

DUKE FARMS

On-Site Wastewater Management System

Hillsborough, New Jersey



*from top: Constructed wetlands;
Historic Farm Barn renovated
with green building practices*

Duke Farms, a 2,742-acre property developed by tobacco and hydropower magnate James Buchanan Duke, includes nine lakes, 96 buildings, 18 miles of trails, and numerous fountains and sculptures. In the 1960s and 1970s, J.B. Duke's daughter, Doris Duke, purchased small, 19th century farms along the western boundary of the property, which represented the rapidly vanishing agricultural landscape that once characterized central New Jersey.

Constructed wetlands, as part of an upgraded wastewater management system, provide healthy and sustainable habitat while enhancing public access at a historic farm.

Today, with almost 1,000 acres open to public exploration, Duke Farms is a cultural landscape maintained by the Duke Farms Foundation. As Duke Farms planned to expand to provide environmental programming and increased access for over 250,000 annual visitors, it sought to provide healthy, sustainable habitat for native flora and fauna that would fully integrate with local, state, and regional environmental strategies.

This expansion necessitated a wastewater management system upgrade. Biohabitats was responsible for the overhaul and upgrade of the existing wastewater system, which included septic systems and sand mounds. The redesign includes a small diameter wastewater collection system for the farm's cottages and barn, and an onsite wastewater treatment system. The wastewater treatment system

incorporates a primary treatment tank (interceptor tank) at each building, constructed wetlands, trickling filters, a recirculating sand filter, and a subsurface drip land application system.

The four-step, low energy, low maintenance system has a treatment capacity of 12,000 gallons per day. Water quality meets or exceeds all State of New Jersey water quality standards for the land application.

The Duke Farms project is an exciting collaboration between Biohabitats and the Duke Farms Foundation. Biohabitats is proud to assist in the stewardship of this important cultural asset.

Project partners were Vitetta, project architect; LanganEngineering & Environmental Services, civil engineer; and Glen Likus, contractor.

*conservation planning
ecological restoration
regenerative design*



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