

Animal and Poultry Waste Management Center

A candidate technology of the North Carolina Agreements Project: Development of Environmentally Superior Technologies per Agreements Between the Attorney General of North Carolina and Smithfield Foods, Premium Standard Farms and Frontline Farmers

Solids Separation/Constructed Wetlands System

This project is located on the Brandon Howard farm near Richlands, North Carolina. The farm is a 3,520 head finishing operation on contract with Murphy-Brown of Warsaw, North Carolina. The farm owner is serving as the technology provider for this project, with North Carolina State University faculty providing the design parameters and technical support.

This project involves the utilization of constructed wetlands for effluent treatment following primary screening and solids separation. Waste from houses in which pigs are raised moves first to a solids separator, a screen that removes the solid portion of the waste stream. The solids are available for off-farm use.

The remaining liquid waste flows through an 8-acre constructed wetlands filled with wetland plants. The waste is treated biologically by microbes within the root zone of the plants. The microbial action converts nitrogen in the waste from ammonia and/or organic nitrogen to nitrogen gas via nitrification-denitrification. After moving through the wetland, the liquid flows to an irrigation pond.



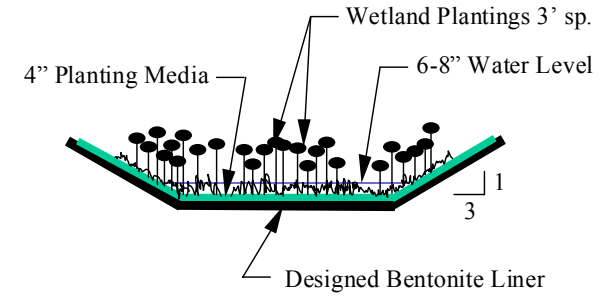
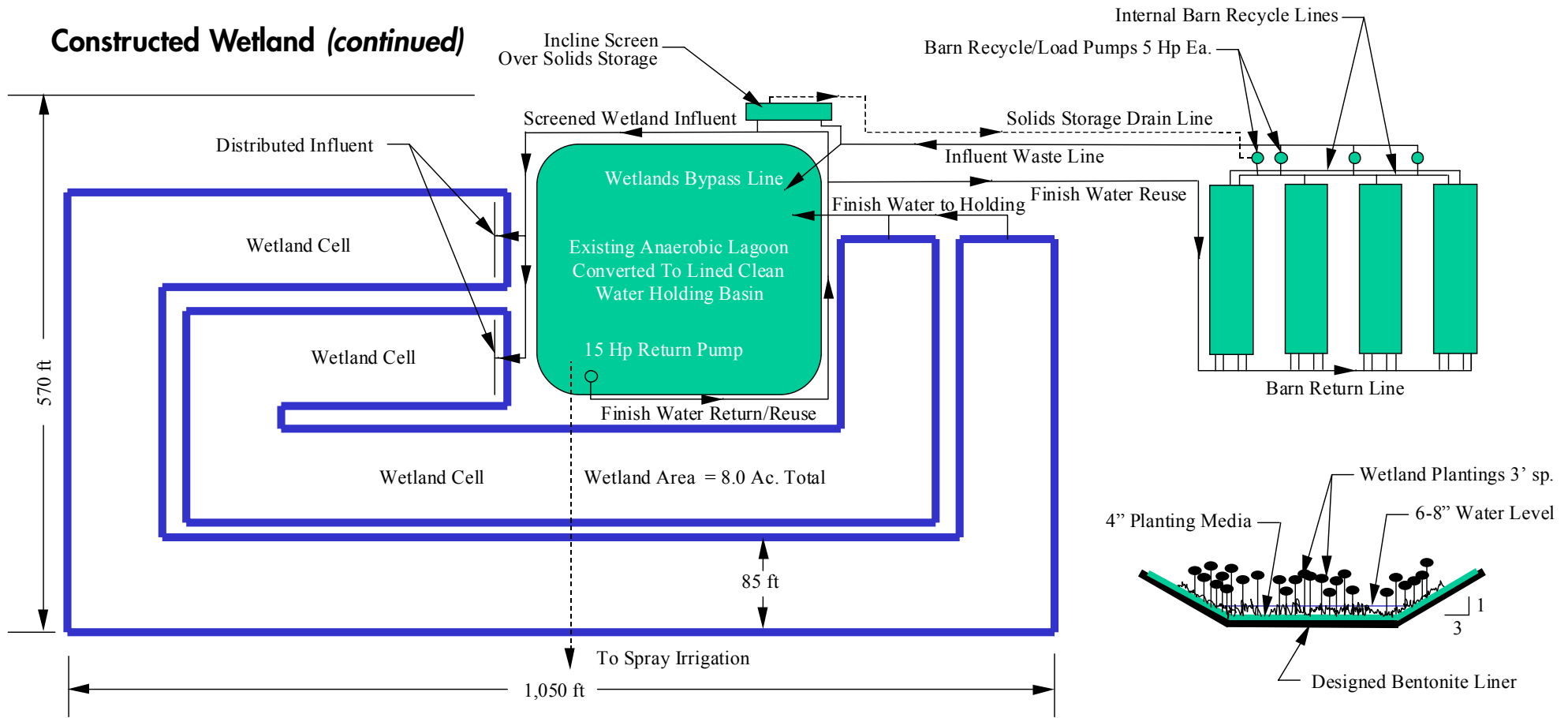
Constructed Wetland

The constructed wetland has been in operation since late 2001 under the direct supervision of Mr. Howard. The performance evaluation team has been collecting operational and performance data since operation began.

For Information Contact:

Dr. Frank Humenik
Waste Management Programs Coordinator
College of Agriculture and Life Sciences
North Carolina State University
Raleigh, NC
voice: 919.515.6767; fax: 919.513.1023
e-mail: frank_humenik@ncsu.edu

Constructed Wetland (continued)



Flow Diagram of Constructed Wetland



Aerial View