treatment Architecture

Commercial sewage treatment systems typically incorporate several treatment stages to progressively remove contaminants and stabilise wastewater.

A typical treatment process includes:

### Primary Treatment

Initial separation of large solids and sediment through screening or primary settling.

### Biological Treatment

Microbial processes break down organic material within aerated treatment tanks.

### Clarification

Settling tanks separate biological solids from treated wastewater.

### Disinfection

Advanced oxidation or disinfection processes reduce pathogens prior to discharge.

## BIOLOGICAL SEWAGE TREATMENT

Stabilising Organic Waste through Aerobic Treatment

Biological treatment forms the core of most sewage treatment systems. Aerobic bacteria breaks down organic waste in the presence of oxygen, converting pollutants into stable biomass and treated water.

Biozone systems utilise aerated treatment reactors designed to optimise microbial activity and maintain consistent treatment performance.

These biological processes significantly reduce organic load and prepare wastewater for subsequent clarification and disinfection stages.

## CLARIFICATION AND SLUDGE SEPARATION

Separating Treated Water from Biological Solids

Following biological treatment, wastewater passes into clarification tanks where biological solids settle and separate from the treated water.

Clarification ensures that suspended solids are removed before the final treatment stage, improving water clarity and ensuring effective disinfection.

Sludge collected from the clarification process can be periodically removed for further treatment or disposal.

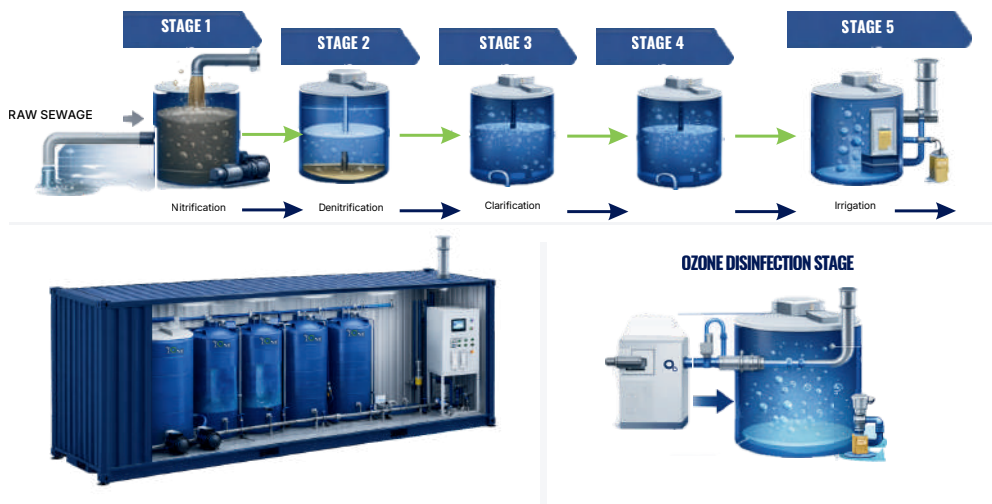
## ADVANCED OZONE DISINFECTION

Following biological and clarification stages, Biozone integrates ozone-based disinfection systems to reduce microbial contaminants and eliminate odours.

Ozone is a powerful oxidising agent capable of destroying bacteria, viruses, and other microorganisms without introducing chemical residues into treated water.

The integration of ozone disinfection provides:

- **Effective pathogen reduction**
- **Odour elimination**
- **Improved final water quality**
- **Reduced reliance on chemical disinfectants**
- **Minimal pollution**



## WASTEWATER RECYCLING & WATER REUSE

Recovering Valuable Water Resources

Treated wastewater can often be reused for non-potable applications, reducing reliance on freshwater resources.

Water reuse applications include:

- Irrigation of landscaping and agriculture
- Cooling water for industrial processes
- Toilet flushing and facility cleaning
- Environmental restoration

By incorporating recycling strategies, facilities can reduce water consumption while improving environmental sustainability.

## MODULAR TREATMENT SYSTEM DEPLOYMENT

Flexible Installation Options

Biozone sewage treatment systems can be deployed in several configurations depending on the facility requirements.

Deployment models include:

- Containerised treatment plants
- Skid-mounted treatment systems
- Modular treatment units
- Integrated plant installations

These modular architectures enable systems to be scaled based on wastewater flow requirements and facility expansion.



## COMMERCIAL TREATMENT CAPACITY

Systems Designed for Medium to Large Facilities

Biozone specialises in commercial sewage treatment systems designed for facilities generating 5 kilolitres per day and above.

Typical applications include:

- Lodges and resorts
- Estates and residential developments
- Schools and hospitals
- Shopping centres
- Industrial facilities
- Remote infrastructure

## SYSTEM MONITORING & OPERATIONAL CONTROL

Ensuring Reliable Treatment Performance

Biozone provides preventative maintenance programmes and technical support to ensure long-term system performance.

Services include:

- Routine system inspections
- Preventative maintenance
- Performance monitoring
- System repairs and optimisation

## LIFECYCLE SYSTEM SUPPORT

Maintaining Reliable Treatment Performance

Biozone provides preventative maintenance programmes and technical support to ensure long-term system performance.

Services include:

- Routine system inspections
- Preventative maintenance
- Performance monitoring
- System repairs and optimisation

# COLLABORATIVE ENGINEERING FOR COMPLEX PROJECTS

Integrated Wastewater Treatment Expertise

For specialised industrial wastewater treatment applications requiring advanced treatment processes, Biozone collaborates with trusted engineering partners to deliver integrated treatment solutions.

This collaborative approach enables the delivery of compliant wastewater treatment systems across a broad range of industries.

## RELIABLE WASTEWATER TREATMENT SOLUTIONS

Biozone Manufacturing delivers engineered sewage treatment systems that enable commercial facilities and developments to manage wastewater responsibly and efficiently.

By combining proven treatment processes with advanced disinfection technologies, Biozone provides reliable wastewater treatment solutions that protect the environment and support sustainable infrastructure development.

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