

Redeeming Grace

A biological remediation process saves a Georgia family from replacing a failed gravel drainfield

By **Scottie Dayton**

Sewage surfacing from a 25-year-old gravel drainfield and odors from the septic tank alerted a family in Greensboro, Ga., to a potential health hazard. The family had just installed an irrigation system and sodded the lawn, dotted with mature trees. They needed an affordable onsite solution that did not disturb the area.

The soil report stated that shallow rock would prohibit a conventional drainfield. The couple called Infiltrator Systems Inc. in Old Saybrook, Conn., to assess the problem. Jim Free, senior representative, and Matt Vinson, area representative, determined that an excessive biomat was causing the ponding.

“Repairs would involve digging up the concrete driveway and installing a pump system to lift wastewater to a very shallow drainfield at the top of the property,” says Vinson. “The other option was a drip system. Neither was an

efficient solution.”

In June 2007, the homeowners decided to remediate their existing system. After researching technologies, they selected an aerobic bacterial generator (ABG) that resolved their wastewater issues within two weeks without disrupting the yard.

Soil conditions

Soils are sandy with unsuitable absorption rates. Soil series are Poindexter and Prosperity. The depth to seasonal high water table for the Poindexter series is 48 inches; for Prosperity, 18 to 30 inches. The four-bedroom home sits on one acre with a 15-percent grade from the back yard. The only suitable area for a replacement drainfield was a 30- by 60-foot section of sandy loam near the street, but that was too small.

System components

Based on the number of bed-



Brian Parker guides the Aquaworx Remediator into the septic tank. It must sit firmly on the bottom and below the riser for easy access. Matt Vinson looks on. (Photos courtesy of Infiltrator Systems Inc.)

rooms, the system is designed to handle 500 gpd. Its major components are:

- Existing 1,000-gallon, single-compartment concrete septic tank.
- Existing drainfield with 200 feet of gravel trench.
- Aquaworx Remediator from Infiltrator Systems Inc.

System operation

The ABG is a 36-inch-high by 15-inch-diameter airlift column inserted into the septic tank. Cusped plastic wrapped the bottom outside of the unit and

placed within and above a bubble diffuser provides the surface on which introduced proprietary bacteria colonize.

The unit has a 1/2-hp air pump with built-in alarm that supplies air through a 1/2-inch PVC Schedule 40 line discharging at the bottom of the column. Aeration circulates the septage and creates an environment that enables the microbes to digest organic waste and remove nitrate. More than 25,000 gpd pass around, over, and through the 150 square feet of plastic.

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System Profile

Location:	Greensboro, Ga.
Facility served:	4-bedroom home
Installers:	Brian Parker and Matt Vinson, Infiltrator Systems Inc., Old Saybrook, Conn.
Site conditions:	Sandy soils with unsuitable absorption rates
Type of system:	Aquaworx Remediator, Infiltrator Systems Inc.
Hydraulic capacity:	500 gpd



At left, Matt Vinson and Brian Parker prepare to install the air pump and its protective plastic basin. Below, a close-up of the aerobic bacterial generator at work five days after installation.



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Matt Vinson

disappear after a day or two,” says Vinson. “A foam or bubbly floc may appear for a week or two, but that’s normal and can be washed down with a hose.”

As effluent flows by gravity to the drainfield, bacteria migrate with it to consume the clogging biomat and improve the nitrification phase. Increased hydraulic efficiency is noticeable within weeks. The remediator is not an advanced treatment unit.

Installation

Using shovels, Parker and Vinson dug down 2 feet to uncover the septic tank, removed the concrete lid from the inspection port, and retrofitted it with a 24-inch riser from Polylok Inc. The tank held the required minimum liquid depth of 38 inches, enabling the ABG to operate properly.

“We recommend pumping the tank if it has six or more inches of sludge and three or more inches of scum,” says Parker. “Pumping allows a cleaner installation, but the disadvantage is waiting for the tank to refill before starting the Aquaworx unit.”

After mounting the air pump’s

waterproof basin under the outdoor deck near an electrical outlet, the men used shovels to dig a 20-foot-long trench 4 to 6 inches wide to bury the air line. “A depth of 8 to 12 inches is adequate,” says Parker. “The aim is simply to hide it.”

They lowered the ABG into the tank using the supplied rope. “The rope is made of non-reactive material because it stays in the tank and is used to remove the unit for future maintenance,” says Parker. The ABG was positioned with the air-line assembly as close as possible to the riser’s inside wall. Parker then bounced the unit on the bottom of the tank to seat it. “You can feel it settle,” he says. “If improperly seated in a lot of sludge, the column begins to tip.”

Because the unit merely sits on the bottom, the rigid air-line assembly added stability when glued in place. ABG installation took 30 minutes and the preparation about two hours. Within two weeks, the remediator restored the system to working condition with no signs of ponding at ground level. Complete restoration is expected in six months.

Maintenance

Infiltrator Systems holds the maintenance agreement. During the first three weeks of operation, a technician inspects accessible components for proper fit and function, and verifies solids levels and odor reduction in the septic tank. He also looks for ponding.

Six months later, the technician repeats the process, cleans the air pump filter, and inspects the basin assembly, septic tank riser, riser lid, and seals. The year-end inspection adds removal and replacement of the bacterial catalyst assembly to the checklist. ■

MORE INFO:

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