PURDUE UNIVERSITY

Woodchip Bioreactor to Reduce Nitrate from Tile Drains

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Construction Fall 2012

Subsurface trench lined with plastic

Drainage control structures

Filled 3-ft high woodchips; 4 PVC wells

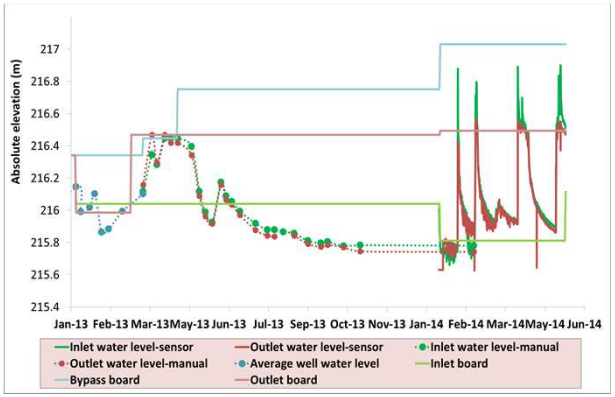
Topped with geotextile and 1-ft topsoil

Research and Monitoring

1. Evaluate the bioreactor as an effective means for nitrate reduction in tile drainage
2. Determine the effect on phosphorus
3. Monitor environmental factors that can impact the rate of nitrate reduction
4. Calculate hydraulic settings such as flow, retention time and hydraulic gradient

Sept 2012 Jan 2013 Feb 2013 April 2014

Operation strategy and water levels



Bioreactor in April 2013

2013 Results 2014