

# **Restoration Implementation**

**NRCS** Engineers

# Application, Ranking, Offers, Restoration – One engineer's opinion of timeline

• Engineering Schedule

NRCS

Application phase, fast and furious, ~ 2 months ACEP Team executes supplement (offers), ~ 6 months -

CEP Team works their magic and easement is closed ~ 1  $\frac{1}{2}$ yr ~

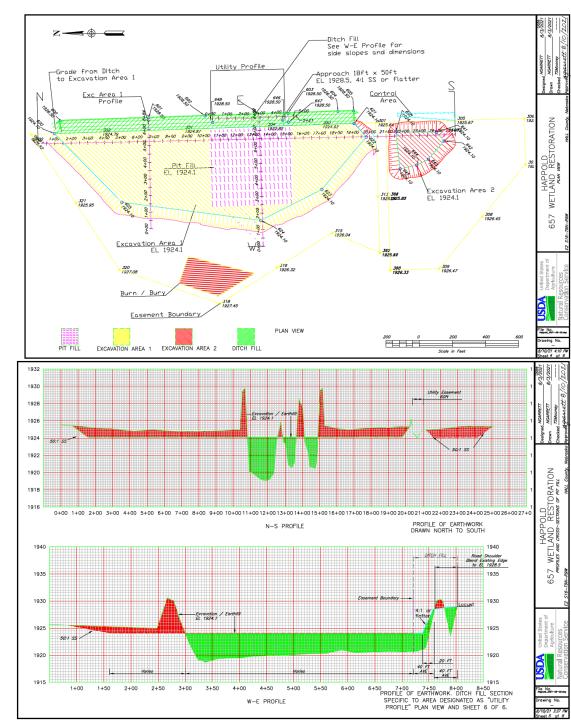
- WRPO required to be obligated, 3 yrs after offer -
- Restoration completion, 3 yrs after Easement Closed +



# Final Design Phase

- Construction Plans & Specs
  - What you want (Plan)
  - When you want it (Sequence)
  - How you want it (Specs)
  - How much of it (Quantities)

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# Final Design Phase

- Final Deliverables
  - Construction Plans
  - Construction Specifications

#### • Bid Packet

BID ITEM	SPEC NO.	QUANTITY	UNITS	UNIT PRICE	TOTAL COST
Site Prep and Strct Removal, Pit Ar	rea 1, 8, 11	1	EA		
Land Clearing and Grubbing, Pit A	rea 2A	5.8	AC		
Site Preparation, Disking Exc Area	1 21, 23	11	AC		
Site Preparation, Disking Exc Area	2 21, 23	2.6	AC		
Excavation, Stripping Pit Area	21	2,900	CY		
Excavation, Stripping Ditch Fill	21	1,800	CY		
Excavation, Ditch Fill	21	1,000	CY		
Excavation Area 1	21	33,300	CY		
Excavation Area 2	21	3,300	CY		
Earthfill, Stripping, Pit Area	23	3,600	CY		
Earthfill, Pit	23	29,000	CY		
Earthfill, Stripping, Ditch Fill	23	2,300	CY		
Earthfill, Ditch Fill	23	8,900	CY		
Seed / Seeding (Ditch Fill)	6, cpa8	3.4	AC		
			_		
			LUMP S	UM Total Bid * :	
<ul> <li>Project will be bid as lump sum</li> </ul>	and shall he based	off of these pl	anned quan	tities	
Project construction must be c					
** Site Preparation includes Mobi			rang dispos	al of culverts and	d debris in
excavation or earthfill areas, ar					
*** Earthfill cubic vards are figured	-	tion. Borrow s	ources are s	hown as excavat	tion on plan
map. Excavation is subsidiary t					
,					
EARTHWORK ACTIVITIES NOTED O	N PLANS AS "DITCH	I FILL" MUST B	E COMPLET	ED BY OCTOBER	31, 2021.
Company Name	Address		City		State
			-		
			er	Date	+

Natural Resources Conservation Service 2550 North Diers, Suite L Grand Island, NE 68803 (308) 395-8588, ext. 3

http://www.ne.nrcs.usda.gov

September 28, 2017

INVITATION FOR BIDS << Project Name >> NameOf County, NE

Sealed proposals will be received at the Upper Big Blue NRD office, 319 E 25<sup>th</sup> Street York NE 68467, until **3:00 p.m., Tuesday, May 9, 2017**. The project construction plans and specifications are included with this invitation and generally consist of a pond restoration consisting of site preparation / structure removal, excavation, earthfill, installation of principal spillway riser / pipe / trash rack, and critical area seeding.

The proposals shall be made on the enclosed bid schedule. The bid must be received by the deadline above and submitted in a sealed envelope with the structure name "<< Project Name >>".

The Upper Big Blue NRD reserves the right to accept or reject any and all bids submitted. The NRD cost share rate will be 75% of the low-bid lump sum total. The contractor's lump sum total bid is calculated by summing eligible line items. Line item costs are based on contractor's unit costs multiplied by planned quantities in the bid schedule. The landowner is required to obtain bids from three contractors to establish the maximum cost-share.

Any quantity adjustment above those in the bid schedule must receive approval from the Upper Big Blue NRD. The contractor is obligated to immediately notify the NRD or NRCS and owner/operator of construction problems in order to facilitate practical, functional, and cost-effective project modifications. These problems may be associated with differing site conditions, construction staking and measurements, conflicts between plan drawings and specifications, defective materials, or other issues.

Final payment will be authorized by the NRD and issued to the landowner as soon as the structure has received final inspection and certification from the NRCS. Landowner is responsible for paying contractor.

Submit bid to: << Project Name >> Attn: Jack Wergin Upper Big Blue NRD 319 E 25<sup>th</sup> Street York, NE 68467

If you have any questions, please contact the NRD or NRCS office at the number listed above.

Sincerely, Nate Garrett, P.E. NRCS Area Engineer

Enclosures

# **Bid Opening**

- Contracting
  - Low bid higher than the allocated funding (prelim cost estimate)
    - Engineers determine why and if the increase is justified, Team Lead requests current year money for additional overrun
  - Low bid higher than the easement acquisition cost (Rejection)



#### **Bid Acceptance**

- Engineering sends Team Lead:
  - $^{\circ}$  Request for CPC
  - Bids including low bid
  - Construction plans/specs

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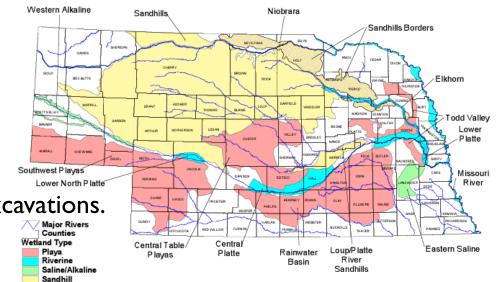
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# Wetland Restoration Techniques

#### • Sandhills Wetlands/Groundwater Interception

- Ditch Plugs
- Berms
- Water Control Structures
- Streams / Rivers
  - Sheet Pile Weir, Rock Chute, Articulated Concrete Mat
  - Meander Reconstruction
  - Slough Restoration
  - Bank Stabilization
  - Fish Passage
- Playas
  - Depression geometry intact? Pits or other excavations.
  - Runoff diverted away from depression?
  - Soils Sediment, depth to Bt



Nebraska's Regonal Wetland Complexes.

# Wet Meadows, Ditch Plugs

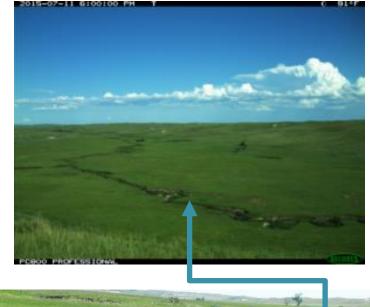


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NRCS



# Wet Meadows, Ditch Plugs



NRCS





https://sandhillstaskforce.org/project/awesome-project-1/



#### Water Control Structure







#### Water Control Structure





#### Water Control Structure, CMP Weir



Pipe Q >= Channel Q



## Water Control Structure, CMP Weir





## Water Control Structure, CMP Weir





#### Sheet Pile Weir





#### Sheet Pile Weir, Cross Vane





#### **Block Vortex Weir**





#### Rock Chute





#### Flexamat





#### Flexamat





# Flexamat (I year)











#### Meander Reconstruction





# Meander Reconstruction (I-year)





## **River Sloughs**











# Playa Pitfill





#### Playa Runoff Diversions





# Fish Passage / Roughened Channel





## Fish Passage / Fish Ladder



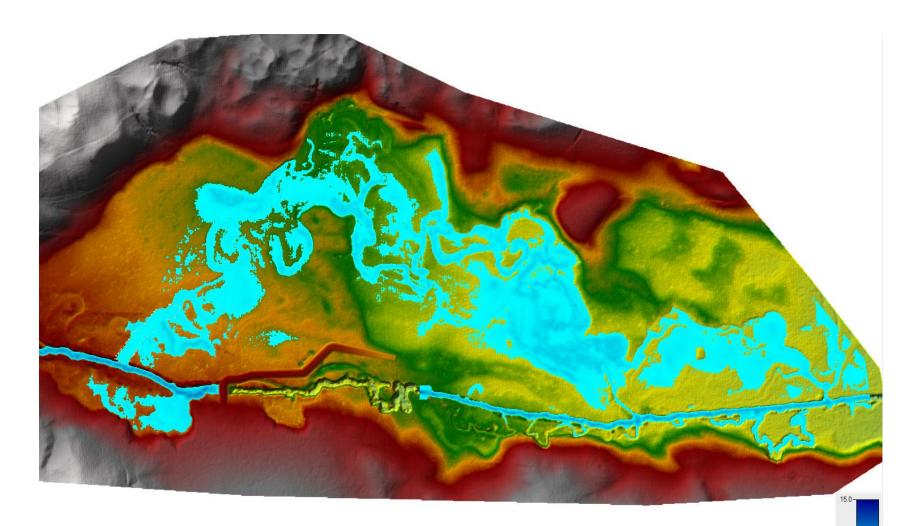


# Fish Passage / Fish Ladder





## Fish Passage / Flood Plain Modeling











#### Sediment Removal





#### Sediment Removal





#### 2/23/2011 (post-construction)