

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
PRACTICE: Diversion 362		Baseline Setting:			
		Appropriate Land Use(s): All Land Uses			
RESOURCES, CONSIDERATIONS AND CONCERNS	PHYSICAL EFFECTS		RATIONALE		
SOIL - EROSION					
Sheet and Rill	Slight Improvement		A channel across the slope reduces the slope length and the opportunity for runoff water to detach soil particles.		
Wind	Not Applicable		Not applicable.		
Ephemeral Gully	Slight to Substantial Improvement		A channel constructed across the slope intercepts surface flow and decreases soil detachment by water.		
Classic Gully	Slight to Substantial Improvement		Overland flow is diverted from gully.		
Streambank	Slight Improvement		Reduces overland flow to stream.		
Shoreline	Not Applicable		Not applicable.		
Irrigation Induced	Not Applicable		Not applicable.		
Mass Movement	Slight to Moderate Improvement		Water is diverted from the top of the slope.		
Road, Roadsides, and Construction Sites	Slight to Moderate Improvement		Overland flows are intercepted.		
SOIL – CONDITION					
Organic Matter Depletion	Not Applicable		Not applicable.		
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	Not Applicable		Not applicable.		
• Animal Waste and other Organics - P	Not Applicable		Not applicable.		
• Animal Waste and other Organics - K	Not Applicable		Not applicable.		
• Commercial Fertilizer - N	Not Applicable		Not applicable.		
• Commercial Fertilizer – P	Not Applicable		Not applicable.		
• Commercial Fertilizer – K	Not Applicable		Not applicable.		
• Residual Pesticides	Not Applicable		Not applicable.		
Damage from Sediment Deposition	Slight to Moderate Improvement		Runoff and sedimentation from sensitive areas are reduced.		
WATER – QUANTITY					
Rangeland Hydrologic Cycle	Not Applicable		Not applicable.		
Excessive Seepage	Slight Worsening		Seepage may increase due to temporary storage behind the diversion.		
Excessive Runoff, Flooding, or	Slight to Substantial Improvement		Water is diverted and prevented		

Ponding		from ponding or flooding.
Excessive Subsurface Water	Slight to Moderate Improvement	Intercepts shallow subsurface flows.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight to Moderate Worsening	Increases the need for larger outlet capacity.
Inefficient Water use on Irrigated Land	Slight to Moderate Improvement	May help capture and reuse runoff.
Inefficient Water use on Non-Irrigated Land	Slight to Moderate Improvement	May collect or direct water for water-spreading or water-harvesting systems.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Moderate Improvement	May decrease sediment load by trapping.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Moderate Improvement	May decrease sediment load by trapping.
Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Slight Improvement	Runoff can be directed to another water course.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight Improvement	The action diverts water from the pesticide application site.
• Excessive Nutrients and Organics	Slight Worsening	The action increases infiltration which may provide transport for nutrients.
• 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 diverts water from the pesticide application site.
• Excessive Nutrients and Organics	Neutral	Diversions will trap some sediment, reducing the amount of sediment-adsorbed nutrients delivered off-site. Because diversions concentrate overland flows, there can be an increase in solubles offsite.
• Excessive Suspended Sediment and Turbidity	Slight to Moderate Improvement	Diversions collect and slow runoff to a non-erosive velocity.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Slight Improvement	Controlled runoff reduces erosion and heavy metals attached to associated sediment.
• Harmful Temperatures	Neutral	The action controls surface erosion and surface water movement.
• Harmful Levels of Pathogens	Slight Improvement	Enables better runoff management
• Harmful Levels of Petroleum	Slight Worsening	Runoff is more efficiently transported to surface waters.
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	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO ₂ (Carbon Dioxide)	Not Applicable	Not applicable.
• N ₂ O (Nitrous Oxide)	Not Applicable	Not applicable.
• CH ₄ (Methane)	Not Applicable	Not applicable.
Ammonia (NH ₃)	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABILITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Water is managed to optimize moisture requirements for plants.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Not Applicable	Not applicable.
• Declining Species, Species of Concern	Not Applicable	Not applicable.
Noxious and Invasive Plants	Not Applicable	Not applicable.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Not Applicable	Not applicable.
Inadequate Cover/Shelter	Not Applicable	Not applicable.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Not Applicable	Not applicable.
Habitat Fragmentation	Not Applicable	Not applicable.
Imbalance Among and Within Populations	Neutral	Fish and wildlife habitat considerations are addressed in the design.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Not Applicable	Not applicable.

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	Slight to Substantial	N/A if no change in irrigation, substantial if in irrigation system.
Land – Land in Production	Slight decrease	Slight decrease, lose cropland as diversion is installed.
Capital – Change in Equipment	Substantial increase.	
Capital - Total Investment Cost	Moderate.	
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Negligible	
Labor – Change in Management Level	Negligible	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Not applicable.	Not applicable.
Risk - Timing	Not applicable.	Not applicable.
Risk – Cash Flow	Substantial Increase	Substantial increase due to construction costs.
Profitability – Change in Profitability	Situational	Substantial increase or decrease.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Moderate to Substantial Increase	Construction adverse effects; effects of concentrated flows.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Slight Decrease	This practice may reduce energy needed to repair damage from runoff. The practice may also increase stored water for irrigation and save energy associated with pumping.
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.