

Practice: 656 - Constructed Wetland

Scenario: #1 - Constructed Wetland, Dense Planting

Scenario Description:

This practice scenario includes the basic earthwork and native and/or organic wetland vegetation needed to create a constructed wetland to treat contaminated agricultural runoff or effluent from a drainage system high in nutrients. All other components, such as water control structures, dikes or upstream sediment basins, must be paid for under facilitating practices. Soil, water and tissue sampling are required. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrients and pathogens. Associated practices: Structure for Water Control (587); Sediment Basin (350); Dike (356); Pond Sealing or Lining, Compacted Clay Treatment (521D); Pond Sealing or Lining, Flexible Membrane (521A); Fence (382); Grade Stabilization Structure (410); Pumping Plant (533); Waste Transfer (634); Critical Area Planting (342); Filter Strip (393).

Before Situation:

Degraded water quality and/or ponding due to the nutrient content and/or sediment of agricultural runoff.

After Situation:

A 1 acre constructed wetland (measured by the size of the treatment pool suitable for wetland vegetation) will be constructed with an average 18" depth. Only the earthwork and wetland vegetation are considered in this scenario. Vegetation is planted at a spacing of 3 by 3 feet. Any structures or sediment basins will be designed under a separate practice. The constructed wetland is sited near the property boundary, but still takes cropland out of production (1/2 wetland acreage). The constructed wetland treats the effluent by creating conditions at the plant/soil/water interface for biochemical nutrient removal before the effluent is transported to a waste storage facility or discharged off site if permitted by regulation.

Scenario Feature Measure: Area of Constructed Wetland

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$13,313.90

Scenario Cost/Unit: \$13,313.90

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Excavation, common earth, small equipment, 50 ft	1220	Bulk excavation of common earth with dozer <100 HP with average push distance of 50 feet. Includes equipment and labor.	Cubic Yard	\$2.47	1613	\$3,984.11
Stripping and stockpiling, topsoil	1199	Stripping and stockpiling of topsoil adjacent to stripping area. Includes equipment and labor.	Cubic Yard	\$0.86	807	\$694.02
Clearing and Grubbing	40	Clearing and Grubbing, includes materials, equipment and labor	Acre	\$286.67	1	\$286.67
Foregone Income						
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	\$437.76	0.25	\$109.44
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	\$430.43	0.25	\$107.61
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$20.32	48.4	\$983.49
Materials						
Native Aquatic Plants, Emergent or Submerged	2336	Native aquatic emergent or submerged. All required materials for establishing vegetation. Includes material and shipping.	Each	\$1.37	4840	\$6,630.80
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.88	2	\$517.76

Practice: 656 - Constructed Wetland

Scenario: #2 - Constructed Wetland, Light Planting

Scenario Description:

This practice scenario includes the basic earthwork and native and/or organic wetland vegetation needed to create a constructed wetland to treat contaminated agricultural runoff or effluent from a drainage system high in nutrients. All other components, such as water control structures, dikes or upstream sediment basins, must be paid for under facilitating practices. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrients and pathogens. Associated practices: Structure for Water Control (587); Sediment Basin (350); Dike (356); Pond Sealing or Lining, Compacted Clay Treatment (521D); Pond Sealing or Lining, Flexible Membrane (521A); Fence (382); Grade Stabilization Structure (410); Pumping Plant (533); Waste Transfer (634); Critical Area Planting (342); Filter Strip (393).

Before Situation:

Degraded water quality and/or ponding due to the nutrient content and/or sediment of agricultural runoff.

After Situation:

A 1 acre constructed wetland (measured by the size of the treatment pool suitable for wetland vegetation) will be constructed with an average 18" depth. Only the earthwork and wetland vegetation are considered in this scenario. Vegetation is planted at a wide spacing of 4 by 4 feet. Any structures or sediment basins will be designed under a separate practice. The constructed wetland is sited near the property boundary, but still takes cropland out of production (1/2 wetland acreage). The constructed wetland treats the effluent by creating conditions at the plant/soil/water interface for biochemical nutrient removal before the effluent is transported to a waste storage facility or discharged off site if permitted by regulation.

Scenario Feature Measure: Area of Constructed Wetland

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: \$9,982.82

Scenario Cost/Unit: \$9,982.82

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Clearing and Grubbing	40	Clearing and Grubbing, includes materials, equipment and labor	Acre	\$286.67	1	\$286.67
Stripping and stockpiling, topsoil	1199	Stripping and stockpiling of topsoil adjacent to stripping area. Includes equipment and labor.	Cubic Yard	\$0.86	807	\$694.02
Excavation, common earth, small equipment, 50 ft	1220	Bulk excavation of common earth with dozer <100 HP with average push distance of 50 feet. Includes equipment and labor.	Cubic Yard	\$2.47	1613	\$3,984.11
Foregone Income						
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	\$430.43	0.25	\$107.61
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	\$437.76	0.25	\$109.44
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$20.32	27.2	\$552.70
Materials						
Native Aquatic Plants, Emergent or Submerged	2336	Native aquatic emergent or submerged. All required materials for establishing vegetation. Includes material and shipping.	Each	\$1.37	2723	\$3,730.51
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.88	2	\$517.76