

## Alleghany Farm Services

### Fairview Road Bioreactor and Stabilization Project Proposal



#### Project Components:

- 1.) Bioreactor connected to historical tile system: \$ 25,000 - \$30,000.
- 2.) 20 acres of new tile added to system: \$35,000.00.
- 3.) Erosion Control of Drainage Ditch: \$85,000.00

#### Option 1:

- Project Components 1,2, and 3.
- Approximate Project Cost: \$145,000.00

\*Ideal But Costly

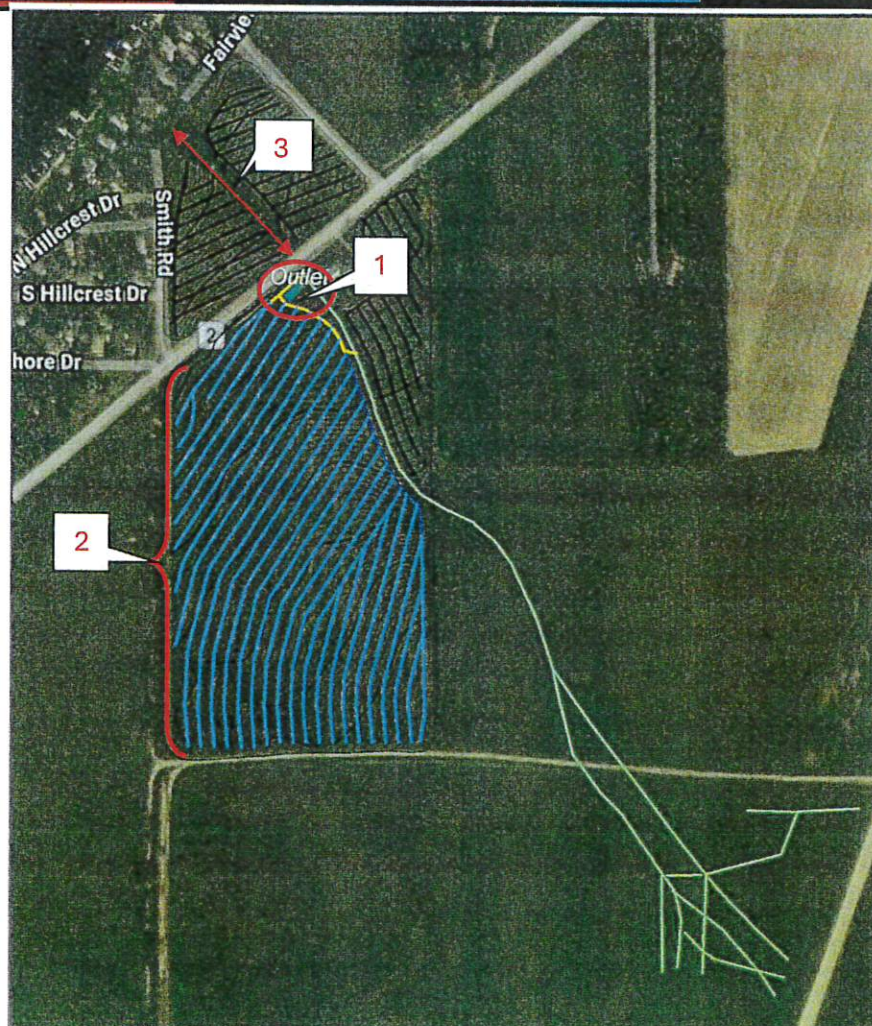
#### Option 2:

- Project Components 1 & 3.
- Approximate Project Cost: \$110,000.00

\*Addresses both nutrient pollution (1) and sediment pollution (3)

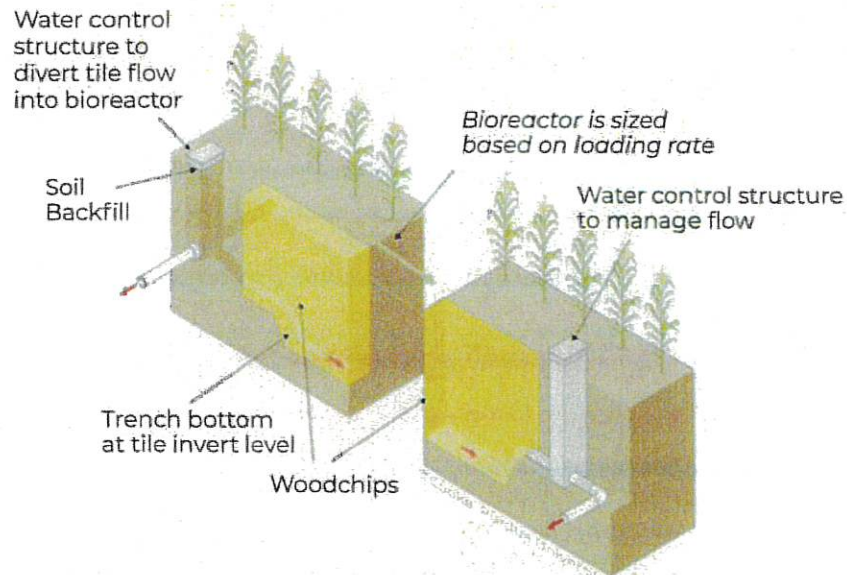
#### Option 3:

- Project Component 1.
- Approximate Project Cost: \$ 25,000.00





# Wood Chip Bioreactor



## WOOD CHIP BIOREACTOR

Distributes field tile water through a trench filled with wood chips, typically near the tile outlet at the edge of the field. This process naturally removes nitrogen from the tile water and the water infiltrates back into the ground.

- Bioreactors have been used in the Midwest for over a decade.
- A bioreactor is basically a buried trench filled with a carbon source- usually wood chips- installed at the edge of a field.
- Tile drains carry excess water and divert a portion of the drainage water into the bioreactor where microorganisms on the wood chips consume the nitrates in the water and expel it as nitrogen gas. Tile water flow is controlled by a gated water control system that can be managed by the landowner or District during heavy storm events.
- The average bioreactor can be expected to remove 35-50 percent of nitrates from the water flowing through it.
- Bioreactors have no adverse effects on crop production. In some cases that can even be planted over.
- Bioreactors lifespan lasts around 8-10 years depending on multiple factors.





Silver Lake

Fairview

Fairview

Lake

Smith

Park

Hillcrest

Midvale

Bluebird

Lake Shore

Wood Chip Bioreactor

Erosion/Stabilization Area

Sources: Esri, Amibis DS, USGS, NEA, NASA, CGIAR, N Robinson, NCGAS, NIS, OS, NMA, Geodak, ArcView, ArcMap, ArcCatalog, GSA, Geotool, FEMA, Intermap and the GIS user community. Esri Community Maps Contributor, Esri OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, Geotechnologies, Inc, MEMNAS, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

**Nutrient Reduction Bioreactor Project**

Wyoming County Soil & Water District

\*Map is for Reference Only\*

