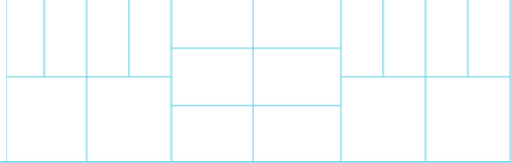


4-Step Process Toward Implementation



STEP 1 ASSESSMENT

LANDOWNER

- Allows TWI to access USDA farm maps
- Provides tile maps

THE WETLANDS INITIATIVE

- Suggests potential locations
- Estimates tile drainage area
- Does an off-site assessment to determine if tile drainage, topography, soils, and hydrology are appropriate for a Smart Wetland

STEP 2 DEVELOP DESIGN

LANDOWNER

- Allows access to the property
- Provides feedback on designs

THE WETLANDS INITIATIVE

- Does an on-site assessment to verify soils, topography, and tile locations
- Develops a preliminary design
- Provides a construction cost estimate

STEP 3 FINALIZE DESIGN

LANDOWNER

- Approves final design
- If using USDA Farm Bill cost-share programs, submits and signs USDA program applications

THE WETLANDS INITIATIVE

- Prepares final design documents for landowner (and NRCS if funded by USDA Farm Bill programs)
- Files local, state, and federal permit applications, if needed

STEP 4 CONTRACTS & CONSTRUCTION

LANDOWNER

- Coordinates with TWI on construction bids
- Selects contractor
- Prepares site for construction

THE WETLANDS INITIATIVE

- Issues requests for contract bids to qualified contractors in cooperation with landowner
- Oversees construction
- Prepares as-built drawings



Do Smart Wetlands work?

Yes. Constructed wetlands designed for tile-treatment are proven to be highly effective at removing nitrogen from tile drainage without taking significant amounts of farmland out of production.

On average, a properly sized constructed wetland can reduce nitrate-nitrogen loss by 50%. Nitrate is transformed to a harmless nitrogen gas by microbes in the wetland (denitrification). Nitrate removal is affected by tile flow, nutrient concentration, residence time, temperature, and carbon available for the microbes.

SW1 is 0.7 acres with a size ratio of 0.3%

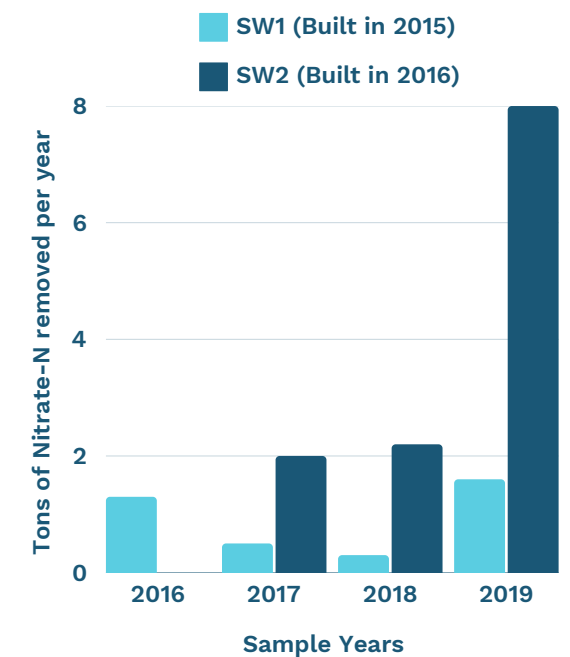
- Monthly removal efficiency was 2-69% (Average annual removal was 21%)
- Total removal was 3.6 tons over 4 years
- Average removal per year was 2,750 lb/acre of wetland

SW2 is 0.8 acres with a size ratio of 3.6%

- Monthly removal efficiency was 25-99% (Average annual removal was 75%)
- Total removal was 12.2 tons over 3 years
- Average removal per year was 10,000 lb/acre of wetland

Comparison of 2 Smart Wetlands in Bureau County, IL

(Data from University of Illinois at Chicago)



How do I pay for it?

The constructed wetland practice is eligible for financial assistance under U.S. Farm Bill programs (Conservation Reserve Program and Environmental Quality Incentive Program). TWI is providing grants to assist landowners in with construction and vegetation costs.

What does a Smart Wetland cost?

Since the land slopes, soils, tile depth, tile drainage area, wetland size, and location of a constructed wetland vary, it is not possible to give an accurate estimate of what a wetland will cost until an engineering analysis is completed. It can range from 10,000-80,000 dollars.

Should a Smart Wetland be a part of your farm operation?

Yes, if you want to reduce nitrate-nitrogen runoff from your farm. A Smart Wetland could be a good fit for your property if you have access to a tile-drainage system that drains 30-200 acres of row cropland and a few acres of land where the tile line can be intercepted before it discharges to a grassed waterway, ditch, stream, or pond.



What are the benefits to my farm operation?

- A long-life practice that operates 30+ years
- Little annual maintenance and management
- No changes to your cropping system
- Optional use for hard-to-farm or non-profitable land
- Provides habitat for wildlife and pollinators
- A resilient practice that keeps working as weather patterns change

The Wetlands Initiative
333 N. Michigan Ave
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Chicago, IL 60601



For more info



A Nutrient Reduction Solution for Tiled Cropland

What is a Smart Wetland?

Smart Wetlands are small constructed, nitrate-removal wetlands custom designed to fit within your farm's existing or proposed tile drainage system.

They are best located next to an existing ditch, stream, or grassed waterway where it is easy to intercept drain tile outflow.

The treatment area should be 1-5% of the tile drainage area being captured in order to remove nutrients effectively. A typical wetland and buffer project area is 3-10 acres.

The ideal wetland water depth is 12-18 inches. They are planted with native plants, allowing a shallow marsh ecosystem to develop. This system provides the best conditions needed to remove nitrates naturally.



Harness the natural power of wetlands to reduce nitrogen loss from your farm

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