



Wetland Systems for Swine Waste Treatment

- Constructed Wetland Systems
- Reciprocating Constructed Wetland System



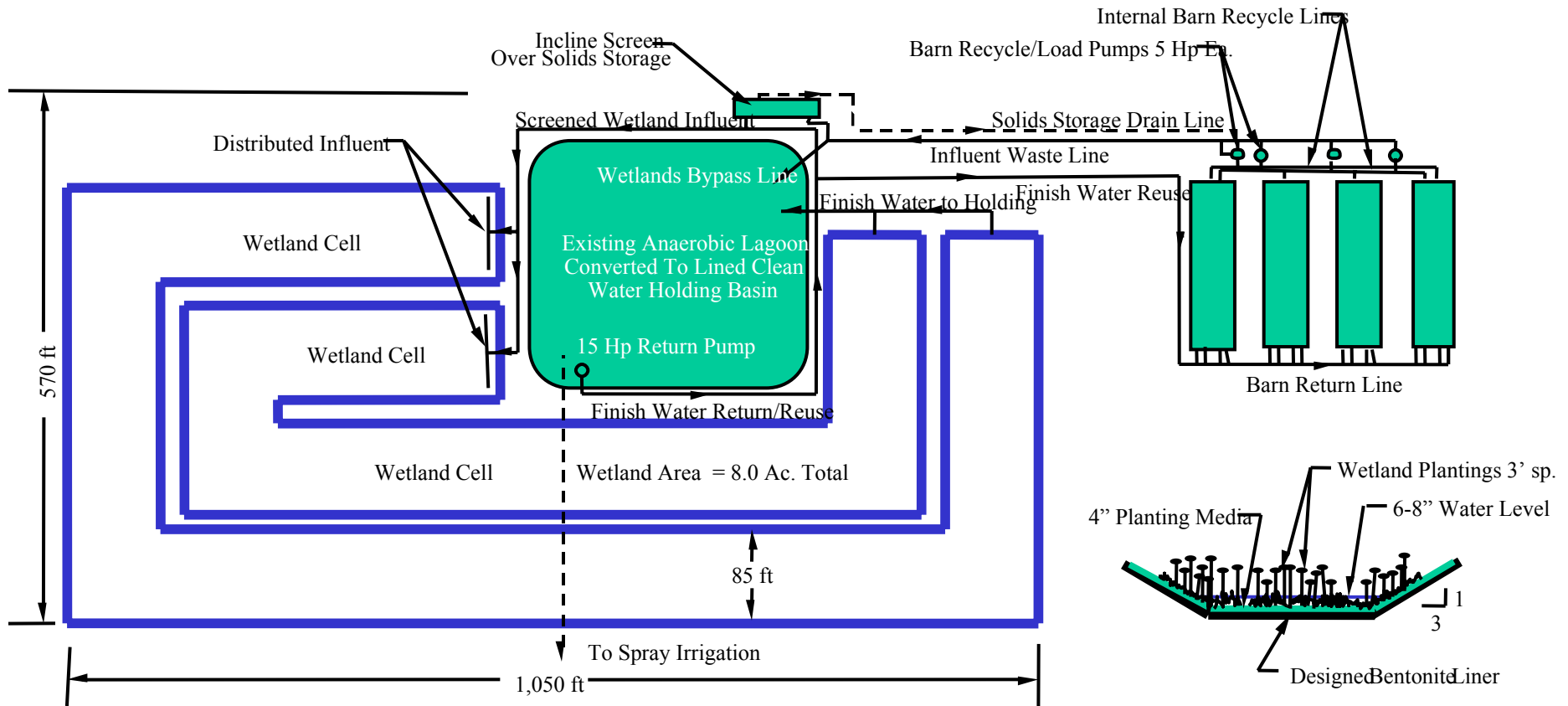
Constructed Wetland System

- Not Produce Dischargeable Effluent
- At 25 kgN/ha/day Removed
5870 kgN/ha/270day-yr-87%
- Microcosm Studies with Nitrified
Wastewater >14,000 kgN/ha/yr

Nitrogen Loading Rates and Removal Rates for Constructed Wetlands

Duplin County, NC (June 1993-December 1998)

Loading Rate kg/ha/day	% Mass Removal	Mass N Removal for a 270 day yr (kg/yr)	Average TN Concentration of Effluent (mg/l)
3	94	760	8.2
8	87	1880	24.2
15	83	3360	29.5
25	87	5870	46.0











Reciprocating Constructed Wetlands for Swine Waste Treatment



Reciprocating Constructed Wetlands

- Recurrent Fill and Drain Results In Fixed – Film Aerobic/Anaerobic Reactor
- Can Manipulate...
 - Retention Time
 - Reciprocation Frequency, Cycle Time and Depth
 - Sub Flow Process



http://www.cals.ncsu.edu/waste_mgt/