USDA Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE


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Dickey-Sargent Irrigation District Watershed Project Public Scoping Meeting January 9, 2025

FARM PRODUCTION AND CONSERVATION
FSA | NRCS | RMA | Business Center

Meeting Agenda

- Introductions
- Background, Project Purpose
- NRCS PL-566 Watershed Project Process
- Preliminary Alternatives
- Scoping: Ecosystem Services, NEPA Concerns

Watershed Plan Local Sponsor

- Dickey-Sargent Irrigation District
  - Steve Kasowski (Chair)
  - Ross Thorpe
  - Todd Haak
  - Trevor Hokana
  - Justin Quandt

USDA-NRCS, Lead Federal Agency

- Dan Hovland, State Conservationist
- Christi Fisher, P.E. State Conservation Engineer
  - Patrick Gallagher, P.E. Civil Engineer
  - John Bauer, Watershed Planner
  - Tom Schanandore, P.E. Structural Engineer
- Richard Webb, State Resource Conservationist
  - Dana Whippo, Economist
  - Curt Bradbury, Biologist
  - Janelle Harrison, Cultural Resources Specialist

Technical Support – Mechanical / Electrical Engineering
Land Survey, LiDAR collection

- Houston Engineering -
  - Gabe Bladow, P.E.
  - Alan Kenmet, P.E.
  - various subcontractors

Planning Team, Invited Agencies

- Dickey-Sargent Irrigation District
- USDA-NRCS
- Landowners- within and adjacent to the district
- US Army Corps. Of Engineers
- US Fish & Wildlife Service
- State Historical Preservation Society
- ND Dept. of Environmental Quality
- ND Dept. of Water Resources
- Tribal Governments
- US Environmental Protection Agency
- US Bureau of Reclamation
- State Dept. of Transportation
- ND Game & Fish Dept.
- Dickey County Highway Dept.
- ND Geological Survey
- Dickey County Soil Conservation District
- City of Oakes

Planning Team, Invited Tribes

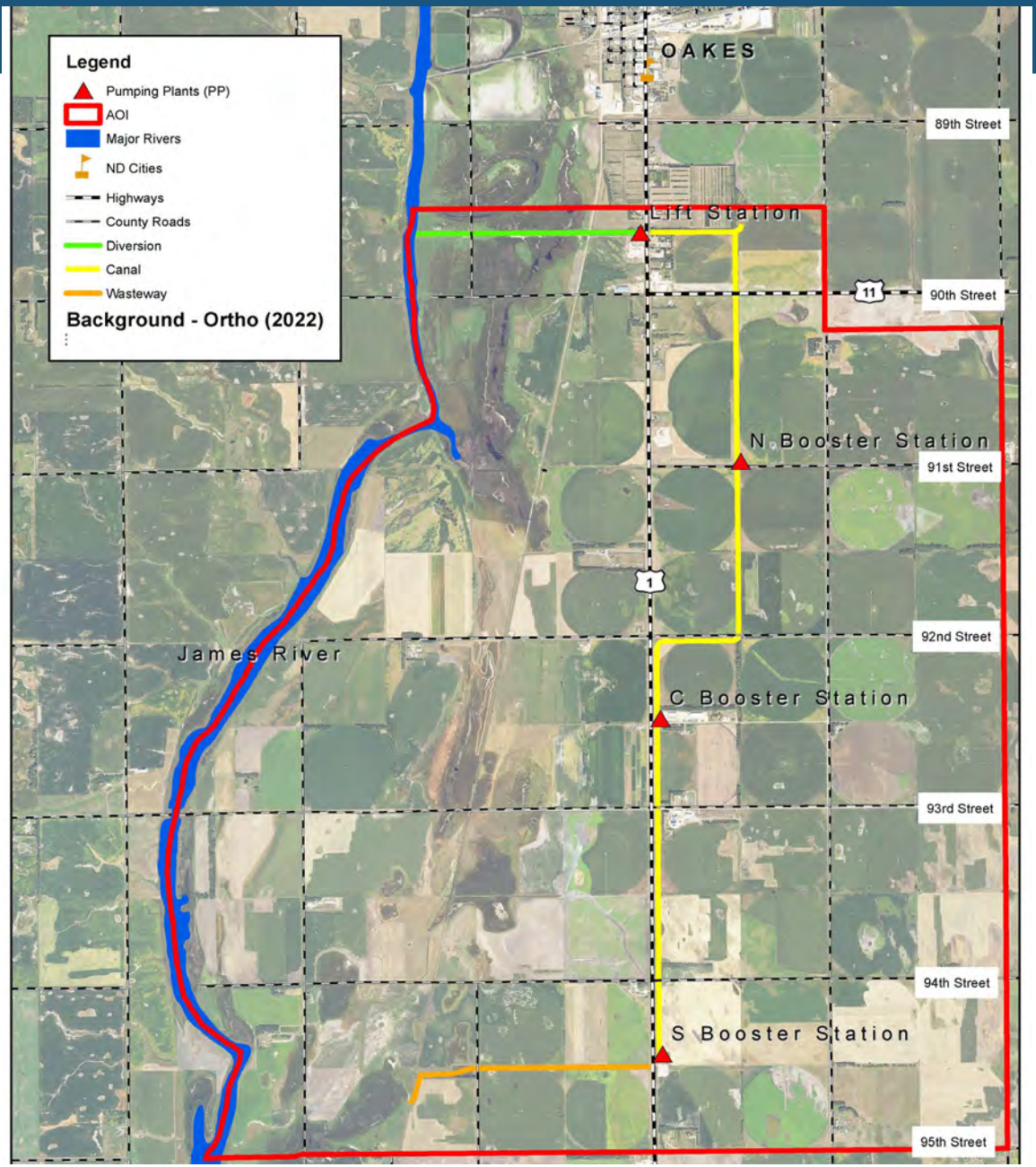
- Apache Tribe of Oklahoma
- Cheyenne River Sioux Tribe of the Cheyenne River Reservation, SD
- Crow Creek Sioux Tribe of the Crow Creek Reservation, South Dakota
- Crow Tribe of Montana
- Flandreau Santee Sioux Tribe of South Dakota
- Fort Belknap Indian Community of the Fort Belknap Reservation of Montana
- Leech Lake Band of the Minnesota Chippewa Tribe
- Lower Brule Sioux Tribe of the Lower Brule Reservation, South Dakota
- Lower Sioux Indian Community in the State of Minnesota
- Minnesota Chippewa Tribe
- Oglala Sioux Tribe
- Prairie Island Indian Community in the State of Minnesota
- Red Lake Band of Chippewa Indians, Minnesota
- Rosebud Sioux Tribe of the Rosebud Indian Reservation, South Dakota

Planning Team, Invited Tribes (cont'd)

- Santee Sioux Nation, Nebraska
- Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota
- Spirit Lake Tribe, North Dakota
- Standing Rock Sioux Tribe of North & South Dakota
- Three Affiliated Tribes of the Fort Berthold Reservation, North Dakota
- Turtle Mountain Band of Chippewa Indians of North Dakota
- Upper Sioux Community, Minnesota
- White Earth Band of Minnesota Chippewa

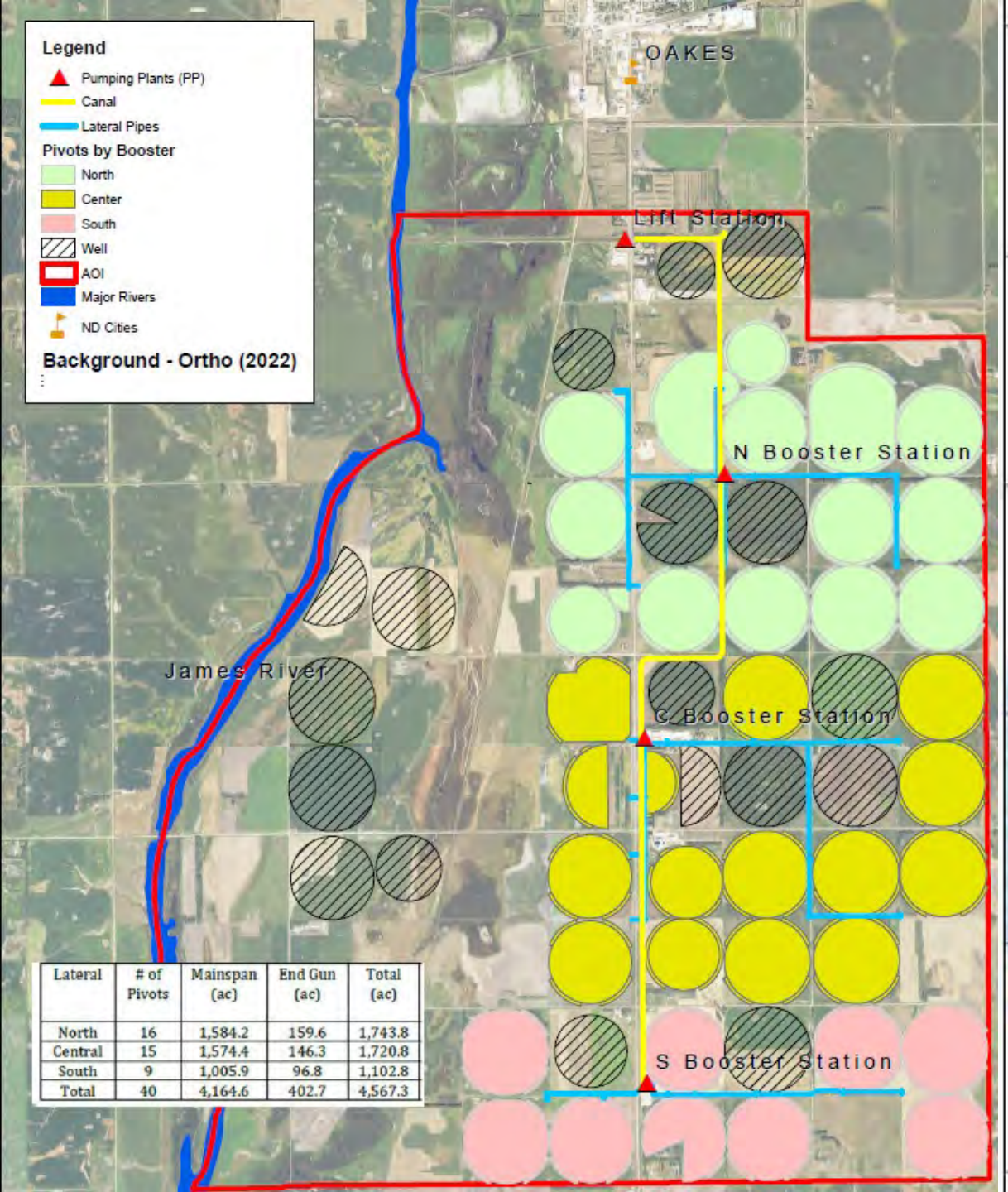
DSID Background, Existing Facilities

- U.S. Bureau of Reclamation, Garrison Diversion Project. Oakes Test Area constructed 1982-1987, serving 58 privately owned center pivots which irrigate 4,567 acres.
- Full project, was to have been supplied by the Garrison Diversion and planned reservoir, would have irrigated 44,000 acres. Lawsuit by Province of Manitoba halted completion of the diversion/reservoir facilities.
- Test Area facilities: diversion channel, lift station, open canal, 3 pumping plants, buried pipelines, well field, and subsurface drains.
- In 2020 DSID negotiated transfer of ownership from Bureau of Reclamation.

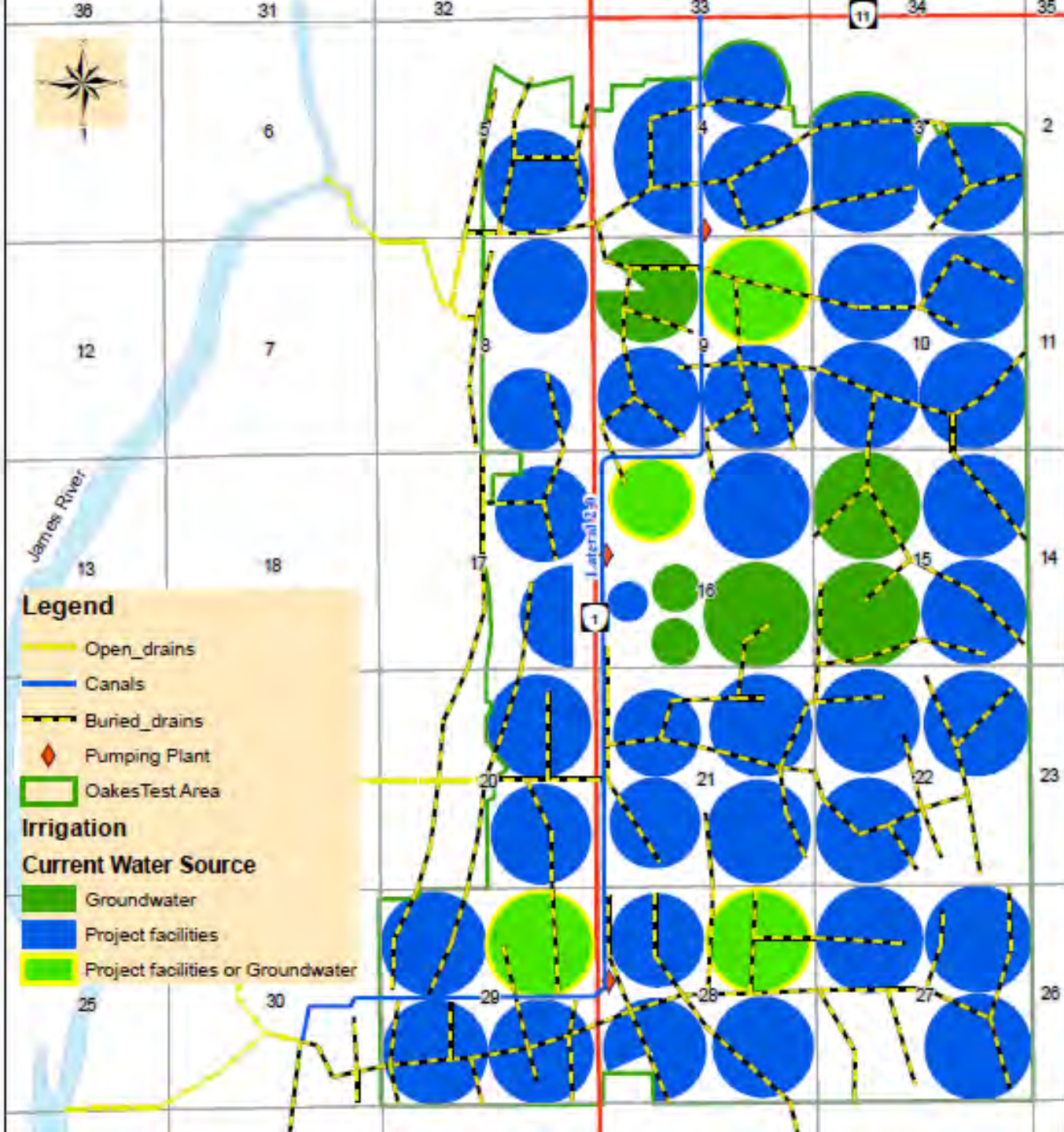


DSID Background, Existing Facilities

- Fish screens at the lift station, inspected 2024.
- Additional screening out of canal at each of the 3 pump stations

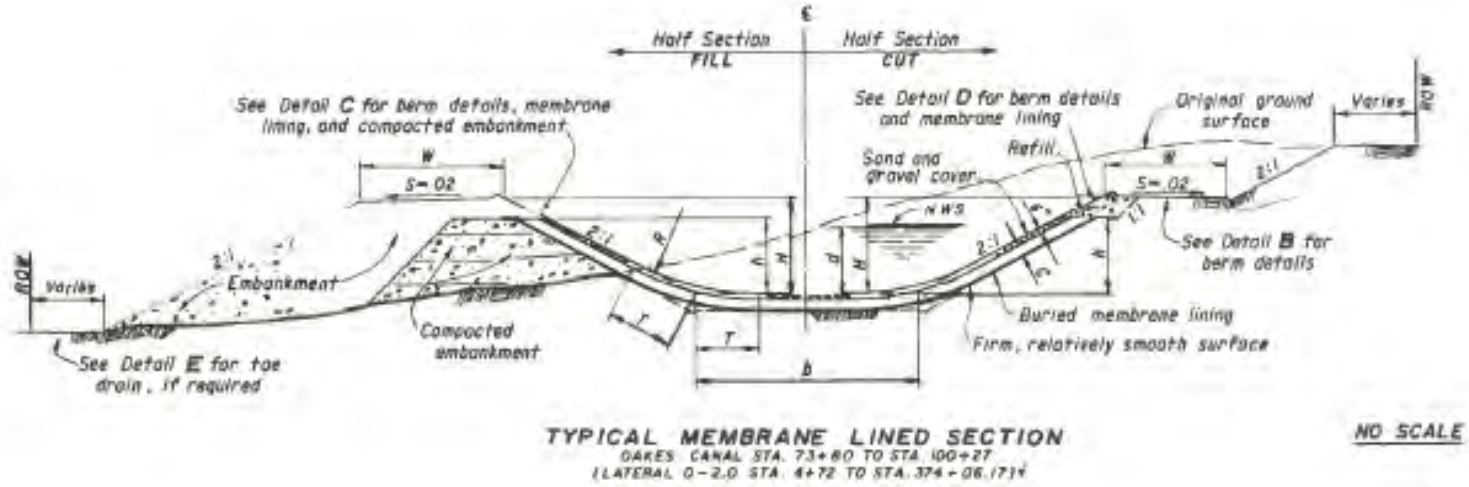


Lateral	# of Pivots	Mainspan (ac)	End Gun (ac)	Total (ac)
North	16	1,584.2	159.6	1,743.8
Central	15	1,574.4	146.3	1,720.8
South	9	1,005.9	96.8	1,102.8
Total	40	4,164.6	402.7	4,567.3



Irrigation Canal

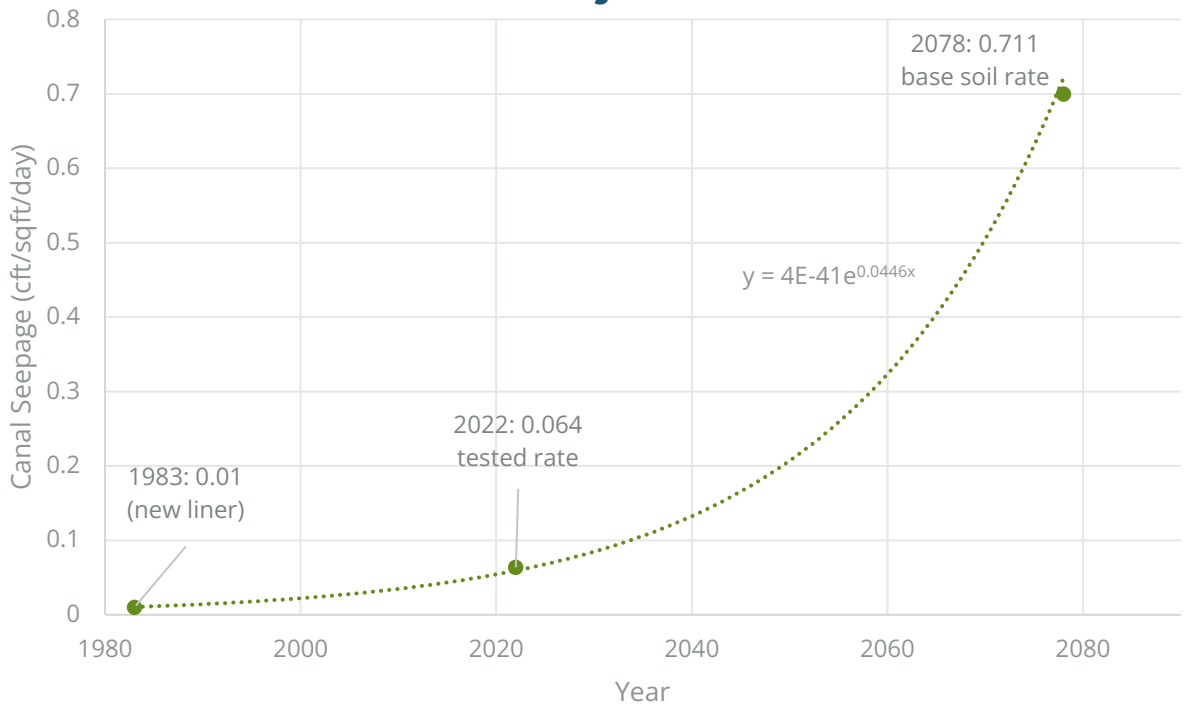
- 6.5 miles long
- Bottom width 14-20 ft, depth 5-8 ft
- Underlying soils: sand, silty sand, sandy clay, and clayey silt
- 20 mil PVC liner, covered by 12” earth fill and 6” of sand and gravel
- Liner has been damaged by the extensive muskrat population. It is also now 41 years old and exceeds it’s expected lifespan (30 years).
- Oversized canal results in issues with algae control and excessive evaporation losses.

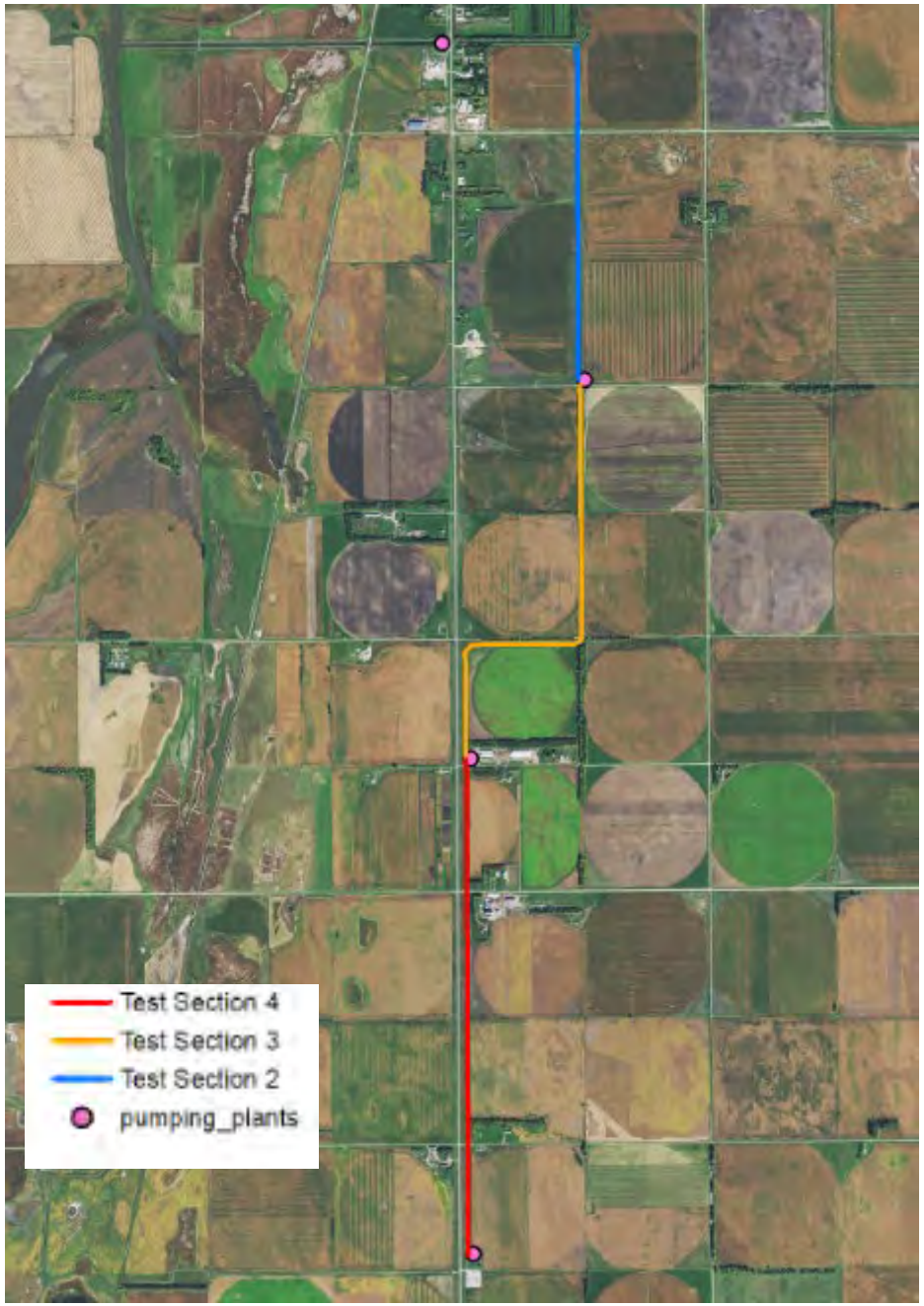


2022 Seepage Test Results

Section	Length (ft)	Total Loss (cft/day)	Est Evap Loss (cft/day)	Seepage (cft/day)	Seepage (cft/sqft/day)
2a	1,760	5,019	228	4,791	0.08
2b	5,090	19,197	873	18,325	0.07
3	10,080	25,275	304	25,302	0.05
4	10,190	25,489	302	49,814	0.14

Future Projection





Estimated Annual Water Losses (2022)

Section	Length (ft)	Current Seepage (ac-ft)	Evaporation (ac-ft)	Current Total Canal Loss (ac-ft)	100% Liner Failure Seepage (ac-ft)	100% Liner Failure Total Canal Loss (ac-ft)
untested	1,680	38	10	48	152	162
2a	1,760	17	4	21	67	71
2b	5,090	64	17	82	441	458
3	10,080	86	34	120	771	804
4	10,190	86	26	112	1,170	1,196
Total		291	92	383	2,601	2,692

* Supply averages 7.5 inches per acre (gross). Current seepage + evaporation results in only 6.5 inches per acre delivered.

Project Purpose

Reduce seepage and evaporation water losses in the DSID canal, to allow for increased agricultural production within the district.

Project Need

Seepage + Evaporation Losses	**2022**	**402 ac-ft/year**
	2038	**673**
	2048	**1,001**
	2058	**1,521**

High operation/maintenance costs related to heavy algal growth, herbicide applications in existing canal.

Undersized bridges for modern farm equipment.

Outdated control systems

Watershed Protection and Flood Prevention Act

Public Law 78-534
1944

Public Law 83-566 Section 14(a)(1) 1954

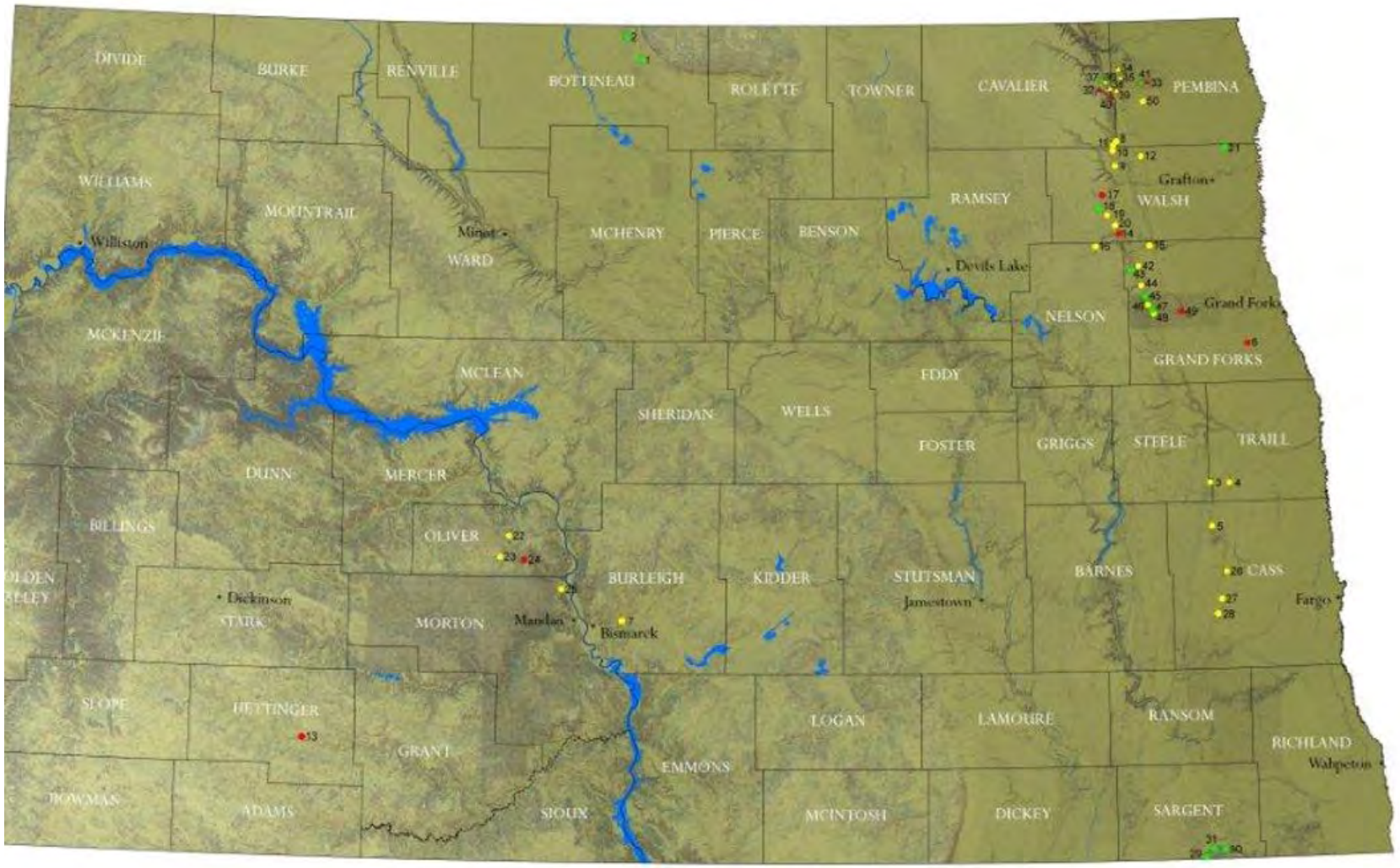
11,000 dams nationwide

Recreation developments

Levees, channels

Irrigation projects

Drainage projects



PL-566 Watershed Project Process

Step #1 – Preliminary Evaluation of Feasibility — Completed June 2023

Step #2 – Watershed Plan, EA/EIS

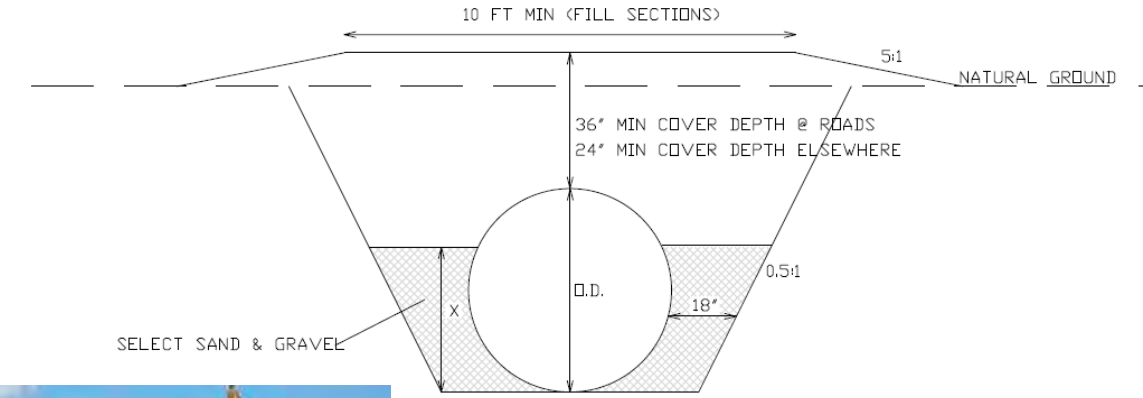
- Field inventory, alternative development — Completed summer/fall 2024
- Public/agency scoping meeting ⟵ today
- Preparation of Prelim Plan-EA
  - 30% engineering design
  - Environmental evaluation
  - Economic evaluation
  - Social evaluation
  - Cultural resources evaluation, Section 106 consultation
- Internal NRCS technical reviews
- Release of Draft Plan-EA for public/agency comment (another meeting) — Fall 2025
- Address comments, finalize plan — Winter 2025/26

Step #3 – Final Engineering Design — 2026

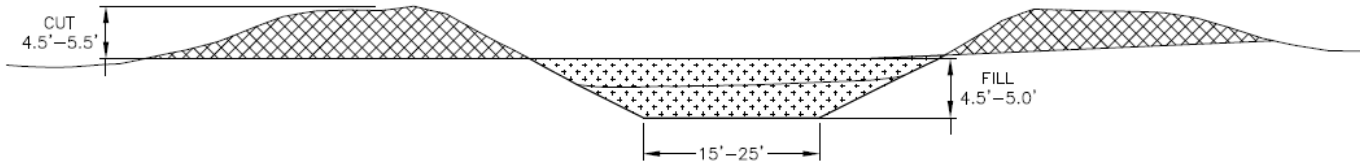
Step #4 - Construction — Summer/fall 2027, at the earliest

Alternative 1 - Pipeline

- ***Convert 6.5-mile open canal to a 5.4-mile pressurized pipeline (~60-30" dia HDPE or PVC).***
- ***Fill and grade existing canal (67 acres back into ag production)***
- ***Replace pumps and controls at lift station. Decommission booster pump stations.***
- ***Remove existing bridges over canal***



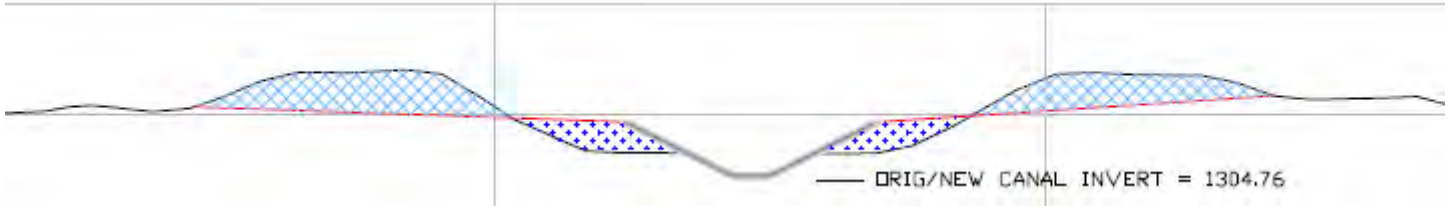
TYPICAL X-SECTION PIPE
(NTS)

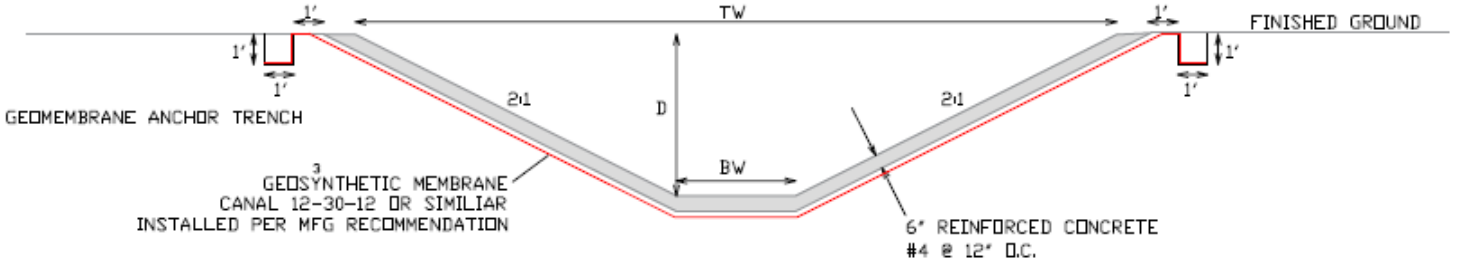


TYPICAL X-SECTION CANAL FILL
(NTS)

Alternative 2 – Reconstructed Canal

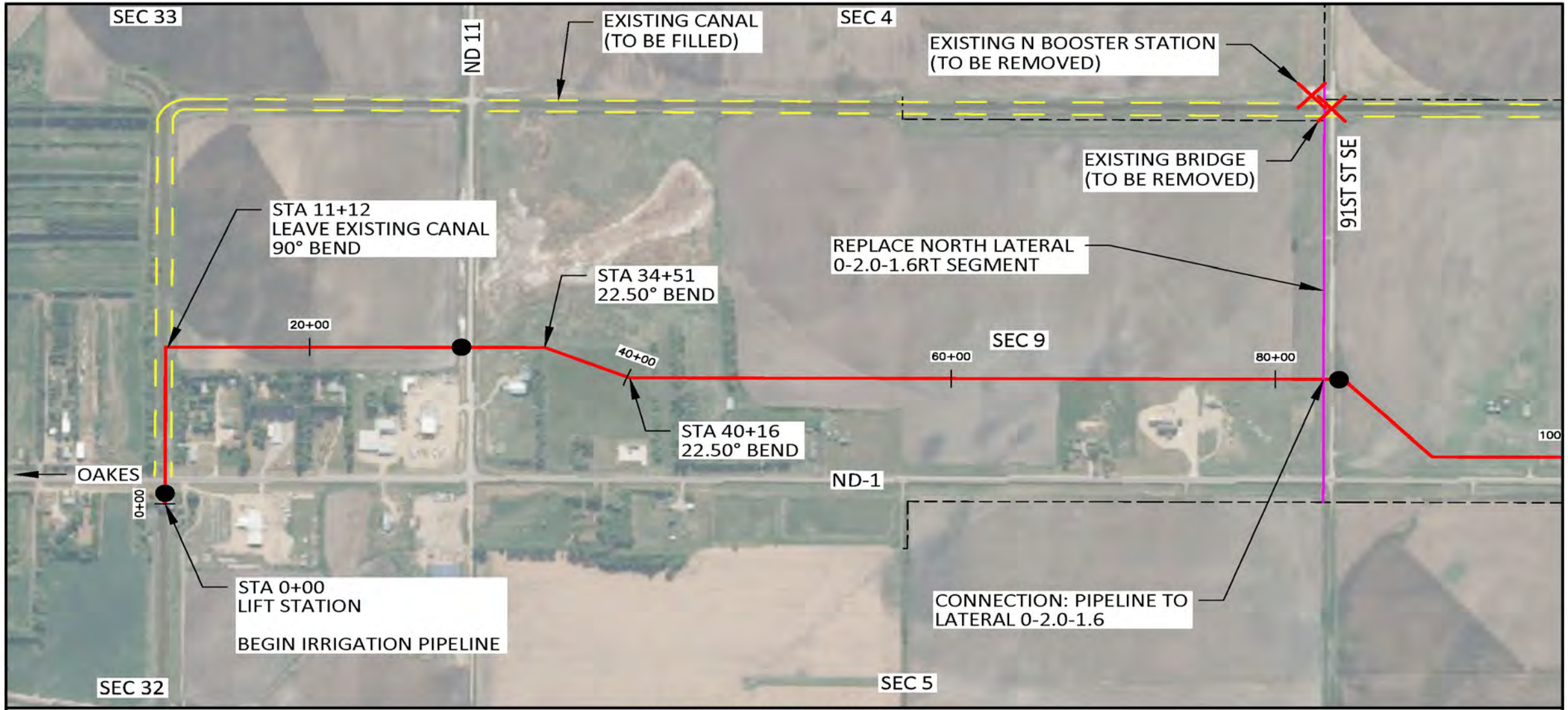
- ***Reduce canal dimensions to what is needed for current system.***
- ***Install new geomembrane liner overlaid with reinforced concrete***
- ***No changes to pump stations.***
- ***Reduces, but doesn't eliminate evaporation.***





Net Present Value, Estimated Economic Benefits Over 50 years @ 2.5%

Increased Revenues/Reduced Cost	No Action	Alternative 1- Pipeline	Alternative 2- Reconstructed Canal
Crop Yields	-$28,448,000	$15,113,000	$7,947,000
Labor	-$3,633,000	$3,510,000	$339,000
Herbicide	-$157,000	$151,000	$73,000
Other O&M	-$25,000	$25,000	$0
Vehicles, Fuel	-$263,000	$288,000	$27,000
Pumping Plants	-$725,000	$124,000	-$725,000
Total Benefits	**-$33,251,000**	**$19,211,000**	**$7,661,000**
Total Costs	**$0**	**$10,168,000**	**$22,332,000**



ALTERNATIVE 1 - PIPELINE

- Proposed Mainline Irrigation Pipeline
- Replace Lateral
- Existing Lateral
- Existing Canal
- Pumpout Location

N

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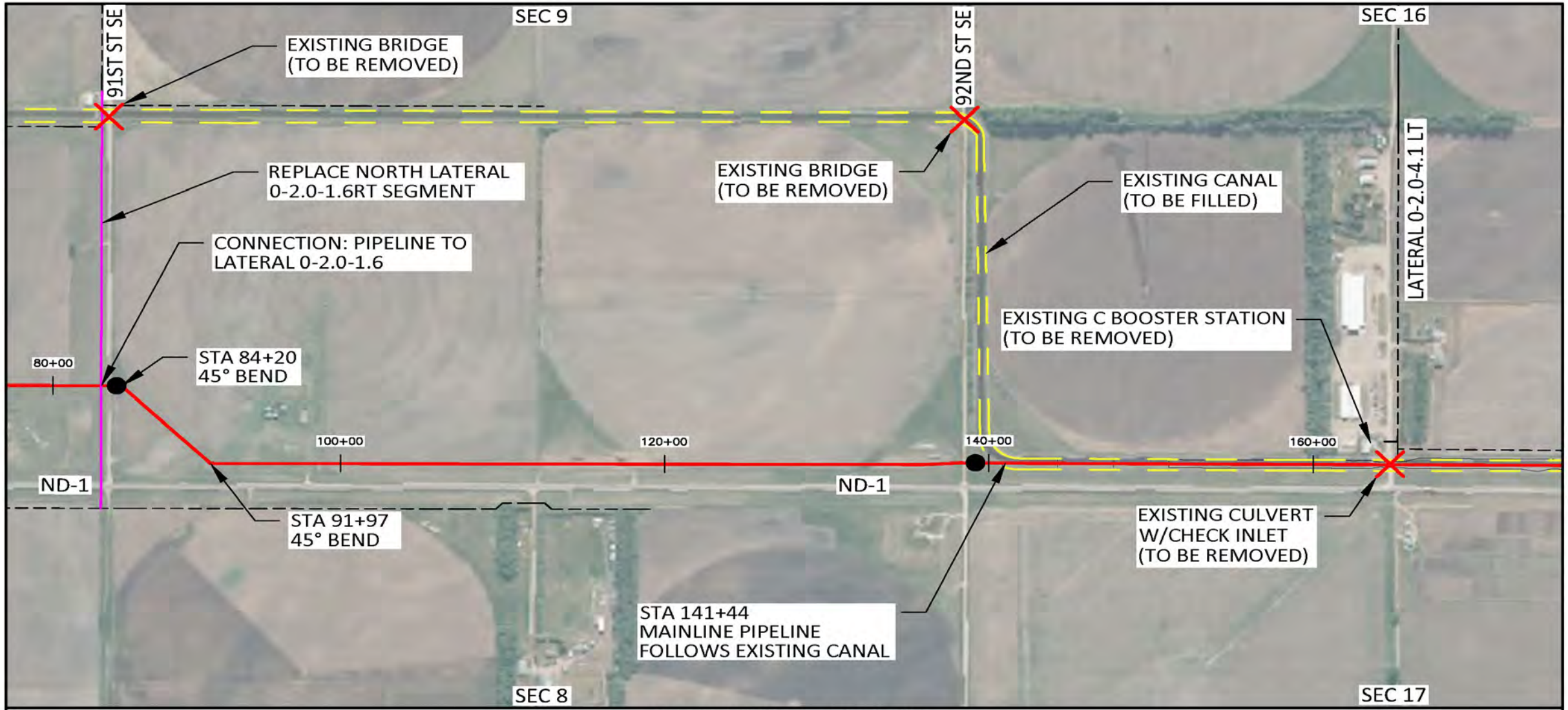

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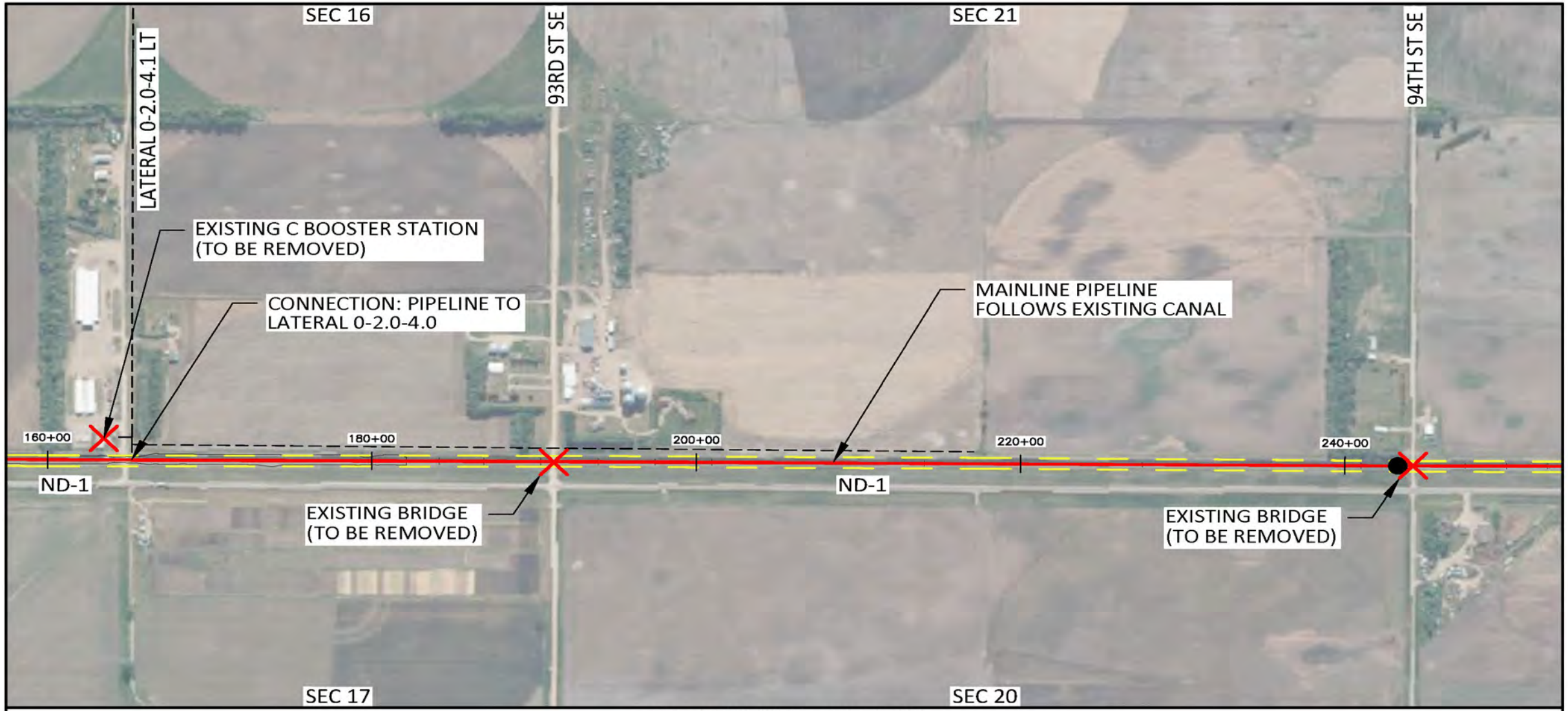

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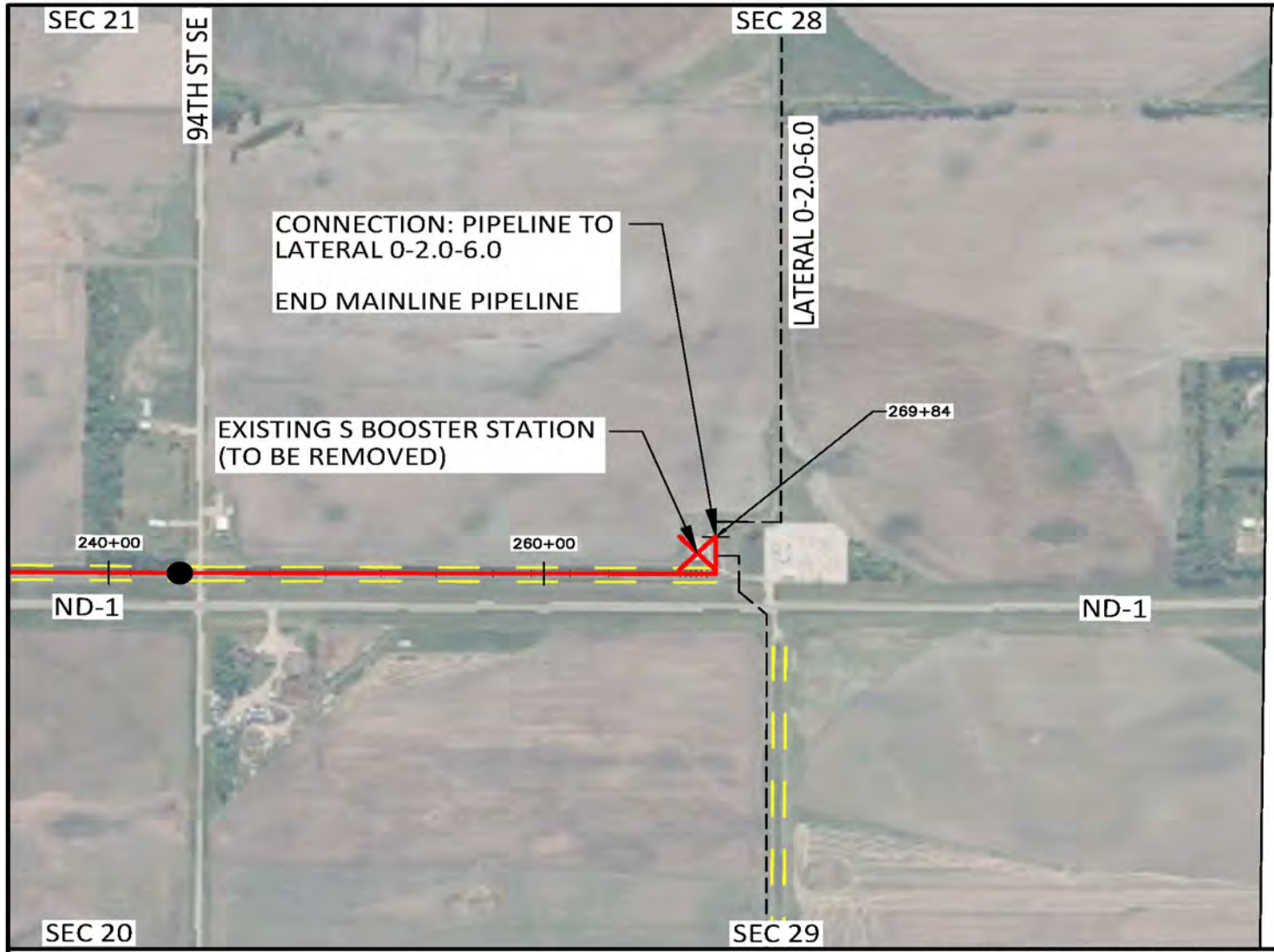

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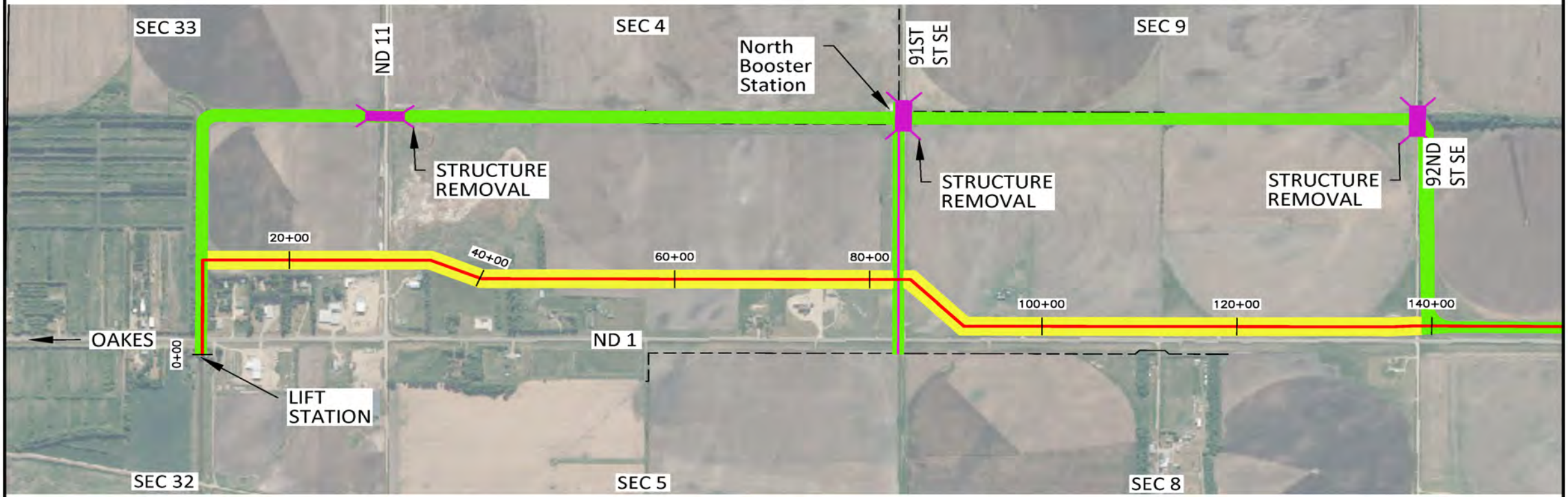

ALTERNATIVE 1 - PIPELINE CONSTRUCTION PHASING

N

- PROPOSED MAINLINE IRRIGATION PIPELINE
- REPLACE LATERAL
- PHASE 1 - DURING CROP GROWING SEASON
- PHASE 2 - POST CHANNEL DRAINAGE
- STRUCTURE REMOVAL

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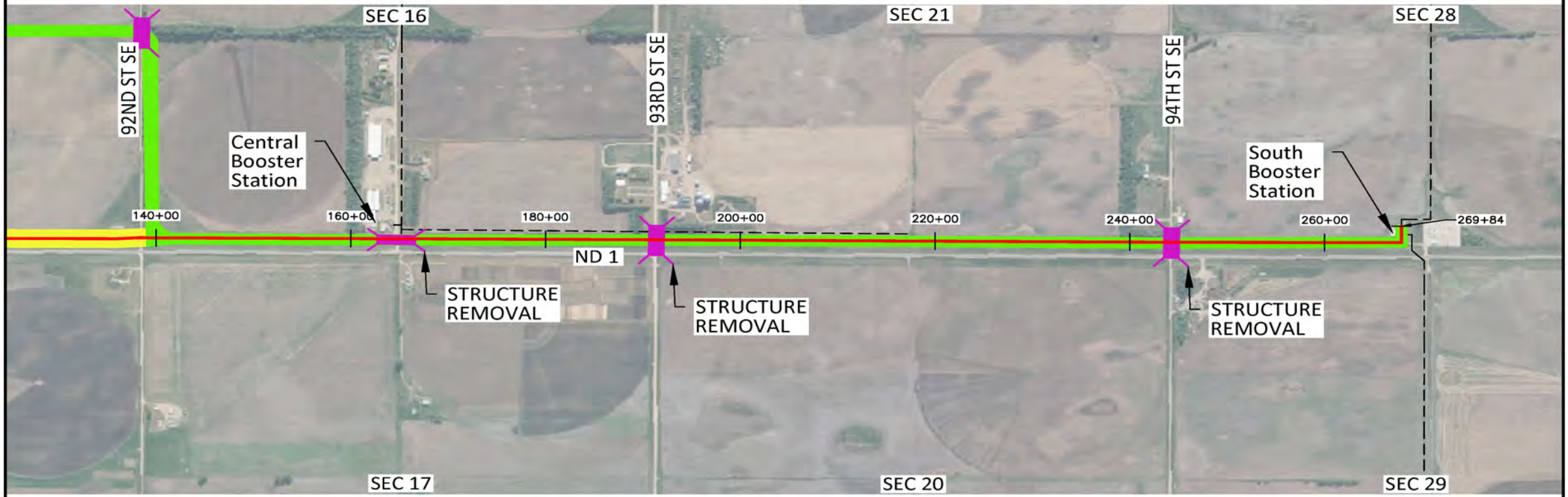

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Ecosystem Services

The direct and indirect benefits that ecosystems provide humans.

Ecosystem Services

Provisioning Services-Tangible goods for human use and consumption

	Relevant	Rationale
Food	Yes	Irrigation provides water source for crops used as human food of livestock feed.
Fresh Water	No	Irrigation water not used for direct consumption
Fuel	Yes	Some crops grown are used for ethanol production.
Fiber	No	Not applicable to this project
Aggregates	No	Not applicable to this project

Regulating Services – Maintain a world in which human life is possible

Flood and Disease Control	No	Not Applicable to this project
Erosion Regulation	Yes	Irrigation aids in the reduction of wind erosion of the sandy soils in the project area by promoting quick establishment of cover.
Water Supply	No	Not applicable to this project
Crop Pollination	No	Not applicable to this project
Salinity Regulation	Yes	Irrigation can sometimes contribute to higher soil salinity.
Climate and Pest Control	No	Not applicable to this project

Ecosystem Services (cont'd)

Cultural Services – Making the world a place in which people want to live		
	Relevant	**Rationale**
Cultural Diversity and Heritage	No	Not applicable to this project
Recreational and Ecotourism	No	Not applicable to this project
Spiritual and Religious Values	No	Not applicable to this project
Aesthetic Value	No	Not applicable to this project
Inspiration Value	No	Not applicable to this project
Social Relations / Sense of Place	No	Not applicable to this project
Knowledge Systems	No	Not applicable to this project
Species Existence Value	No	Not applicable to this project
Tribal Value	No	Not applicable to this project

Ecosystem Services (cont'd)

Supporting Services – Underlying processes maintaining conditions for life on earth.

	Relevant	Rationale
Soil Formation and Retention	Yes	Irrigation coupled with proper land management will hold existing soil and promote formation of new soil.
Primary Production/Photosynthesis	Yes	Nearly the entire project area is in crop production. The preferred alternative would add approx. 67 more acres of cropland to the project. Thereby increasing production and photosynthesis
Nutrient Cycling	Yes	Irrigation promotes plant growth, in turn, increasing nutrient cycling.
Water Recycling	No	Not applicable to this project
Production of Atmospheric Oxygen	Yes	Forage and row crops grown produce oxygen. The preferred alternative would add crop acreage. Therefore, increasing oxygen production.
Provisioning of Habitat	Yes	The current canal provides some marginal fish and wildlife habitat. Preferred alternative would only provide food for wildlife.

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NEPA Resource Concerns

FARM PRODUCTION AND CONSERVATION
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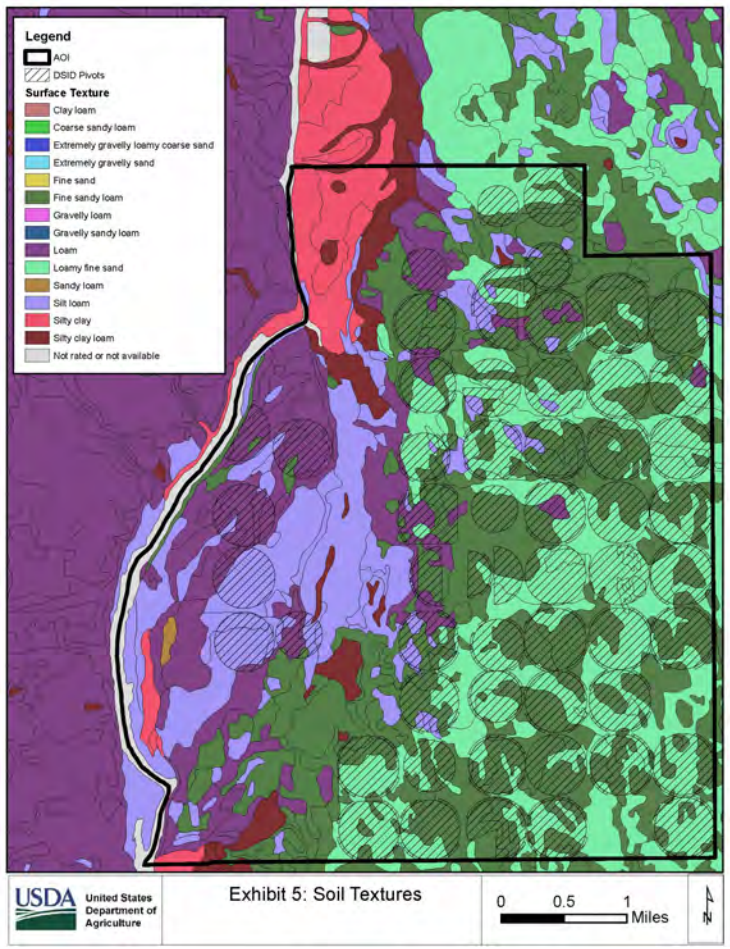
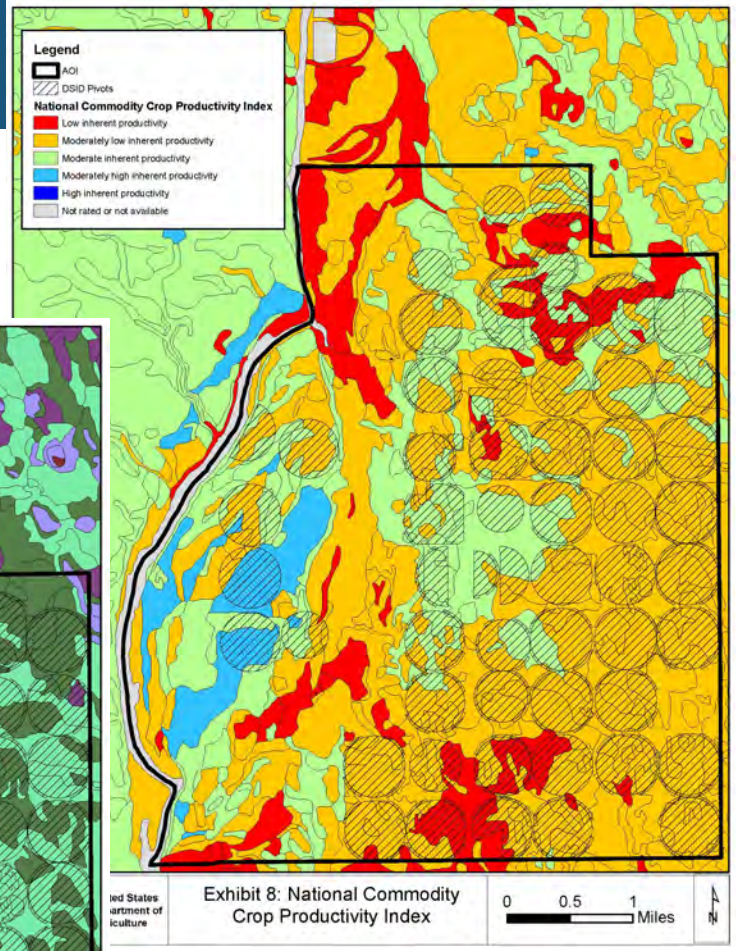
Resource Concerns

- **Soil Resources**
  - Prime and Unique Farmland
  - Erosion
- **Water Resources**
  - Water Quantity
  - Water Quality
  - Aquatic Resources
  - FEMA Floodplain Management
- **Air**
- **Habitats**
  - Natural Areas
  - Historical and Current Habitats
  - Riparian Areas
- **Plant and Animals**
  - Threatened and Endangered Species
  - State Conservation Priority Species
  - Migratory Birds
  - Undesirable Species
- **Human Environment**
  - Land Use
  - Environmental Justice
  - Public Health and Safety
  - Recreational Resources

Soils

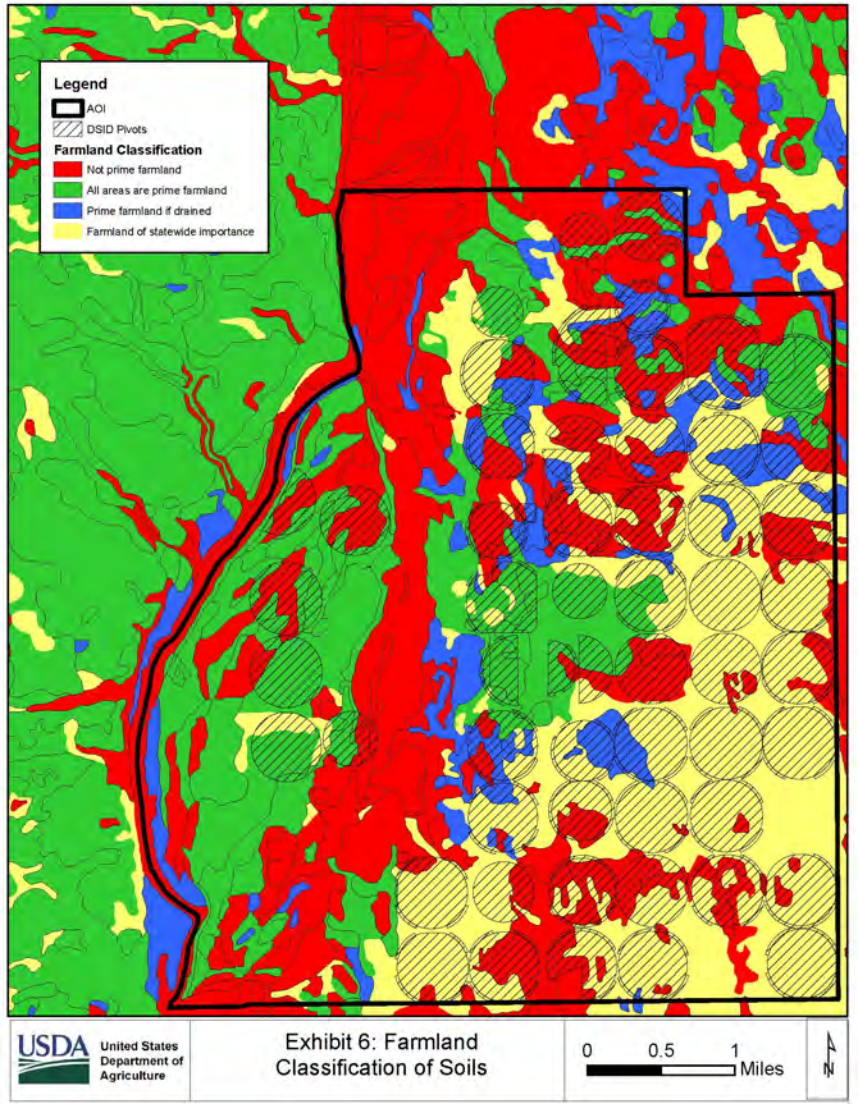
- Soils in the proposed project area primarily composed of Fine Sandy Loams and Loamy Fine Sand
  - Wind erosion
- Inherent soil productivity is primarily "Moderately Low"
- Irrigation helps with both issues.





Prime and Unique Farmland

2,561 acres Prime Farmland or
Farmland of Statewide Importance
(Approximately 50% of the land in the project area)



Water

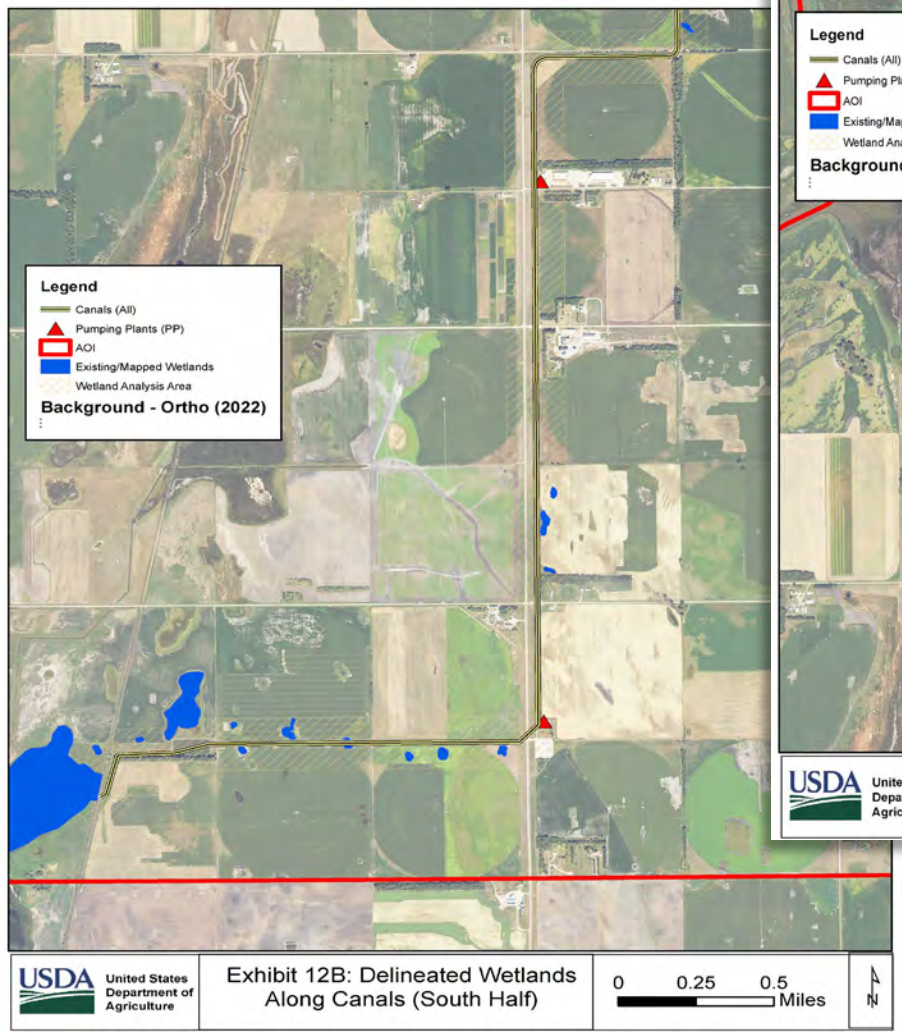
- Current Conditions
  - Pesticides used for algae control
  - Oakes Aquafer considered highly vulnerable to leaching.
  - Significant loss due to seepage and evaporation
    - Current seepage is >400ac-ft per year
    - Projected to increase to >1,500 ac-ft in 50 years.
      - Un-operable at that point.
  - Wetlands located down stream of the canal drain receive hydrology boost during the fall draw down.

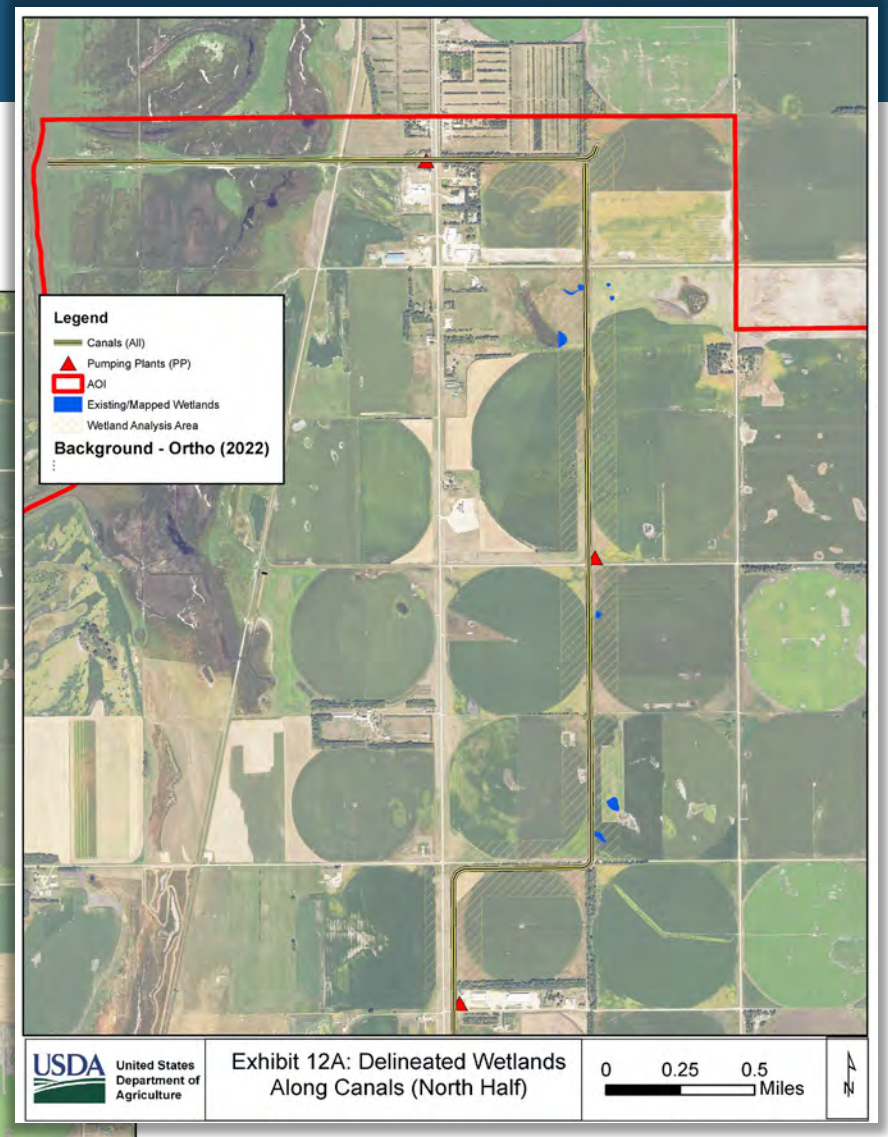
Water (cont'd)

- Predicted Condition – Pipeline Alternative
  - Significant seepage loss reduction
  - Elimination of evaporation loss
  - Water use efficiency vastly improved
  - Pesticide use eliminated
    - Eliminates leaching issues of chemicals used by DSID
  - Leaching of other chemicals from farming is still possible and may increase.
    - 67 acres of farmland will be added once the project is complete.
  - Downstream wetlands will not receive hydrology boost during the fall.

Wetlands – Existing Canal

- 2022 survey identified 22 wetlands within the 1000’ wide survey corridor surrounding the existing canal.
- E.O. 11990 states that wetlands affected by a federally funded project must be mitigated.
  - Restoration
  - Credit purchase





Wetlands – Pipeline Alternative

- 1 additional wetland was delineated
  - 0.4 acres
- Mitigation would be necessary
  - Credit purchase is probable

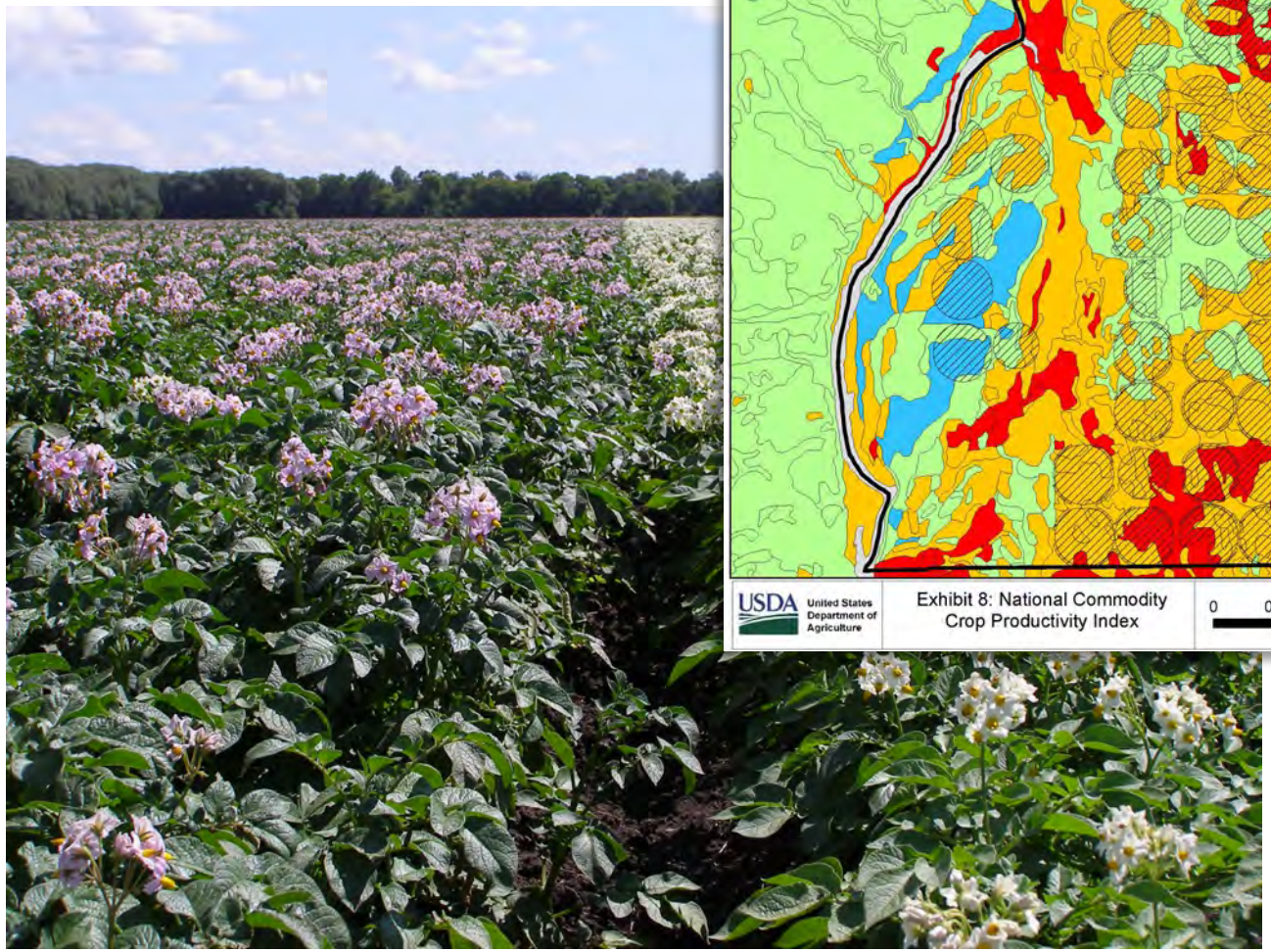
Plants – Upland Plant Inventory

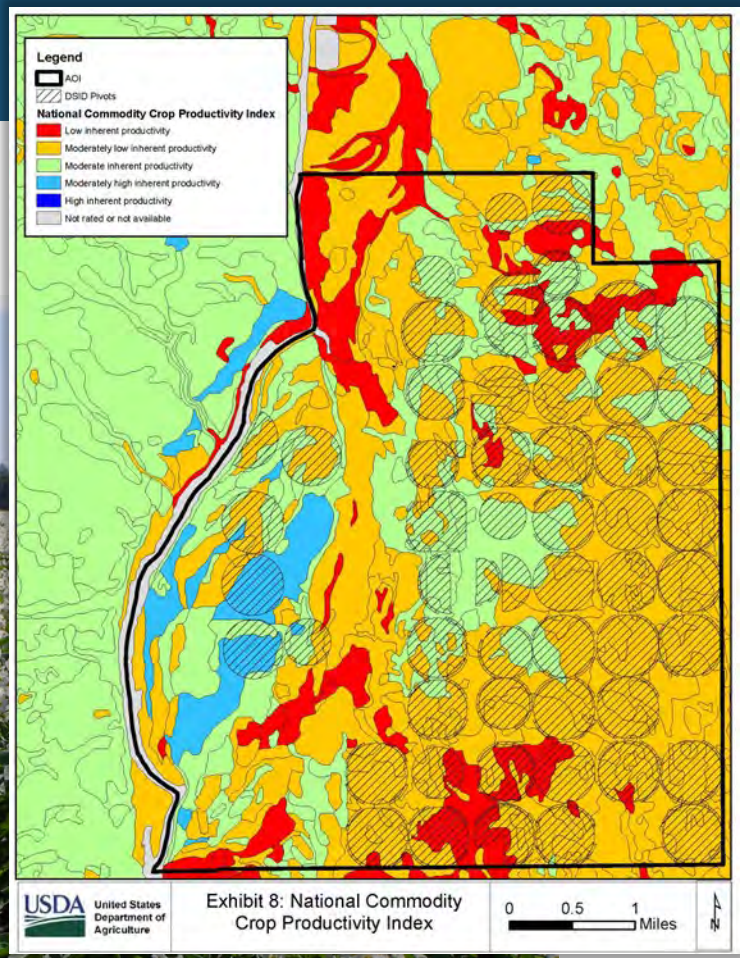
- 4 Tree species
- 2 Shrub Species
- 1 Woody Vine
- 7 Grasses
- 17 Broadleaf species
- 4 Domesticated grain and forage species

Survey conducted November 2024

Plants – Cropland Productivity

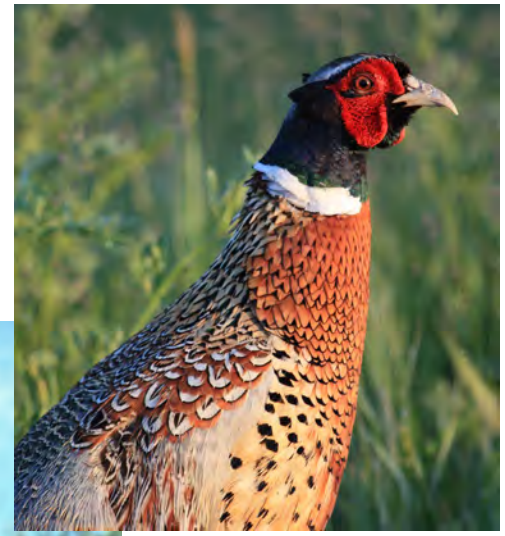
- Plant Productivity is limited by the low water holding capacity of the soils
- Irrigation of sandy soils makes production of high water use crops possible.





Animals – Current Condition

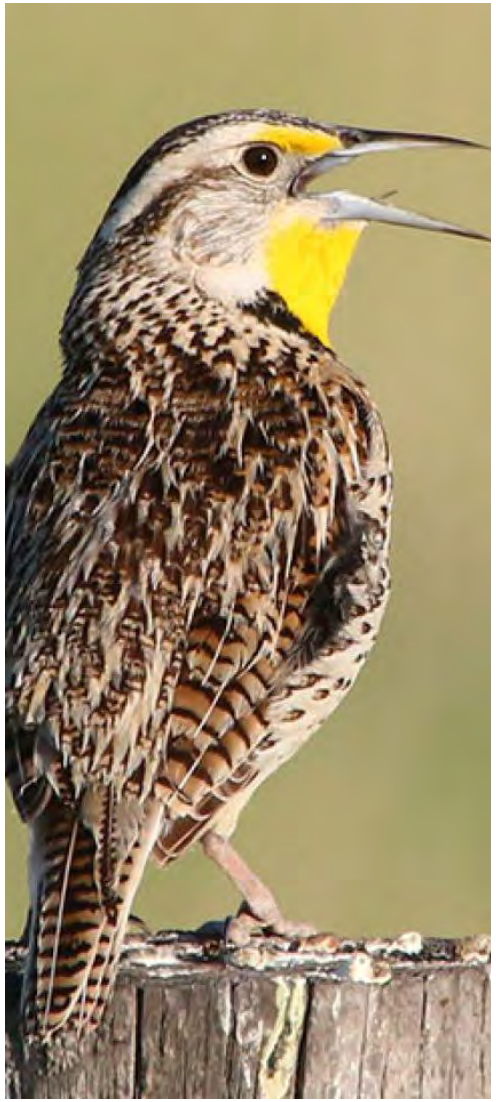
- No direct livestock impacts
- Some livestock forage is produced
- Fish & Wildlife
  - Open water canal provides habitat
    - Aquatic sp.
    - Migratory birds
    - Idle habitat is present
    - Landscape is fragmented by canal



Animals

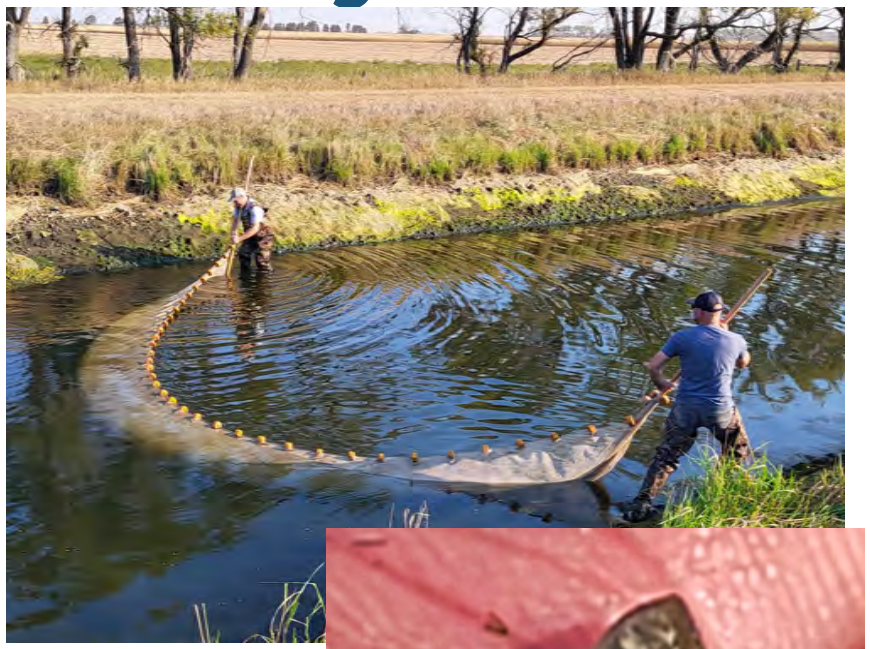
Predicted Condition – Pipeline Alternative

- No direct impact to livestock
- Potential for more forage
  - 67 acres returned to production
- Fish & Wildlife Impacts
  - Elimination of open water
  - Disturbance to idle grass during construction
  - Tree removal
  - Landscape re-connection



Aquatic Species Inventory

- 6 Fish species
- 2 Amphibians
- 5 Arthropods
- 1 Shrimp species
- 1 Leach species
- 5 Snail and Clam species
- 4 Bird species
- 1 Mammal

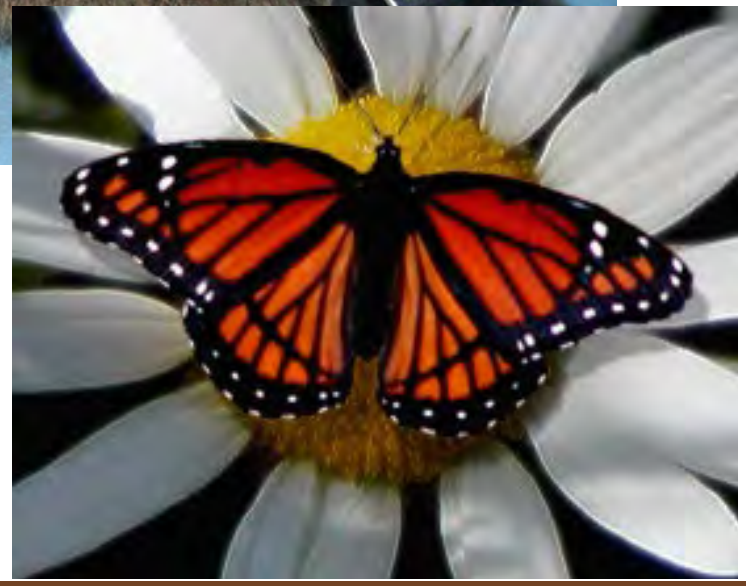


Survey conducted October 2024

Federally Threatened and Endangered Species

- Northern Long-eared bat
  - May be affected
    - Tree removal
    - Bridge removal
- Dakota Skipper
  - No Effect - Not likely to be affected
- Monarch Butterfly – candidate sp.
  - May be present
- Other Migratory Birds/Eagles
  - Bald Eagles may be present, no nests have observed.

USFWS/Keith Shannon



ND Game & Fish Species of Concern

James River is considered a focus area for both wetland and river habit

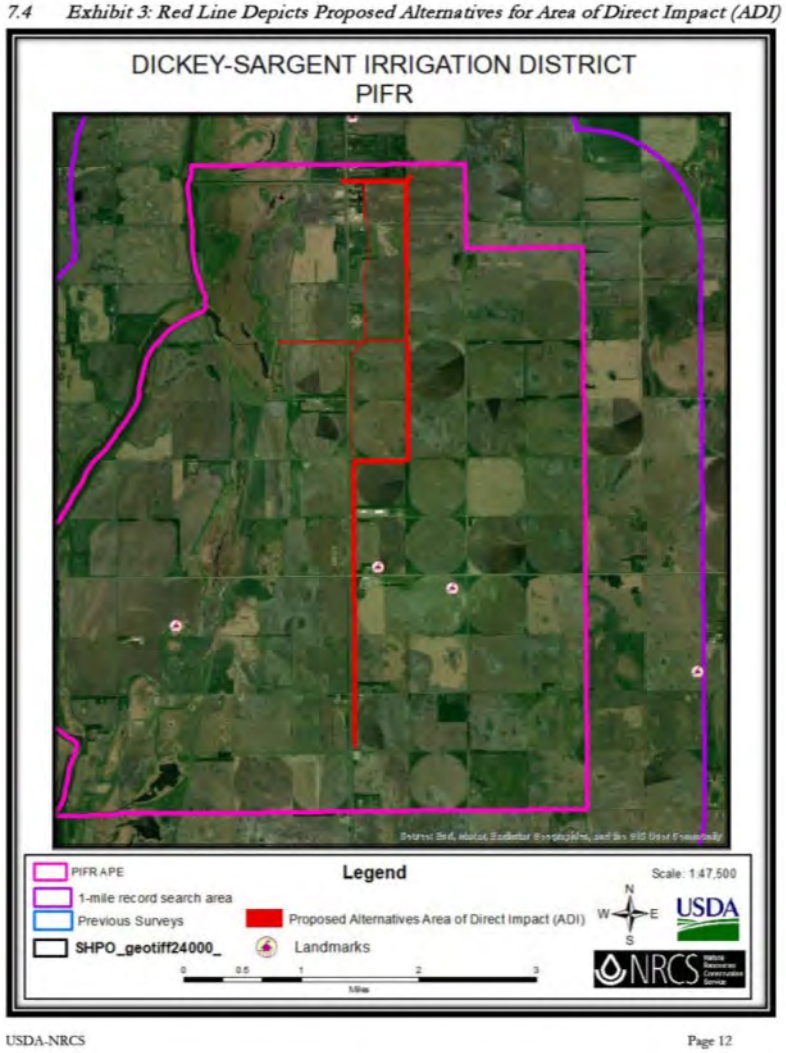
- 17 Birds
- 4 Mammals
- 4 Amphibians
- 3 Fish species
- 4 Mussel species

- None were observed during surveys

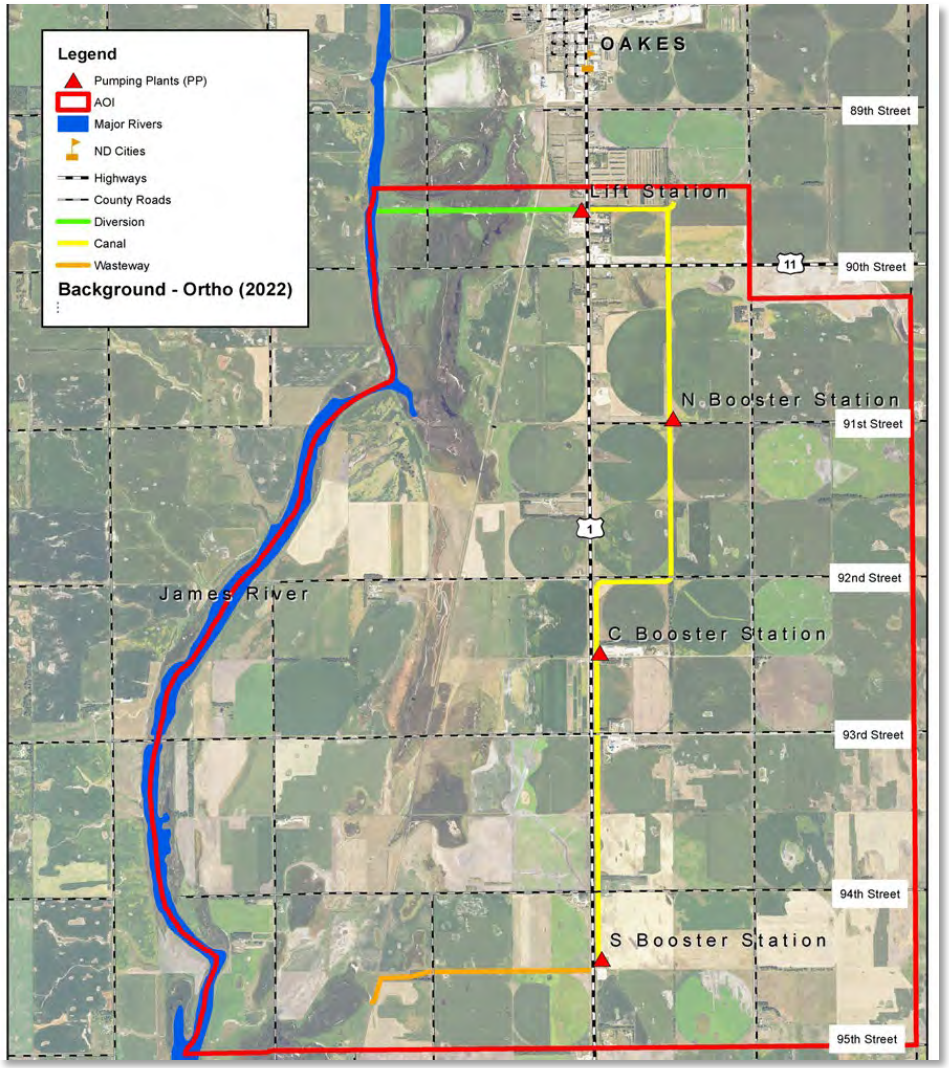
Cultural and Distributional Implications

- Class III Cultural Resources Review
  - Completed by USBOR in 1989
- Class I Cultural Resources Literature Search
  - 5 historic structures
  - 15 historic sites
  - 4 archaeological sites
- None are National Register Historic properties
- All sites are not near construction site

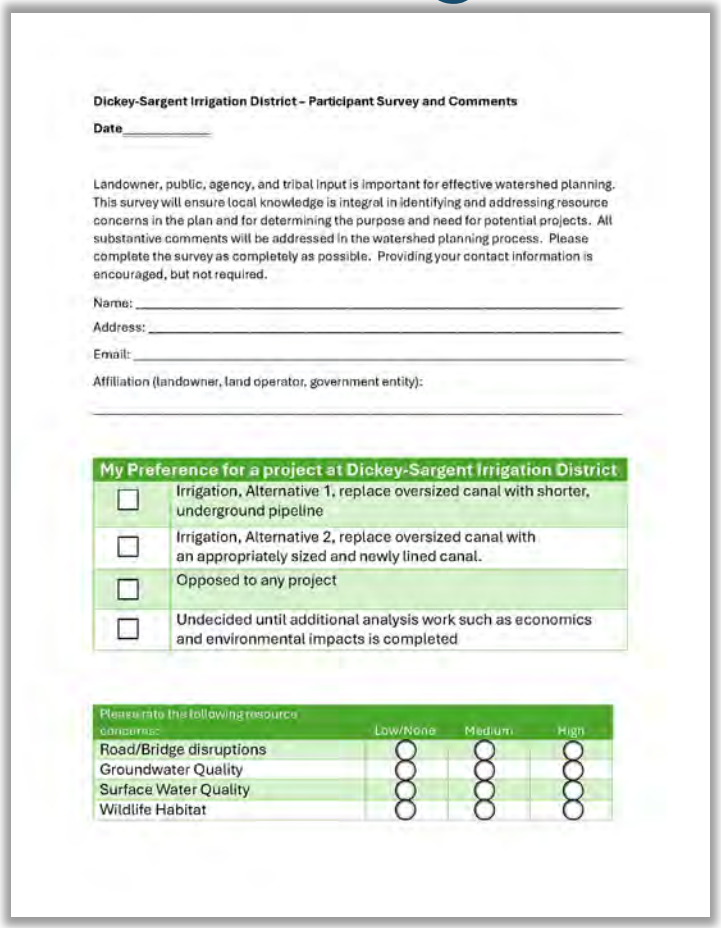
- Environmental Justice
  - Screen found no groups were disproportionately represented.



Comments or Questions?



Questionnaire



Dickey-Sargent Irrigation District – Participant Survey and Comments

Date_____

Landowner, public, agency, and tribal input is important for effective watershed planning. This survey will ensure local knowledge is integral in identifying and addressing resource concerns in the plan and for determining the purpose and need for potential projects. All substantive comments will be addressed in the watershed planning process. Please complete the survey as completely as possible. Providing your contact information is encouraged, but not required.

Name: _____

Address: _____

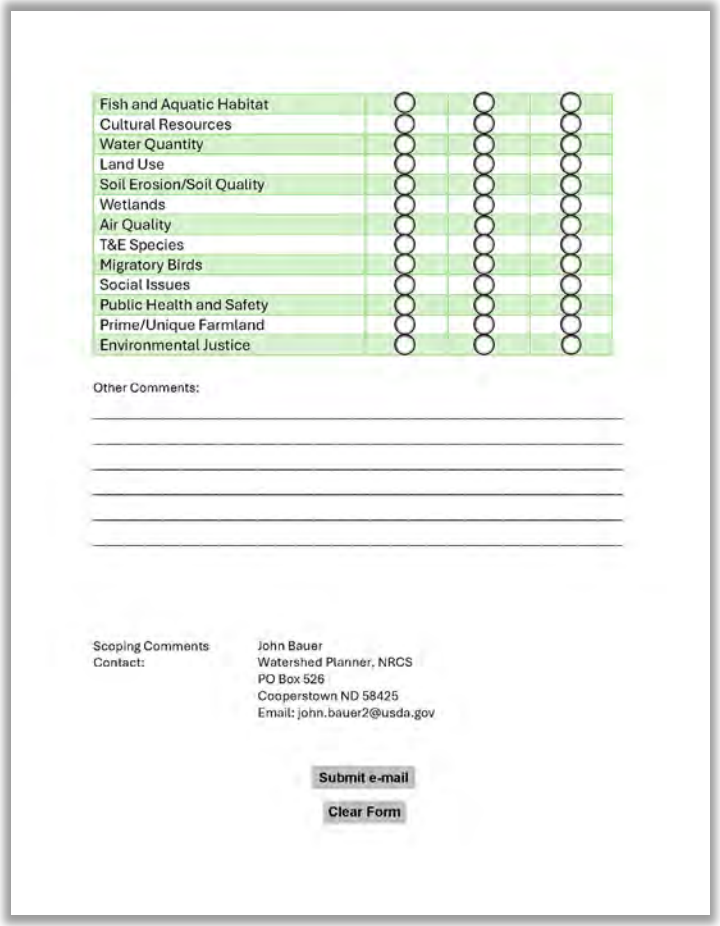
Email: _____

Affiliation (landowner, land operator, government entity):

_____

My Preference for a project at Dickey-Sargent Irrigation District	
☐	Irrigation, Alternative 1, replace oversized canal with shorter, underground pipeline
☐	Irrigation, Alternative 2, replace oversized canal with an appropriately sized and newly lined canal.
☐	Opposed to any project
☐	Undecided until additional analysis work such as economics and environmental impacts is completed

Please rate the following resource concerns:	Low/None	Medium	High
Road/Bridge disruptions	○	○	○
Groundwater Quality	○	○	○
Surface Water Quality	○	○	○
Wildlife Habitat	○	○	○



Fish and Aquatic Habitat	○	○	○
Cultural Resources	○	○	○
Water Quantity	○	○	○
Land Use	○	○	○
Soil Erosion/Soil Quality	○	○	○
Wetlands	○	○	○
Air Quality	○	○	○
T&E Species	○	○	○
Migratory Birds	○	○	○
Social Issues	○	○	○
Public Health and Safety	○	○	○
Prime/Unique Farmland	○	○	○
Environmental Justice	○	○	○

Other Comments:

_____

_____

_____

_____

_____

_____

Scoping Comments Contact:

John Bauer
Watershed Planner, NRCS
PO Box 526
Cooperstown ND 58425
Email: john.bauer2@usda.gov

Submit e-mail

Clear Form

https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/north-dakota/dickey-sargent-irrigation-plan

Conclusion