

This paper was originally published in the January 2008 issue of Sustainable Land Development Today.

Sustainable Wastewater Systems Integrate Effluent Sewers and Packed Bed Filter Treatment

Geoff Salthouse¹

Decentralized wastewater management is beginning to get the attention it deserves because of its potential for economic and environmental sustainability. But not every decentralized technology can really be called “sustainable.”

Orenco[®] Effluent Sewers and AdvanTex[®] Treatment Systems meet the requirements of sustainability by protecting the “triple bottom line” of social, environmental, and financial benefits. For these reasons, Orenco Effluent Sewer Systems are consistently chosen by developers and municipalities looking for wastewater technology that supports their sustainability goals.

Proven Technology with Round-the-Clock Monitoring

With an Orenco Effluent Sewer, primary treatment happens in an interceptor tank at each house or business. Solids remain in the tank, where they are reduced by as much as 80 percent a year via natural decomposition. (Consequently, under normal conditions of use, most tanks typically need pumping just once every 10-to-12 years.)

The filtered effluent flows through small-diameter collection lines to a treatment facility. The load from each household is much lower than it would be with a gravity sewer, vacuum sewer, or grinder system, because only filtered liquids are transported, not solids. As a result, overall energy requirements at the treatment facility are also much lower.

An Orenco Effluent Sewer can discharge into an existing gravity sewer, a central sewer plant, or a neighborhood AdvanTex treatment site.

AdvanTex textile filters are low energy, low maintenance treatment systems that can be placed right within a neighborhood to efficiently treat waste from a few homes or hundreds of homes. The effluent passes through curtains of synthetic textile, where naturally occurring microorganisms remove impurities from the effluent. Treated effluent is discharged to the soil, or it can be disinfected and beneficially reused in other ways.

Orenco’s systems can transmit and treat tens of thousands of gallons daily for a community – without a single pump greater than 1 hp. That means low power usage for customers. And because the system is watertight and includes emergency storage, there’s virtually no chance of overflows, odors, or other environmental impacts. Monitored via telemetry, the system requires a minimum of maintenance and adjustment, and any malfunctions are promptly detected. There is no upper limit on the size of systems.

¹ Geoff Salthouse is a project engineer with Orenco Systems[®], Inc.

Preserving Environmental, Social, and Financial Assets

Some developers choose Orenco to minimize damage to a sensitive environment. In Australia, on the Gold Coast of Queensland, the Ecovillage at Currumbin is a planned community focused on implementing and teaching sustainable development principles. The Ecovillage's planners selected Orenco's AdvanTex textile filter treatment because, of all the technologies considered, it created the lowest total impact on the environment in its manufacturing, construction, and operation.

Others choose Orenco to provide the social benefits of infrastructure with a minimum of initial investment. The City of Bethel Heights, Ark., needed a treatment system immediately, to serve new developments and forestall de-annexation of property. But connection fees wouldn't start coming in for years. By building an effluent sewer system in phases and adding AdvanTex modules as necessary, Bethel Heights could accommodate the initial customers and serve them with a part time operator as the system grew.

Other developers and communities have chosen Orenco Effluent Sewers and AdvanTex Treatment Systems because these technologies are economically sustainable over the long term. Orenco recently won a contract with Pearl River County, Miss., to supply equipment, installation, and management for effluent sewers with AdvanTex Treatment for new development as part of the area's restoration after Hurricane Katrina. As hundreds of other wastewater system managers have done, the county looked at other alternatives – but chose Orenco for its low-maintenance technology and its decades of system management experience.

The Most Sustainable Solution

Orenco has been designing, installing, and in some cases maintaining municipal systems for 25 years, so the company's experts won't just tell you how a system ought to work – they can take you to systems and show you how they do work. If you're interested in protecting the triple-bottom line of environmental, social, and financial assets, let Orenco show you what it can do for your community or development.