CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	6/18/2009
PRACTICE: Watering Facility 614		Baseline Setting:			
		Appropriate Land Use(s): All Land Uses			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Slight to Moderate Improvement	Increased vegetated cover due to better distribution of water reduces soil erosion.
Wind	Slight to Moderate Improvement	Increased vegetated cover due to better distribution of water reduces soil erosion.
Ephemeral Gully	Slight to Moderate Improvement	Increased vegetated cover due to better distribution of water reduces soil erosion.
Classic Gully	Slight Improvement	Increased grass cover due to better distribution of water will retard flows decreasing opportunity for classic erosion.
Streambank	Moderate to Substantial Improvement	By providing an alternate water source animal traffic on streambanks is removed reducing erosion.
Shoreline	Moderate to Substantial Improvement	By providing an alternate water source animal traffic on shorelines is removed reducing erosion.
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	Not Applicable	Not applicable.
Rangeland Site Stability	Neutral	Traffic may increase around the practice.
Compaction	Neutral	Traffic may increase around the practice, but the practice will help reduce excess moisture where traffic occurs.
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	Not Applicable	Not applicable.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Neutral	Traffic may increase around the practice.
Excessive Seepage	Neutral	The action may result in minor amounts of increased infiltration due to retarding flows with better vegetative cover.
Excessive Runoff, Flooding, or Ponding	Neutral	The action may result in minor amounts of increased infiltration (less surface flows) due to retarding flows with better vegetative cover.
Excessive Subsurface Water	Neutral	The action may result in minor amounts of increased infiltration due to retarding flows with better vegetative cover.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Not Applicable	Not applicable.
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	Slight Improvement	The action should reduce erosion and resulting sediment due to increased vegetative cover resulting from better water distribution for animals.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight Improvement	The action should reduce erosion and resulting sediment due to increased vegetative cover resulting from better water distribution for animals.
Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Neutral	The action may result in minor amounts of increased infiltration Less surface flows) due to retarding flows with better vegetative cover.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Slight Worsening	The action tends to concentrate animals, increasing pathogens available for transport.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Suspended Sediment	Slight to Moderate Improvement	Water development will

and Turbidity		decrease livestock trampling in wet areas and nearby streams.
• Excessive Salinity	Slight Improvement	Better distribution of animals away from surface water reduces the risk of salt contamination from manures.
• Harmful Levels of Heavy Metals	Slight Improvement	Improved vegetation due to better distribution of water will filter and reduce water borne contaminants. In addition, better distribution of animals results in less concentration of contaminants.
• Harmful Temperatures	Slight Improvement	Purpose of practice is to protect vegetation along water courses, which in turn moderates stream temperatures.
• Harmful Levels of Pathogens	Slight Improvement	Improved vegetation due to better distribution of water will filter and reduce water borne contaminants. In addition, better distribution of animals results in less concentration of contaminants.
• 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	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Not Applicable	Not applicable.
• N_20 (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 – SUITABLIITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Available water to facilitate irrigation or grazing management improves growth and vigor of 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	Slight to Moderate Improvement	The action supplies water to alternative locations and protects stream and riparian areas.
Inadequate Space	Slight to Moderate Improvement	Additional habitat/space is available once water is available.
Habitat Fragmentation	Slight to Moderate Improvement	Multiple water sources can reconnect habitats.
Imbalance Among and Within Populations	Moderate to Substantial Improvement	Water helps remove limiting factors.
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	Slight to Substantial Improvement	Improved distribution of animals makes forage more readily available to livestock.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Substantial Improvement	Facilities supply water at remote locations.
Stress and Mortality	Moderate to Substantial Improvement	Available water reduces stress and mortality.
HUMAN – ECONOMICS		
Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Moderate Increase	Moderate if livestock can access additional land.
Capital – Change in Equipment	Slight Increase.	
Capital - Total Investment Cost	Moderate.	Moderate.
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight increase.	
Labor – Change in Management Level	Slight to moderate increase.	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Slight Decrease	Slight decrease due to opportunity for improved grazing distribution.
Risk - Timing	Not applicable.	Not applicable.

Risk – Cash Flow	Slight Increase	Slight increase due to implementation cost.
Profitability – Change in Profitability	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	No Effect	Pumping requires energy; however, many facilities do not require pumps and those that do may be designed to use renewable energy.
Underutilization of Non-Fossil Energy Resources	Slight to Substantial Decrease	Facilities can use wind or solar powered pumps or nose pumps.

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.