



Scoping Presentation

Dry Creek South Site 2A



M&E Consultants
Soil & Water Engineering Solutions



Background

Dry Creek South Site 2-A is one of 5 floodwater retarding structures built in Red Willow County as part of the Dry Creek South Watershed by the Sponsoring Local Organizations and the Natural Resources Conservation Service (NRCS), formally the Soil Conservation Service.



Project Location Map



Dry Creek South Site 2A
is located in
Red Willow County,
Nebraska



M&E Consultants
Soil & Water Engineering Solutions



Background

Dry Creek South Site 2-A

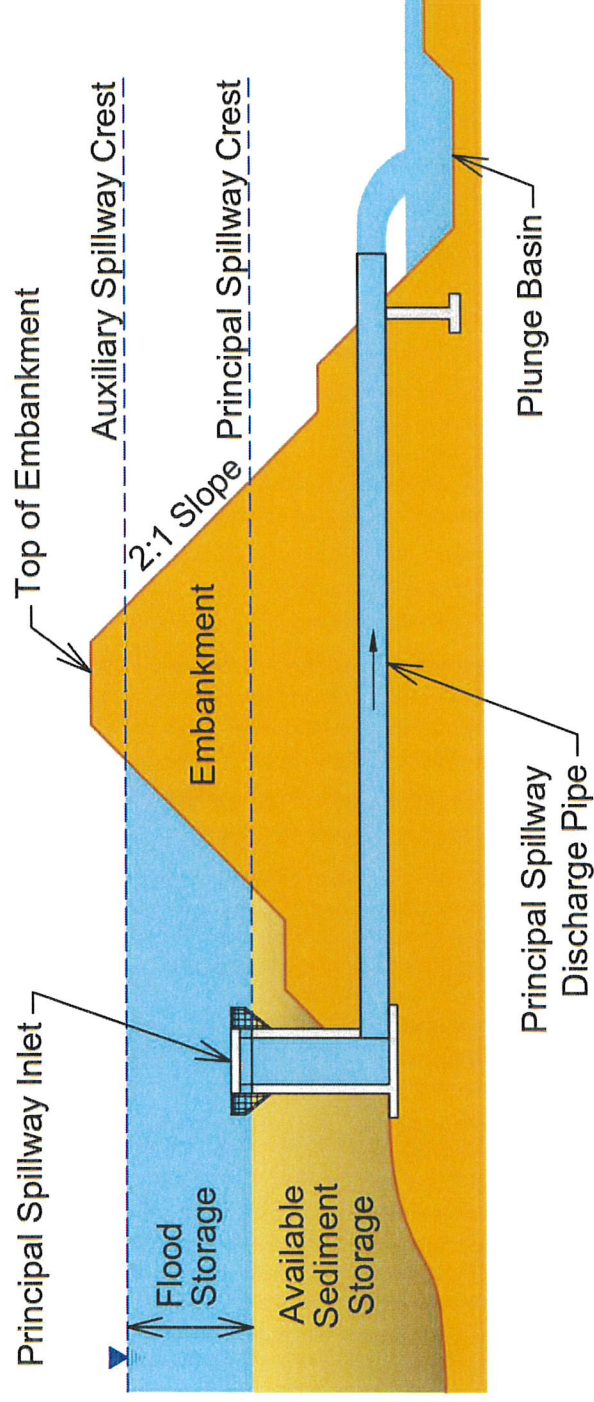
- ▶ Constructed in 1964 as a Low Hazard dam.
- ▶ 37 foot tall earthen embankment
- ▶ 2,304 acre (3.6 square miles) drainage area
- ▶ 15 acre permanent pool (normal pool during non-flood periods at orifice crest elevation of 2548.0)
- ▶ 50.6 acres flood pool (pool during major flood events)



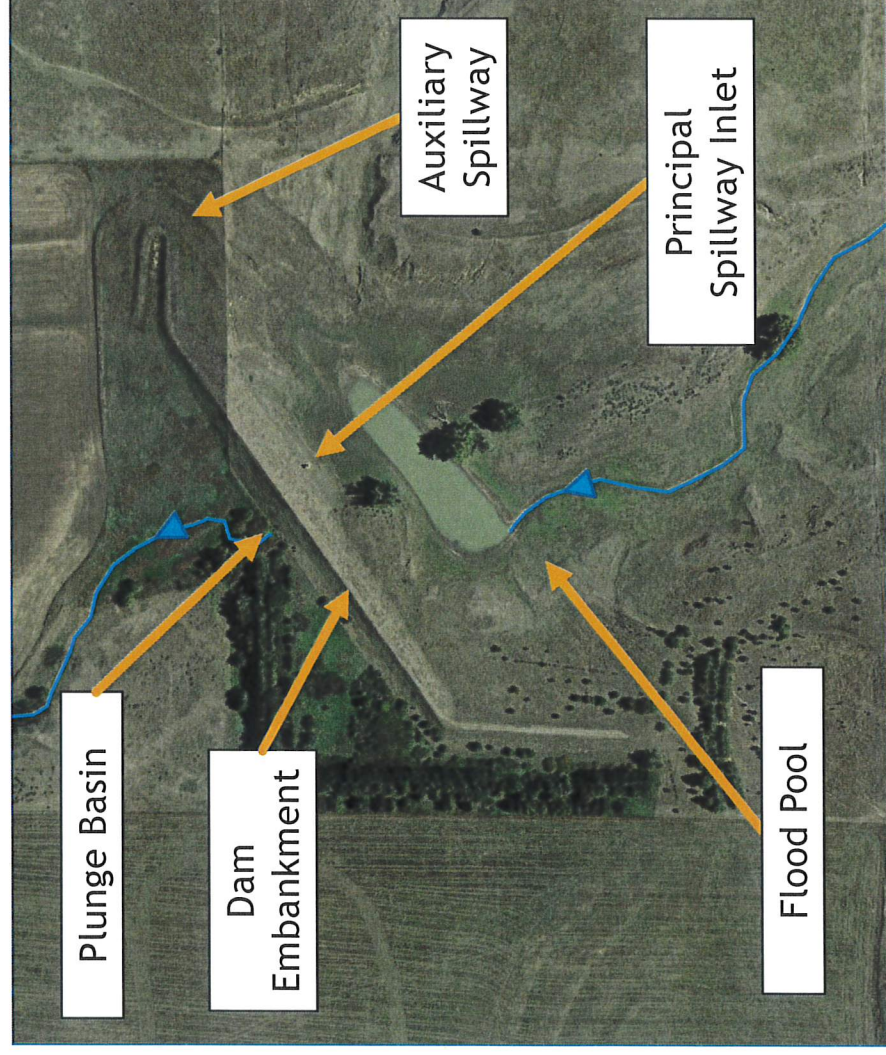
M&E Consultants
Soil & Water Engineering Solutions



NRCS Dam Basics



Blackwood Creek Site 11A Layout



The Planning Process

The first phase of the project is the development of a Supplemental Watershed Plan-Environmental Assessment (Plan-EA) to develop alternatives to rehabilitate Dry Creek South Site 2-A dam.

The steps of the planning process are shown below.



Purpose

The purpose of the project is to provide the current level of flood protection for the next 50-100 years while minimizing environmental, economic, and social impacts, and to comply with applicable dam safety and performance standards.



M&E Consultants
Soil & Water Engineering Solutions



Need

The current structure does not meet current safety and performance standards. There is a need to maintain flood protection downstream and to address structural deficiencies of the existing dam that are not in compliance with NRCS and the State of Nebraska standards.

There is a transverse crack running perpendicular to the length of the dam embankment which may be caused by differential settling of the embankment.



M&E Consultants
Soil & Water Engineering Solutions



Purpose of the Scoping Process

- ▶ Involve the public and stakeholders in NRCS Watershed Plan-Environmental Assessment process
- ▶ Present the proposed project to all interested parties
- ▶ Solicit feedback from the public on engineering and environmental conditions in the project area
- ▶ Receive public and agency concerns, issues, suggestions and opportunities for improvement



M&E Consultants
Soil & Water Engineering Solutions



NEPA Process

NEPA (National Environmental Policy Act) requires NRCS to review the potential impacts on the natural and human environments associated with the project.

The Environmental Assessment (EA) will examine alternatives in order to determine if any significant impacts would result from the proposed federal action. Alternatives that are determined to be reasonable will be studied in detail.



M&E Consultants
Soil & Water Engineering Solutions



NEPA Process

The EA will analyze how the alternatives will affect relevant resource concerns. Below is a partial listing of resource concerns to be considered:

- Public Health & Safety
- Prime Farmland
- Waters of the U.S.
- Wetlands
- Riparian Areas
- Land Use (upstream and downstream)
- Air Quality
- Soil Resources
- Fish & Wildlife
- Water Quality
- Floodplain Management
- Threatened & Endangered Species
- Cultural Resources
- Invasive Species
- Ecologically Critical Areas
- Economics
- Social Effects
- Environmental Justice
- Other Identified Concerns



M&E Consultants
Soil & Water Engineering Solutions



National Historic Preservation Act

- ▶ Section 106 of the Act requires the federal government to identify historic properties that may be affected by its undertakings; assess the impacts of the undertaking on those properties; and seek ways to avoid, minimize, or mitigate any negative effects the project may have on those properties.
- ▶ NEPA also requires that an agency evaluate the effects of a project on cultural resources/historic properties.



M&E Consultants
Soil & Water Engineering Solutions



National Historic Preservation Act

A few examples of cultural resources/historic properties:

- ▶ Archeological sites
 - ▶ Artifact scatters (objects on ground surface such as arrowheads, “flint chips,” pottery fragments, tin cans, brick fragments, etc.)
 - ▶ Building foundations or collapsed buildings
 - ▶ Burials
- ▶ Standing structures more than 50 years old
 - ▶ Houses, barns, bridges, and dams
- ▶ Other
 - ▶ Culturally significant plants
 - ▶ Culturally significant landscapes



M&E Consultants
Soil & Water Engineering Solutions



National Historic Preservation Act

- ▶ NRCS Nebraska Cultural Resource Staff will be conducting a cultural resource survey of the project area.
- ▶ If you know of any archeological sites in the vicinity of the dams or interesting history about the project area, please contact the NRCS Nebraska Cultural Resource Staff
 - ▶ Elisha Mackling, Cultural Resource Specialist:
Elisha.Mackling@usda.gov or 402-437-4128
 - ▶ Melissa Baier, Archeologist: Melissa.Baier@usda.gov or 402-437-4065



M&E Consultants
Soil & Water Engineering Solutions



Alternatives

Alternatives requiring analysis include, but are not limited to, the following:

- ▶ No-action alternative (Future Without Federal Investment)
- ▶ Decommissioning the dam
- ▶ Non-Structural (Relocation, Floodproofing, Zoning)
- ▶ Structural rehabilitation of the existing dam



M&E Consultants
Soil & Water Engineering Solutions



Economic Analysis

Flood Damage Reduction to Properties Downstream of Dam:

- ▶ Urban - residential, commercial, public
- ▶ Infrastructure - crossings, roads, utilities
- ▶ Agricultural land - cropland, pasture, hayland
- ▶ Other Agricultural - fences, barns, equipment
- ▶ Sediment and Erosion Reduction



M&E Consultants
Soil & Water Engineering Solutions



Economic Analysis

Upstream Effects

- ▶ Recreation on/around reservoir
- ▶ Property values around reservoir (development)

Non-Monetary Effects

- ▶ Environmental (fish & wildlife habitat)
- ▶ Cultural Resources
- ▶ Social Issues (income level, poverty level, education level, etc.)



M&E Consultants
Soil & Water Engineering Solutions



Economic Analysis

Costs

- ▶ Construction
- ▶ Engineering Services, Geo-Technical
- ▶ Project Administration
- ▶ Mitigation (environmental, cultural resources)
- ▶ Legal fees, permits
- ▶ In-kind services by Sponsors
- ▶ Real Property Rights (Land Rights) Costs
- ▶ Operation, Maintenance, and Replacement Costs (OM&R)



M&E Consultants
Soil & Water Engineering Solutions



Alternative Selection

What are the Federal Objectives?

- ▶ Maximize sustainable economic development
- ▶ Avoid unwise use of the floodplains and flood-prone areas
- ▶ Protect and restore the functions of natural systems and mitigate any unavoidable damage



M&E Consultants
Soil & Water Engineering Solutions



Alternative Selection

How are Alternatives Compared?

- ▶ Consider monetary and non-monetary effects on economic, social, and environmental goals
- ▶ Evaluate trade-offs between goals
- ▶ No hierarchal relationship among goals
- ▶ Presented through an Ecosystem Services Framework
- ▶ Determine alternatives that maximizes public benefits relative to cost



M&E Consultants
Soil & Water Engineering Solutions



Alternative Selection

What is the Ecosystem Services Framework?

- ▶ Identifies, describes, and quantifies impacts through the lens of Ecosystem Services
- ▶ Integrated approach that articulates relevant costs and benefits
- ▶ Categories of Ecosystem Services
 - ▶ Provisioning - tangible goods provided for direct human use (e.g., timber, food, fiber, water)
 - ▶ Regulating - maintains the world we live in (e.g., flood control, crop pollination)
 - ▶ Cultural - makes the world a place humans want to live (e.g., recreation, spiritual, aesthetics)



M&E Consultants
Soil & Water Engineering Solutions



Example Project Table

	Alt. A (No Action)	Alt. B	Alt. C
Required Alternatives			
Locally Preferred			X
Non-structural		X	
Environmentally Preferred		X	
Project Investment (cost)	\$0	\$1,700,000	\$3,100,000
Monetized Benefits	\$0	\$2,100,000	\$2,900,000
Trade-Off Analysis			
Provisioning Services			
Wetlands Impacted	No Change	5 acres lost	12 acres lost
Agricultural Yield	No Change	25 acres improved	75 acres improved
Water Quality	No Change	Slight Increase	Slight Decrease
Regulating Services			
Flood Prevention	10% Flood Event	2% Flood Event	1% Flood Event
Water Filtration	No Change	No Change	Increase
Cultural Services			
Safety		Slight Improvement	Significant Improvement
Recreational User Days	600 User Days	450 User Days	450 User Days
Aesthetics	No Change	Slight Decrease	Increase

HOW TO SUBMIT COMMENTS

- ▶ Mail comments to:
James Moore
M&E Consultants
30 Altiplano Circle
Hot Springs Village, AR 71909
- ▶ Email comments to:
moore4939@sbcglobal.net
- ▶ Subject Line: Dry Creek South Site 2-A Rehabilitation Project
- ▶ Comments must be submitted by April 30, 2021



M&E Consultants
Soil & Water Engineering Solutions

