

C A S E S T U D Y

A Sustainable Wastewater Treatment and Reuse Solution for Retirement Communities

TAMAHERE COUNTRY CLUB, NEW ZEALAND

PROBLEM A large, multi-stage retirement development needed on-site wastewater treatment that was reliable and scalable and wouldn't distract from the aesthetics of the community.

SOLUTION The developer chose Orenco's AdvanTex® Wastewater Treatment System, which has a long track record of producing high-quality effluent with minimal operator oversight. Innoflow, the local Orenco dealer, provided full design-build-operate services.

Phased Development Chooses AdvanTex Reliability

Tamahere Country Club is a multi-stage development for luxury retirement living in the Waikato region of New Zealand. The property includes an impressive number of fit-for-purpose living and recreational spaces – 205 villas, 23 apartments, and 71 special care rooms – plus a range of amenities that includes a gym, pool, movie theater, library, golf courses, and a restaurant.



This AdvanTex Wastewater Treatment System is so quiet and efficient that it goes practically unnoticed by the residents of the Tamahere Country Club, a high-end retirement community.

Photo courtesy of Innoflow Technologies NZ Ltd.

When construction began in 2019, gravity sewer mains weren't available to connect to, so the project was dependent on finding a reliable and visually pleasing on-site wastewater treatment and dispersal system. And because the community would be built out over the space of several years, the planned treatment system would also need to be installed and expanded through various phases of development.

Finally, planning for a relatively large volume of treated effluent to be applied to the land would require a wastewater system that provided consistent, high-level treatment to preserve the surrounding environment.

Commercial – Reuse Market

PROJECT OVERVIEW

TAMAHERE, NEW ZEALAND



Design Parameters

Phase 1 (December 2020 - March 2022):

- 255 residents
- 44.5 m³/day (11,756 gpd) average dry-weather flow
- 70 m³/day (18,492 gpd) maximum flow

Phase 2 (August 2022 - November 2023):

- 207 residents
- 37 m³/day (9,774 gpd) average dry-weather flow
- 60 m³/day (15,850 gpd) maximum flow

Treatment Limits

- 20 mg/L cBOD₅
- 30 mg/L TSS
- 150 kg TN/hectare/year

Average Effluent Quality*

- 2.4 mg/L cBOD₅
- 3.4 mg/L TSS
- 38.7 mg/L TN
- 9.8 mg/L TP

Start-Up Date

- December 2022

Collection System

- Gravity sewer

Primary Treatment

- Phase 1: nine 25-m³ (6604-gal) septic tanks
- Phase 2: two 25-m³ (6604-gal) septic tanks

**Samples collected between May 2021 and October 2023 and analyzed by a third party.*

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After sharing these requirements with several wastewater system providers, the developer eventually chose Innoflow Technologies NZ Ltd, a local Orenco Systems dealer. These were the key points of Innoflow's proposal that met the needs of the development:

- The AdvanTex system could scale up as the development grew.
- Innoflow has a 30-year track record of installing similar systems.
- The system would provide reliable, high-level treatment despite variable flows.
- The AdvanTex units wouldn't disrupt the development's aesthetic.
- AdvanTex technology has low power consumption, low operator input requirements, and long-life components.
- Innoflow offered 5-year warranties on the system, as well as seamless design-build-operate service from inception to installation, plus ongoing operation and maintenance through its subsidiary, S3 Ltd.

The first phase of the system was completed in 2022 and included eight single-stage AdvanTex recirculating packed-bed filter units, designed for secondary treatment (with effluent limited to 20 mg/L cBOD₅ and 30 mg/L TSS).

As construction continued, the developer wanted to provide even further protection for groundwater sources, so the second-phase treatment system was configured as a two-stage facility for advanced secondary treatment (with effluent limited to 15 mg/L for both cBOD₅ and TSS). The result has been superior effluent quality and low organic and nutrient loading during effluent dispersal, despite greater flows.

Landscaped beds lining the community's pathways are irrigated with the treated effluent. This efficient reuse application is possible because of the consistently high performance of the AdvanTex wastewater treatment facility.

The treatment system includes a two-way, telemetry-enabled TCOM™ control panel, allowing the service provider to remotely monitor system functions and alarms and to actively manage any potential issues before they escalate. The TCOM panel also automatically logs daily effluent flows, providing the data needed for consent compliance reports for the regional council.

The Tamahere Country Club is one of many examples of how on-site wastewater treatment and dispersal can be part of a development's landscape in a way that's both sustainable and beautiful.



Commercial — Reuse Market

Secondary Treatment

Phase 1:

- Three 25-m³ (6604-gal) recirc tanks with dosing pumps
- Eight AdvanTex AX100 units

Phase 2:

- Three 25-m³ (6604-gal) pre-anoxic tanks
- Two 25-m³ (6604-gal) post anoxic tanks with dosing pumps
- For Stage 1: three 25-m³ (6604-gal) recirc tanks with dosing pumps and three AdvanTex AX100 units
- For Stage 2: two 25-m³ (6604-gal) recirc tanks with dosing pumps and four AdvanTex AX100 units

Reuse Application

- Landscape irrigation

Monitoring and Control

- Orenco Controls™ TCOM™ telemetry panel

Equipment Supplier

- Innoflow Technologies NZ Ltd.

Operation and Maintenance

- S3 Ltd. (a subsidiary of Innoflow)

The AdvanTex units were added in phases as the development grew, producing high-quality effluent that's reused for landscape irrigation.

Photo courtesy of Innoflow Technologies NZ Ltd.

For information about Prelos® Sewer, AdvanTex® Wastewater Treatment, or Orenco Controls™, contact Orenco Systems, Inc.



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