CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	

PRACTICE: Wetland Restoration 657	Baseline Setting:
	Appropriate Land Use(s): Forest, Grazed Forest, Grazed Range, Headquarters, Mined, Native or Naturalized Pasture, Natural Area, Recreation, Urban, Water, Watershed Protection, Wildlife

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Not Applicable	Not applicable.
Wind	Not Applicable	Not applicable.
Ephemeral Gully	Not Applicable	Not applicable.
Classic Gully	Not Applicable	Not applicable.
Streambank	Not Applicable	Not applicable.
Shoreline	Moderate Improvement	Wetland vegetation would protect shorelines from wind and wave action.
Irrigation Induced	Not Applicable	Not applicable.
Mass Movement	Not Applicable	Not applicable.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Slight Improvement	Water ponding promotes growth of wetland vegetation and reduces decomposition of soil organic matter.
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Not Applicable	Not applicable.
Subsidence	Not Applicable	Not applicable.
Contaminants:		
• Salts and other Chemicals	Not Applicable	Not applicable.
• Animal Waste and other Organics - N	Slight Improvement	Enhanced wetland vegetation may increase nutrient uptake.
• Animal Waste and other Organics - P	Slight Improvement	Enhanced wetland vegetation may increase nutrient uptake.
• Animal Waste and other Organics - K	Slight Improvement	Enhanced wetland vegetation may increase nutrient uptake.
• Commercial Fertilizer - N	Slight Improvement	Enhanced wetland vegetation may increase nutrient uptake.
• Commercial Fertilizer – P	Slight Improvement	Enhanced wetland vegetation may increase nutrient uptake.
• Commercial Fertilizer – K	Slight Improvement	Enhanced wetland vegetation may increase nutrient uptake.
• Residual Pesticides	Neutral	Increased organic matter may tie up pesticides.
Damage from Sediment Deposition	Not Applicable	Not applicable.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Not Applicable	Not applicable.
Excessive Runoff, Flooding, or Ponding	Slight to Substantial Improvement	Provides temporary flood storage reducing flooding and

		ponding.
Excessive Subsurface Water	Not Applicable	Not applicable.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight to Substantial Improvement	Provides temporary flood storage reducing needed outlet capacity.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Not Applicable	Not applicable.
Reduced Storage of Water Bodies by Sediment Accumulation	Moderate Improvement	Wetlands trap sediment.
Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight Improvement	The action captures pesticide residues and facilitates their degradation.
• Excessive Nutrients and Organics	Slight Improvement	The action traps nutrients and organics which are broken down and used by wetland plants.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight Improvement	The action captures pesticide residues and facilitates their degradation.
• Excessive Nutrients and Organics	Moderate Improvement	Wetland systems will utilize dissolved nutrients and trap sediment-attached nutrients and organics.
• Excessive Suspended Sediment and Turbidity	Slight to Moderate Improvement	System traps sediment.
• Excessive Salinity	Slight Improvement	Any salts in surface runoff will be detained in the wetland. Some wetland plants may take up salts.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Vegetation and anaerobic conditions trap heavy metals.
• Harmful Temperatures	Neutral	Improved hydrological conditions are likely.
• Harmful Levels of Pathogens	Slight Improvement	Pathogens are trapped in the wetland.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Not Applicable	Not applicable.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Not Applicable	Not applicable.
Excessive Ozone	Neutral	There is a minimal reduction of

		ozone precursors through reduced surface temperatures offered by shade or ground cover, and minimal biofiltering of ozone concentrations due to interception by vegetation.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Slight to Moderate Improvement	The accumulation of organic matter and sediments sequester carbon.
• N_20 (Nitrous Oxide)	Not Applicable	Not applicable.
• CH_4 (Methane)	Slight Worsening	Anaerobic conditions in wetlands would increase production and release of methane.
Ammonia (NH_3)	Neutral	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Slight Worsening	Methane production and transport, as well as other odors, will be objectionable to some people.
Reduced Visibility	Slight Improvement	Reduce wind erosion and intercepting fine particulates and precursors
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Slight to Substantial Improvement	Tall vegetation provides shade and moderates temperatures.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Moderate to Substantial Improvement	Plants selected are adapted and suited.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Moderate to Substantial Improvement	Plants are selected and managed to maintain optimal productivity and health for their intended use.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	When threatened or endangered plants are present, protection and recovery are addressed in the planning process.
• Declining Species, Species of Concern	Neutral	When threatened or endangered plants are present, protection and recovery are addressed in the planning process.
Noxious and Invasive Plants	Moderate to Substantial Improvement	Vegetation is installed and managed to control undesired species.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Substantial Improvement	Areas for food are restored.
Inadequate Cover/Shelter	Substantial Improvement	Areas for cover/shelter are restored.

Inadequate Water	Slight to Moderate Improvement	Restoration of degraded wetlands will improve habitat and water quality for many species; the number and types of species (for example nesting waterfowl or juvenile fish) that will benefit is dependent on the degree to which hydrological conditions and connections in the floodplain are improved.
Inadequate Space	Moderate to Substantial Improvement	Additional wetland space is restored.
Habitat Fragmentation	Moderate to Substantial Improvement	Multiple wetlands can restore the number and connectivity of this kind of habitat.
Imbalance Among and Within Populations	Moderate to Substantial Improvement	Habitat management is implemented to remove limiting factors.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Moderate to Substantial Improvement	Activities are designed, installed, and mitigated to an extent to enhance species of concern.
• Declining Species, Species of Concern	Moderate to Substantial Improvement	Activities are designed, installed, and mitigated to an extent to enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Slight to Moderate Improvement	These sites may be used as feed and forage by livestock if the intended purpose is maintained.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
HUMAN – ECONOMICS		
Land - Change in Land Use	Substantial	Substantial, convert to wetland.
Land – Land in Production	Substantial decrease	Substantial decrease, convert from cropland to wetland.
Capital – Change in Equipment	Moderate increase.	
Capital - Total Investment Cost	Substantial.	Substantial.
Capital – Annual Cost	Slight to moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate decrease	Slight to moderate decrease with land taken out of production.
Labor – Change in Management Level	Slight increase.	
Risk - Yield	Slight Decrease	Slight decrease due to a more conducive habitat.
Risk - Flexibility	Slight to Moderate Increase	Substantial increase in habitat capabilities.
Risk - Timing	Not applicable.	Not applicable.
Risk – Cash Flow	Slight Increase	Slight increase due to installation costs.

Profitability – Change in Profitability	Situational	Moderate decrease to slight increase.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts (mechanical).
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Not Applicable	Not Applicable
Underutilization of Non-Fossil Energy Resources	Not Applicable	Not Applicable

Human Considerations Explanation

Considerations	Physical effects indicate:
Land - Change in Land Use	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
Land - Land in Production	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
Capital - Change in Equipment	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
Capital - Total Investment Cost	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
Capital - Annual Cost	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
Capital - Credit & Farm Program Eligibility	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
Labor – Labor	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
Labor - Change in Management Level	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
Risk – Yield	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
Risk – Flexibility	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
Risk – Timing	The degree to which risk, as related to the timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Cash Flow	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Profitability - Change in Profitability	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
Cultural Resources and/or Historic Properties Present or Suspected to be Present	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
Depletion of Fossil Fuel Resources	Inefficient use of fossil-originated energy sources (diesel, gasoline, propane, natural gas, coal), lubricants, and other materials.
Underutilization of Non-Fossil Energy Sources	Available and cost-effective alternative energy sources (solar, wind, biofuel, hydroelectric, geothermal) are not being used or are being used inefficiently.