Regular Board of Directors Meeting
Monday, May 12, 2025 6:00 PM
Lower Platte North NRD Office
P.O. Box 126
Wahoo, NE 68066

1. Call to Order

   NOTE: The agenda is on file at the LPNNRD office and may be changed up to 24 hours prior to the meeting as scheduled.

   1.A. Meeting Notice

   1.B. Inform Public on Location of Copy of "Open Meeting Act"

   1.C. Pledge of Allegiance

2. Roll Call

   2.A. Introductions

3. Approval of Agenda
   Are there any additions or corrections to the agenda?
4. Comments - Advisors/Guests

   4.A. Guest Comments

   4.B. NRCS Report

   4.C. NARD Report

   4.D. NRC Report
   Attached find minutes from the April 9th Commission Meeting.
   4.E. Managers Report

   4.F. Education Program
   Mike Sotak will give an update on their findings and future plans for the Wanahoo Stilling Basin.
5. Approval of Minutes
   Are there any additions or corrections to the Minutes? If not they will be approved on the consent agenda.
6. Report of Standing Committees

6.A. Executive Committee - Action as Required

6.A.1. UNFINISHED BUSINESS

6.A.2. MEETINGS

6.A.2.a. Pending

6.A.2.a.1. Basin Tour

Attached is information about the 2025 NRD Niobrara Basin Tour on June 9th-10th based in Valentine. Registrations are due (To Jill) on or before May 9th.

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Join us for an immersive two-day experience as we explore key projects and programs dedicated to protecting Nebraska's natural resources.

Tour Highlights Include:

- CSS Farms - Seed potato operation
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6.A.2.b. Reports

6.A.3. MANAGEMENT ITEMS

6.A.3.a. Directors Absence

6.A.3.b. Monthly Education Program

Mike Sotak will give an update on their findings and future plans for the Wanahoo Stilling Basin.

6.A.3.c. Sale of Current NRD Office

With the May 9th auction date, discussion is requested to set a minimum accepted bid and potentially appoint a Sale Sub Committee to meet after the completion of the auction to discuss and make a recommendation for approval or rejection to the full board on May 12th.

6.A.3.c.1. Surplus Property/Office Furniture

We have had an interest in purchasing some of our office furnishings that we will not be moving to the new office. Staff is requesting discussion on available items and potential prices.

6.A.3.d. NRD New Office Update

New Office Building Committee met with Scheele/Kayton and JEO to review and discuss construction status. An update will be given to the committee.

Plans are to wait until we are moved in to evaluate boardroom audio needs and security camera needs.

6.A.3.d.1. Moving Company

Chapman has gathered prices for moving our large office equipment to the new office. The moving company is fully insured. Staff will be responsible for packing and moving their individual office/Cube items, and we are planning to work with our local school(s) to secure volunteer help moving boxes, basement items etc.

After closing on the sale of our existing property, we will have up to 60 days to move//remove our additional items and provide possession of the property. Plans are to use a portion of this time to move our shop and outbuilding contents (also with volunteer assistance) to the new location.

6.A.3.d.2. Diode Cameras

We are hoping to be able to utilize some of our existing exterior security cameras at our new office. Number of cameras needed and locations will be determined once we move in.

6.A.3.e. Lake Wanahoo Amphitheater

6.A.3.f. HBE360 Contract

Our current contract with HBE360 will expire June 2025. We have asked them for updated contract pricing (attached) for years ending June 2026, June 2027, June 2028 and June 2029.

6.A.4. EQUIPMENT

6.A.5. PERSONNEL

6.A.5.a. Wanahoo Seasonal Staff

6.A.6. FINANCE

6.A.6.a. Approval of Financial Reports
Grant will be available to review the March Financials.

6.A.6.b. Approval of Managers Time and Expense Sheets
Attached find Gottschalk's time and expense sheets.

6.A.6.c. Accounts over 90 Days

6.B. Operations Committee - Action as Required

6.B.1. UNFINISHED BUSINESS
We don't have any unfinished business to address.

6.B.2. WILD NE AND OTHER PROGRAMS
There's nothing to report.

6.B.3. OPERATION & MAINTENANCE & OTHER ITEMS
The O & M crew packaged, delivered and started planting trees. Regular maintenance on vehicles and equipment.

6.B.3.a. Rehabilitation of Cottonwood 21-A, NRCS & HDR
The 90 percent report is in the hands of the NRCS.
Butler Public Power District will be replacing utility poles that go across the dam on the downstream slope. This has been discussed and reviewed by HDR and Hazard Engineering. The Dept. of Dam Safety has also made recommendations on pole depth and locations. At the time of renovation construction those poles may need to be moved or replanted.

6.B.3.b. Wanahoo Basin Damage & Repair, FEMA & Houston Engineering
Mike Sotak will give an update on their reported findings and future plans as the Education presentation at the May board meeting.

6.B.3.c. Hay Areas on Recreation Areas for 2025
The bids for haying our recreation areas are due Monday, May 5 by 4:00 pm. There are 4 individuals who bid on the hay areas. Meduna Family Farms is high bid for Wanahoo areas "A" and "B"at $41.00, Ken Cejka on Wanahoo area "C" at $68.50, Dan Kadavy is high bid at Czechland at $45.00, and Chuck Andel is high bid at Homestead at $67.00. Bid results are attached. We need a motion to accept the high hay bids.

6.B.3.d. Landowner Access Bridge Request over Rawhide Ditch 8
Back in February the Board approved that David Heller could build a UTV/Foot bridge over Rawhide Ditch 8 provided he do it in accordance with NRD direction and easement documentation.
Attached is a signed Revocable Easement Agreement IIngress/Egress) for this bridge request. Heller has been given design plans that were developed

by JEO and used when the irrigation bridge just downstream was rebuilt after the 2019 flood, Heller was asked to use this design for the footings.

6.B.3.e. Wahoo Ducks Unlimited Duck Blind Replacement

During our precribed burn in March, a Ducks Unlimited duck blind was a casualty of the fire. The District will be reimbursing DU $1,600 for a duck blind.

A second blind was burnt during the accidental fire on the eastside of the lake. DU said they would handle that blind.

6.B.4. ROCK AND JETTY

Seth McGinn will be seeking cost-share assistance to maintain their jetties on the Platte River.

6.B.5. LAKE WANAHOO

6.B.5.a. Lake Wanahoo Permit Sales

For the month of March, the District received $3,477.50 in annual park permit revenue.

6.B.5.b. Lake Wanahoo Camping Revenue

For the month of March, the District received $4,520.31 in camping revenue.

6.B.5.c. Amphitheater at Lake Wanahoo

Chairman Jerry Johnson would like to have some discussion on the requested amphitheater at Lake Wanahoo.

6.B.5.d. Clint Johannes Education Building

The Clint Johannes Education Building at Lake Wanahoo was rented 20 times in April, with 1 NRD rental. Revenue for the month was $1300.

6.B.6. INFORMATION AND EDUCATION

6.B.6.a. Information

6.B.6.a.1. Radio & eAds

The KTIC radio ads for April featured LPNNRD recreation areas - this will continue through May.

The Wahoo newspaper e-ad featured environmental education opportunities for April. In May it will change to recreation area ads. There will also be a print ad in May.

The ads are attached.

6.B.6.a.2. Analytics

Top Posts for Facebook and X included:

- April Coffee, Lakeside flyer
- LPNNRD Natural Resources Grant availability
- Why does an 85-year-old plant a tree? video on Arbor Day
- Clint Johannes Education Building policy reminder
- Chemigation permits

On the LPNNRD website, we received traffic from NARD (86), Facebook (47), Nebraska Game and Parks (19), Nebraska tourism (6), X (0), Wahoo newspaper e-ad (0).

The reports are attached.

6.B.6.b. Education

6.B.6.b.1. past events

- April 2nd: Bishop Neuman M.S. survival skills (20)
- April 3rd: Bishop Neuman M.S. Survival skills(20)
- April 4th: Wahoo 2nd grade - Pollination (80)
- April 8th: Wahoo 1st grade - feathers (74)
- April 10th: Coffee Lakeside - Earth and Arbor Day (8)
- April 11th: Platte Center Elementary K-6th Earth and Arbor Day (136)
- April 14th: Fremont 4th grade AM Earth Day (75) / East Butler 7th grade Arbor Day (12)
- April 15th: Cedar Bluffs 3rd Grade - Earth Day (35)
- April 16th: Newman Grove Elementary Earth and Arbor Day (48)
- April 22nd: St. Wenceslaus Pre-K AM (28) / North Bend 5th Grade Earth Day (42) / Earth Day Event @ Lake Wanahoo (6)
- April 23rd: Wahoo Kindergarten Earth Day (85)
- April 24th: Fremont Ecofair (350)
- April 28th: Re-schedule North Bend (41) and Wahoo Kindergarten (85)
- April 30th: Fremont H.S. Water quality (45) / Presentation pm @ Let's play yoga studio Wahoo (4)

6.B.6.b.2. future events

- May 7th: Spring conservation Sensation
- May 12: St. Wenc Pre-K field trip
- May 14th: Ashland Greenwood water day
- May 15th: Wahoo 1st grade field trip
- May 17th: Bob Bruner Fishing Derby
- May 19th: Yoga at the lake
- May 20th: Wahoo 4th grade field trip
- May 21st: Bees and Brews
- May 22nd: Job Shadow in office

6.B.6.b.3. NRD Natural Resources Grant Update

Today was the application deadline and we didn't receive any applicaitons. We had one email from a Newman Grover teacher asking

for an extension. Lacey and I will discuss our plan, but more than likley, we will extend it.

6.B.7. RURAL WATER SYSTEMS

6.B.7.a. Rural Water Operations

With spring weather and construction season starting the RWD had 22 locate requests to address between the two systems.

Hydrant flushing was also conducted on both systems.

Annual water quality reporting was completed this past month; all PWS (public water system) are required to annually post/notify all customers with the water system's water quality report from NDEE. Both reports have been posted on our website, and publicly posted at both village post offices.

Included in this month's bills all customers will receive a cross-connection reporting survey. This is a state mandated document that all PWS customers are required to complete.

6.B.7.b. Colon System

Routine monthly sampling completed, meters read and bills mailed 5/1.

6.B.7.c. Bruno System

Routine monthly sampling completed, meters read and bills mailed 5/1.

6.B.7.d. Other

6.B.7.d.1. Basin Tour

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6.C. Water Committee - Action as Required

6.C.1. UNFINISHED BUSINESS

6.C.2. REGULATORY

6.C.2.a. GROUND WATER MANAGEMENT AREA

6.C.2.a.1. Well Permit Program

Pictures from a well drilling site near Linwood.

6.C.2.a.2. US Army Engineer District Well Permit

A well permit for a 250 GPM extraction well is attached for the NW NE 28-14N-9E, Saunders County. This well will be used for part of the cleanup of the NOP cleanup southeast of Mead.

The Committee asked staff to visit with the Army Corp of Engineers about the beneficial use of the water being extracted.

6.C.2.a.3. Lower Platte River Basin Water Management Plan Coalition (LPRBC)

It was agreed at the Coalition Board meeting to continue $10,000 annual dues.

6.C.2.b. GROUND WATER ENERGY LEVELS

Attached is analysis of LPN spring water levels.

6.C.2.c. Groundwater Sampling

Staff will water sampling wells in the Todd Valley Area along with the Phase Areas. In the Todd Valley Area area, LPN will be sampling for higher sodium concentrations along with nitrates and pesticides.

6.C.2.d. Groundwater Management Plan

Attached is an invoice from LRE for $2,906.75 per contract. Goals and objectives are attached for discussion, which LRE condensed from the 1995 Groundwater Management Plan.

LRE is planning on having a draft update in May with all the additions and comments implemented into the plan. At previous meetings, discussion on updating the variance scoring sheet along with conducting additional evaluation of SQS#2 rules and boundaries. Attached are LRE recommendations with initial cost estimates.

The committee will review the recommendations at the next Water Committee Meeting.

6.C.3. GROUND WATER PROGRAMS

6.C.3.a. DECOMMISSIONED WELL PROGRAM

6.C.3.a.1. Well Estimates

1 new well has been reviewed and approved for decommissioning since the last Committee meeting.

Well Owner	Type of Well	Cost Share Estimate	Shell Creek Cost	County
Barry Benson	Irrigation	767.10	$1010.70	Boone

6.C.3.a.2. Plugged Wells

3 wells have been plugged, reviewed, and ready for cost share payment approval this month.

Well Owner	Type of Well	Cost Share Estimate	Shell Creek Cost Share	County
Ryan Loseke	Irrigation	$861.07	259.53	Platte
Francis Emanuel	Irrigation	$752.89	$0	Dodge
Brian Birkel	Irrigation	$1,256.12	$0	Butler

6.C.3.b. LOWER PLATTE NORTH NRD GROUND WATER STUDIES

6.C.3.b.1. Phase Area Update

The NRD still have flow meter cost share sheets coming in. Staff is continuing to approve the cost share for flow meters as LPN has grant funds from the WSF grant. The grant will expire at the end of the

year.

David Hahn	$1,000.00
Jonathon Sobota	$1,000.00
David Sobota	$1,000.00
David Sobota	$1,000.00
David Sobota	$1,000.00
David Sobota	$1,000.00
David Sobota	$1,000.00
David Sobota	$1,000.00
David Sobota	$1,000.00
David and Theresa Novak	$1,000.00
Russ and Gene Novak	$1,000.00
Russ and Gene Novak	$1,000.00
Russ and Gene Novak	$1,000.00

We have a Pivot Conversion invoice and a flow meter invoice from Dan Wachal. The cost share amount for the pivot conversion is $10,000 and the flow meter for $1,000.

Invoice have been submitted for the following:

Name	Number of meters	Total Amount
Ron Klug	2	$2,000
Thomas Stibal	1	$1,000
Jeff McAfee	1	$1,000

6.C.3.b.2. Eastern Nebraska Water Resources Assessment (ENWRA)

The LPNNRD agreement with CSD will expire on June 30, 2025. The LPN has submitted a grant to drill 10-12 monitoring wells in Wellhead Protection Areas. UNL-CSD obligates the money to assist in the drilling of the test holes with analysis. The agreement includes the following amounts of $29,600 Y1, $16,600 Y2, $29,600 Y3.

If the WSF grant is not approved, then the money will not be obligated.

attachments

6.C.3.c. SOURCE WATER PROTECTION

The Village of Mead has passed a motion to pursue a Source Water Protection Grant to update their Wellhead Protection Area.

Postcards were sent out to Newman Grove and Platte Center Wellhead Protection Area producers notifying them that we will be water sampling in

the area this summer.

Attached is an invoice for $920.00 from LRE for LPN to complete its portion of the project per contract for Shell Creek Analysis.

6.C.4. SURFACE WATER PROGRAMS

6.C.4.a. USGS STREAM FLOW GAUGING SITES

An invoice for $8,426 for stream gages on Shell Creek near Columbus and Wahoo Creek near Ashland. In the past, this was an annual fee, but USGS requested the payment to be semi-annual with the new contract.

6.C.5. OTHER

6.C.5.a. COMMENTS FROM THE PUBLIC

6.C.5.b. Basin Tour

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6.D. Projects Committee - Action as Required

6.D.1. UNFINISHED BUSINESS

6.D.2. SWCP

6.D.2.a. SWCP Application Approvals

Below is an application for summer SWCP:

KYLE OSMERA	$	15,000.00	TOT/WASCB

6.D.2.b. SWCP Payments

Below is a certified completed project eligible for SWCP payment:

TERRY KUBIK	**$**	**13,285.80**	**Terraces with tile outlet**

6.D.2.c. SWCP Cancellations

6.D.2.d. Wahoo Creek Cost Share Approvals

6.D.3. JOINT WATER MANAGEMENT ADVISORY BOARD (JWMAB)

Platte River camera invoice is attached and will be paid via prior Board approval of agreement.

6.D.3.a. East Fremont/Elkhorn Township Drainage - FEMA HMPG

6.D.3.b. West Fremont - FEMA BRIC

NEMA Notice of Intent has been submitted. JEO is curretnly developing grant application narative pending Governor's Task Force selection. Billing (to the County) is currently at 99%.

6.D.3.c. Rawhide Creek Watershed - NRCS WFPO

Attached is a clean version of the plan with appendicies submitted to State NRCS in February. Billing for this project (through Dodge County) is at 97% complete and should wrap up one the review is complete.

6.D.3.d. North Bend Drainage District

6.D.3.e. Cotterell Diking and Drainage District

6.D.4. SHELL CREEK WATERSHED

6.D.4.a. Shell Creek Implementation - 319 & NET

The next SCWIG meeting is scheduled for June 17th. Moriah Brown, a PHD student at UNL, originally planned to present her work at the March meeting but is now planning to present at the June meeting. Moriah's work is focused on antibiotic resistant bacteria in surface water samples taken from Shell Creek.

SCWIG planned and supported a tour in Lincoln for Volunteer Monitoring students on April 21st. The tour included guided tours at: NDEE Surface Water Lab, University Water Sciences Lab, Horticulture Production Greenhouse, Horticulture Specimen Greenhouse, Horticulture Hydroponics Greenhouse, Back Yard Farmer Garden/Urban Stormwater Example, NIC Plant Phenotype Greenhouse, and USGS Platte River Leshara Streamgage/Realtime Water Quality Sensor.

6.D.5. WAHOO CREEK WATERSHED

6.D.5.a. Construction Update

Construction update meeting attached, work is still focused on site 27, highlights:

- Shanahan used the good stretch of weather to wrap up sand drain installation, waiting on sheet piling for outlet sections. Completed the east half of cutoff trench excavation/backfill. Also completed excavation and riprap placement on plunge pool
- TCI waiting on principal spillway pipe. Has enough material to start with other aspects (riser) before any schedule delays.
- Settlement plates will probably be installed this month as once embankment fill begins.

Attached are construction observation invoice from Olsson and construction update minutes.

Current TCI invoice attached.

6.D.5.b. Dam Site Planning Update

6.D.5.b.1. Design - Olsson

NRCS informed Olsson that previously approved (26AB, 27) design criteria specific to sand drain outlets will not be allowed going forward. This required some extra back and forth with DNR and current designs (55, 84) submitted for permit.

Andrew Philips will be present to discuss contract amendment (attached).

Invoice

6.D.5.b.2. Real Estate - Olsson & Great Plains Appraisal

Offer letters went out to all parcels for sites 77 and 85. Danielle has been in, or attempted, contact with all recipients. Elliott and Danielle will be meeting with a number of landowners the week of May 5 and expect to have mulitple purchase agreements ready for 5/12 Board meeting approval.

Current invoice attached.

6.D.5.b.3. Funding - NRCS WFPO & NeDNR JEDI

6.D.5.c. Water Quality - NWQI & 319

Currently putting a mailing list together & postcards to send out to producers with information on NWQI.

Also in the process of updating the Wahoo Creek Management Plan.

6.D.6. LOWER PLATTE RIVER CORRIDOR ALLIANCE

The next Corridor Alliance meeting will be on May 9th, 10:00am, at Lower Platte Sout NRD. Attached is a draft agenda and draft FY26 budget.

6.D.7. MORSE BLUFF LEVEE

6.D.8. LESHARA DRAINAGE IMPROVEMENT

6.D.9. EROSION AND SEDIMENT RULES AND REGULATIONS

6.D.10. HAZARD MITIGATION PLAN UPDATE

The Hazard Mitigation plan is 92% completed while the drought plan is at 55% completion. The LPNNRD has contacted communtiies missing paperwork through calls and letters to wrap up the HMP. All community meetings for the drought plan have taken place. JEO plans to have a draft of the drought plan to the LPNNRD on May 16th.

An invoice and progress report is attached.

6.D.11. NEBRASKA BUFFER STRIP PROGRAM

We received another application eligible for NeBSP, this is 5 year contract:

Matt Bahns	1.3	$325.00

6.D.12. OTHER

6.D.12.a. Basin Tour

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6.D.13. ADJOURNMENT

7. Additional Action Items

8. Approval of Bills Pending

9. Consent Agenda Adoption

10. Comments from Directors/Guests

11. Meeting Establishment/Adjournment

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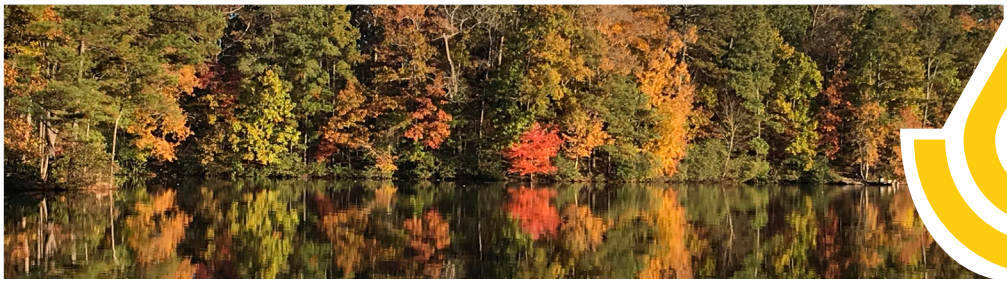
USDA United States Department of Agriculture

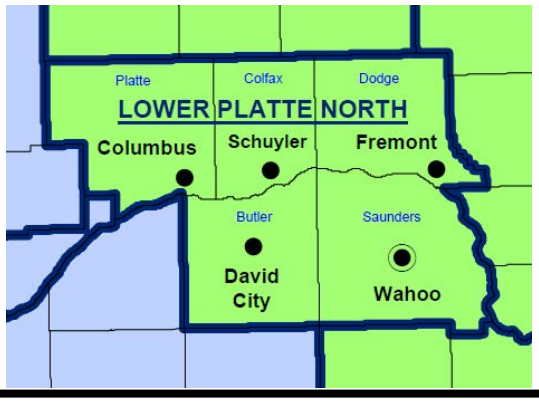
Conservation Update

Report to LPNNRD Manager
May, 2025



District Conservationist: Bryan Shupe

Wahoo: District Secretary - VACANT
District Conservationist - Bryan Shupe
Resource Conservationist - Peyton Harsin
Soil Conservationist - Don Treptow
Natural Resource Spec. - Pearl Smith-Mayar
Civil Engineering Technician - Josh Charles
Pheasants Forever Biologist - Elli Sanders
NRD Technician - Adam Brockmann
Area Easement Specialist - Patrick Lantis
Wetland Data Specialist (CTR) - Mindy Clark
ACES Contract - Mitch Keebler
Survey Technician - Sakia Fields
ACES Contract - Mark Walkenhorst



David City: District Secretary - Kim Piitz
Resource Conservationist - Ben Barlean
Soil Conservationist - VACANT

Fremont: District Secretary - Jessica Marty
Resource Conservationist - Mike Boardman
Soil Conservationist - Ryan Jenkins
Soil Con Technician - VACANT

Schuyler: District Secretary - Kris Miller
Res. Conservationist - Jenna Kampschnieder
Natural Resources Specialist - VACANT

Columbus: District Secretary - Jeri Rosno
Resource Conservationist - VACANT
Natural Resources Specialist - VACANT

Staffing

The probationary staff let go in February nation-wide were brought back after a lawsuit was filed. All of our local probationary staff chose to accept the Deferred Resignation Program (DRP 2.0) in April. This provides them administrative leave until September 30, and gives them an opportunity to find employment outside of the Federal Government. As of mid-April, 45 staff in Nebraska had taken the deferred resignation.

Nathan Kush, the Natural Resources Specialist in Columbus resigned on May 2nd. He is pursing an opportunity in the private sector. This creates a challenge in the Columbus office where I have no Federal Field Office staff. Don Treptow and Ryan Jenkins have been helping Nathan since Chelsea Clark left in September. Given their familiarity with the office, I have asked them to continue working in the Columbus office in Nathan's absence. Ryan will plan to be in Columbus Monday, Tuesday, Wednesday; and Don will plan to be in Columbus on Wednesday, Thursday, and Friday.

After the DRP 2.0 and voluntary resignation, LPN NRCS will be down to one customer facing employee in most of the offices. This 40% reduction in staff puts us at about a 50% staffing level throughout the NRD. I remain focused on making customer service our number one priority. I will ensure that any available staff, and myself, help provide coverage and make sure there is an NRCS presence in all of our offices.

General Updates

Decent rainfall has given us a very good construction season compared to past few years of the drought. We were able to get a lot of structural practices built and will be finishing up checkout paperwork to get the completed items paid.

With planting well underway, if not almost done for some producers, we will be out completing 2025 random compliance reviews, and following up on soil loss variances from 2024. There are about 160 farms to review throughout the NRD. Saunders county has 49, Platte has 42, Dodge has 21, Colfax has 20, and Butler has 28.

The Columbus office is taking financial assistance applications for Nutrient Management, gravity to pivot conversions, and Irrigation Water Management in Lower Loup district in Platte County. This is part of a Regional Conservation Partnership Program (RCPP) with the Lower Loup NRD. The application period goes through the month of May.

We are currently wrapping up our last EQIP application that was funded with initial EQIP allocations in March. If its signed and obligated, that will be our 11th contract for a totaling around $750,000. We were approved for another $186,000 and plan to have that money obligated by the end of the month. 3 CSP applications were selected for funding. One in Butler, Saunders, and Platte counties.

Natural Resources Conservation Service

Thank You Partners and Producers

Your contributions and partnership are second to none and you are essential to our mission:

Helping People Help the Land

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NEBRASKA NATURAL RESOURCES COMMISSION

DRAFT MEETING MINUTES – April 9, 2025

CALL TO ORDER – PLEDGE OF ALLEGIANCE & ROLL CALL

Chairman Batie called the meeting to order at 11:00 a.m. in the Holiday Inn Hotel & Conference Center, Kearney, Nebraska. The roll was called following the Pledge of Allegiance.

Roll Call:

Commissioners		Absent	Present	Commissioners		Absent	Present
Rollie	Amsberry	X		Tom	Mountford	X	
Don	Batie	X		Doug	Reeves		X
Lawrence	Bradley		X	Keith	Rexroth		X
Devin	Brundage		X	Lyle	Schroer		X
Mark	Czaplewski		X	John	Shadle		X
Lane	Darnall	X		Matt	Smallcomb		X
Christopher	Dierks		X	Scott	Smathers	X	
Brad	Dunbar		X	Jeff	Steffen		X
Randy	Fox		X	Dan	Steinkruger	X	
Nate	Jenkins		X	Dennis	Strauch		X
Steve	Kelly		X	Greg	Wilke		X
Rick	Kubat		X	Vacant			
Kennon	Meyer		X	Vacant			
Larry	Mohrman		X				

DNR staff in attendance:
Kent Zimmerman

Others in attendance were:
Dustin Wilcox, NARD; Russ Callan, LLNRD; Tylr Naprstek, LLNRD; and Chris Hobza, USGS.

ANNOUNCEMENTS

None were offered.

NOTICE OF THE MEETING AND PUBLIC MEETING LAWS

Notice of the meeting was published on the State Public Meetings Calendar and on the Natural Resources Commission (Commission) web site at https://nrc.nebraska.gov. A copy of Nebraska's open meeting statutes was available in the room.

MINUTES

Dunbar moved and Brundage seconded the motion to approve the minutes of the February 19th, 2025, Commission meeting.

Motion Passed.

Commissioner	Aye	Nay	Abstain	Absent	Commissioner	Aye	Nay	Abstain	Absent
Amsberry				X	Mountford				X
Batie				X	Reeves	X			
Bradley	X				Rexroth			X	
Brundage	X				Schroer	X			
Czaplewski	X				Shadle	X			
Darnall				X	Smallcomb	X			
Dierks	X				Smathers				X
Dunbar	X				Steffen			X	
Fox	X				Steinkruger				X
Jenkins	X				Strauch			X	
Kelly			X		Wilke	X			
Kubat	X				Vacant				
Meyer	X				Vacant				
Mohrman	X				**TOTALS**	**15**	**0**	**4**	**6**

DNR UPDATE & PUBLIC COMMENTS

No public comments were offered. Staff reported Acting Director Bradley was unable to attend the Commission meeting today and sent his regards. DNR is monitoring progress on several bills in the legislature that could impact both DNR and NRC funds.

PROGRAM COMMITTEE

No updates were given. Chairman Wilke asked staff to lead discussion on agenda topics pertaining to program activities. No unusual activity was reported.

Resources Development Fund

The status report showed business as usual.

The city of Scribner contacted staff regarding the possibility of a contractor removing a portion of the levee for use as fill material on one of the contractor's local job sites. The city questioned whether they would be required to repay any of the RDF grant used to build the levee, and if so, how much.

RDF #40 SCRIBNER LEVE

- Corps of Engineers – Section 205 levee project that provides 100-year flood protection.
- Scribner received a grant of $426,433.81 to provide flood protection from Pebble Creek and the Elkhorn River.
- The project was completed in 1995.
- DNR's contract with Scribner runs through December 31, 2045. Under the terms of the contract Scribner is required to obtain Commission approval prior to selling, transferring or exchanging any of the real properties or facilities connected or used with the project.
- Scribner is responsible for O & M including replacement.

The recently completed US-275 project realigned portions of the levee and could potentially serve as the embankment. DNR's Floodplain Management Division Manger Jamie Reinke, PE, CFM, reached out to Nebraska Department of Roads (NDOR) regarding the status of the LOMR and whether levee accreditation through FEMA was part of the state's project or if the community of Scribner is responsible for that, post construction. NDOR is starting to coordinate with HDR on the LOMR process. Reinke has not received a response regarding who is responsible for the accreditation or when that process will start.

DNR staff Reinke and Zimmerman meet with Scribner's Mayor Ken Thomas and City Administer, Elmer Armstrong by phone, reviewed the situation and informed the city officials that removing a portion of the levee was not an option at this time.

Small Watersheds Flood Control Fund

This is currently an unfunded program.

Soil & Water Conservation Program Fund

The status report showed business as usual.

Natural Resources Water Quality Fund

The status report showed business as usual.

Water Well Decommissioning Fund

The status report showed business as usual.

Water Sustainability Fund

The WSF status report showed business as usual. Individual Project Status Reports are posted on the Commission's website (at: https://nrc.nebraska.gov/water-sustainability-fund-reports).

During the March 2025 WSF application submittal period.

- Omaha submitted an application for its Combined Sewer Overflow project,
- Nine applications were submitted in the large projects category requesting over $21 million, and
- 13 applications were submitted in the small projects category requesting over $2.6 million,
- For a total of 23 applications requesting over $24.7 million.

WSF #10079 Project Review

Commissioner Steffen gave an update on L&CNRD's Bow Creek Watershed Project (BCWP). Steffen reviewed the project goals and noted that recent increases to NRCS payment rates for some BMPs now provide incentives at the maximum payment proposed under the BCWP without additional incentives from BCWP. Looking forward, NRCS will not be allowing as many EQIP contracts in 2025 and therefore an opportunity exists to continue incentivizing adoption of BMPs in the BCWP by fully incentivizing producers up to the limits described within the BCWP application (WSF #10079) even if producers are not receiving cost share from another conservation agency. The sponsor's metrics will also be adjusted to account for producers self-funded acres and the acres fully funded by EQIP as a result of the BCWP's education outreach efforts.

WSF #10064 Project Review

Chris Hobza, USGS, reported some key findings this Legacy Nitrate research is providing. The project uses age dating and tracer isotopes to look at the lag time between nitrogen application and when legacy nitrate inflows affect groundwater from land use practices of the past. Hobza noted that nitrate levels, in some sandy soil areas with shallow depth to groundwater, were being impacted within 5 years.

Tylr Naprstek, Assistant General Manager, Lower Loup NRD, noted that it is a common belief among producers that high levels of groundwater nitrate is a problem created fifty or sixty years ago; the study results show that it is actually from what is happening today. Looking at results from shallow wells, 2.9 years and 3.6 years ago is a very short time from when the nitrogen was exposed to the atmosphere to when it is being pulled from the well. All of the water samples with high nitrates were exposed to the atmosphere less than 30 years ago.

Steffen asked if this study was connected to the pilot project where they installed soil moisture sensors. Hobza said this was a complementary project. The other study is looking at the effects of nitrate leaching from different fertilizer application methods; and measuring how fast water moves through the soil root zone. Of note, although not part of WSF # 10064, the other study is using bromide with a negatively charged ion to monitor soil movement. Bromide moves through soil at the same rate as nitrate. Hobza said the bromide wasn't applied until the middle of June and yet with the irrigation and rainfall, the bromide was moving an inch per day in some cases.

Dunbar noted that they missed the main part of infiltration, if the soil profile had not been full of water at the time the bromide was applied in mid-June, additional deep percolation and runoff events would have taken place showing an even greater increase in the rate fertilizer is lost. Usually, the soil profile may not be quite full at the time of planting, Dunbar said, then once we get to the middle of June and look at the number of rainfall and irrigation events that happen, where a de-percolation or runoff event took place, we lose it (nitrate) pretty fast.

Steffen said his takeaway from this study was that no water or fertilizer was being used by the corn plant below the top two-foot level.

Russ Calan, General Manager, Lower Loup NRD, said all 33 sampling sites show that the corn root zone is limited to the top 20 inches and in some cases too as little as the top 15- or 16-inch range. Calan noted drought tolerant hybrids roots are bred to spread out at shallow depth and capture available moisture. Callan also discussed the difficulty of managing nitrates in the top two feet of soil over the entire season. Callan said this is only the first year of a three-year study, so it is premature to develop any conclusions yet.

EXECUTIVE COMMITTEE

Chairman Wilke made the following assignments to the NRC committees based upon Commissioner survey responses indicating willingness to participate:

Legislative Committee – Rick Kubat Chair

Don Batie

Larry Bradley

Mark Czaplewski

Kennon Meyer

Dennis Strauch

Greg Wilke

Comprehensive Planning Committee – Kennon Meyer Chair

Don Batie

Chris Dierks

Rick Kubat

Keith Rexroth

Program Committee – Brad Dunbar Chair

Mark Czaplewski

Randy Fox

Nate Jenkins

Larry Mohrman

Doug Reeves

Matt Smallcomb

Jeff Steffen

Applications Review Committee – Devin Brundage Chair

Note: Committee Members will be appointed closer to when the WSF applications become available for Commissioner review.

OTHER BUSINESS

- Next meeting is July 23rd, 2025.

ADJOURNMENT

The meeting was adjourned at 12:26 p.m.

Manager's Report – May 12, 2025

- As a reminder, tonight's board meeting and all meetings through October will be held at 6:00 pm.
- LPNNRD's Wahoo Creek Projects continue to progress with construction on the first three sites and land rights on the remaining six sites. The concrete tubes which run through site 26A, 26B and 27 structures is to be on site later this week. These tubes were delayed in arriving and once here will allow work to proceed quickly. NRCS is working with Olsson on some slight design changes needed to address the drain filters required to line the main structure tubes. We also have some easement paperwork ready to approve on some of the remaining six structures and will take care of this later in tonight's meeting.
- I have kept in close contact with Jesse Bradley with DNR (soon to be DWEE – Dept of Water, Energy & Environment) as our JEDI reimbursements have been going very well. There is a potential the State Legislature will limit the amount of JEDI funds to $5 million per fiscal year and if this is done, we will need to adjust our work schedule accordingly.
- This is the time of year I begin preliminary work on our next fiscal budget. I will be reviewing upcoming needs and begin developing my preliminary lists. May is also they time of year I conduct staff reviews and begin planning compensation increases to all staff.
- May is also a very busy time in our recreation areas. Wanahoo and Czechland camping attendance has increased during the past 30 days and our Summer staff is coming aboard this week and next week. This is the first year our Recreation department will be responsible for both parks landscaping and supply needs. Jon Speichinger has been doing a tremendous job preparing LPN's recreation areas and is responsible for current and future upgrades such as tree plantings, landscaping and future growth in both parks. Wanahoo's Education Building also continues to be very busy this time of year with spring graduation parties and summer bookings. Lacey Sabatka continues to do an amazing job with the scheduling and rentals and informs me there is just one weekend rental available between now and the end of the year!
- Last week our Spring Conservation Sensation was held at Wanahoo and over 250 5th and 6th graders were in attendance to learn about tree planting, catching fish, animals of Nebraska just to name a few things. Sydney does a great job educating our district residents ages 1-101 with a variety of unique and exciting educational programs. Please check with her if you are ever interested in volunteering for one of her programs.
- Bob and his crew just completed their 2025 planting around our district. Over 10,500 trees were ordered this year and our O&M department designed and planted 10 plantings over the past month. Also, on May 5th our newest staff member joined our team, Sean O'Brien was hired to fill our O&M technician position. Sean comes to us from Chadron and will be living in Valley.
- Work continues to finish up at our new office location. A punch-list walkthrough is scheduled for next week to identify and resolve all issues found. Plans are to move the office on Thursday, June 12th or Friday June 13th and be in the new building on Monday June 16th.

Stay safe and have a great month!
Eric Gottschalk, General Manager

LOWER PLATTE NORTH NRD MINUTES
BOARD MEETING
April 14, 2025

The regular monthly meeting of the Lower Platte North NRD Board of Directors was called to order at 6:00 p.m. at the Lower Platte North NRD Office, Wahoo NE on Monday, April 14, 2025.

1. NOTICE OF MEETING

The agenda and supporting documents are available on the district's website – www.lpnnrd.org. A copy of the Nebraska Open Meetings Law has been posted on the NRD's website.

The advanced notice of our April 14, 2025, board meeting was posted on the Lower Platte North NRD website and posted in the Wahoo Newspaper on April 4, 2025.

Chair Sabatka informed those present that a copy of the "Open Meetings Act" is posted for public viewing.

Pledge of Allegiance

2. ROLL CALL - INTRODUCTIONS

DIRECTORS PRESENT AND CONSTITUTING A QUORUM:

Bailey	Birkel	Goldsberry
Hanson	Harders	Hilger
Johnson, Jerry	Lawrence	Meduna (arrived 6:50)
McKnight	Saalfeld	Seier
Tonnies	Yosten	Sabatka

DIRECTORS ABSENT

Engel	Johnson, Duane	Olson
Saeger		

STAFF AND GUESTS:

Gottschalk	Breunig	Chapman
Andersen	Heimann	Elliott (Zoom)
Beethe (Zoom)	Lausterer	Sabatka (Zoom)
Danielle Allen (Zoom)	Cody Gerdes (Zoom)	Thad Kuntz

3. APPROVAL OF AGENDA

4. COMMENTS - ADVISORS/GUESTS/DIRECTORS

a. Guest Comments

b. NRCS Report - None

c. NARD Report

Hilger gave the NARD report.

d. NRC Report - None

e. Manager Report

Manager Gottschalk gave his report.

f. Education Program

Thad Kuntz from Longitude 103 updated the Board on costs associated with moving our data and annual

fees to maintain the database.

5. APPROVAL OF MINUTES

Yosten made the motion, seconded by Tonnies, to approve the minutes from March 10, 2025, Board Meeting. Motion carried on consent agenda.

6. REPORT OF STANDING COMMITTEES

A. EXECUTIVE COMMITTEE REPORT

1. UNFINISHED BUSINESS - None

2. Meetings

a. Pending

1. NARD Basin Tour – Update Given

b. Reports

1. NARD Washington DC Annual Meeting – Update Given

3. Management Items

a. Director Absences

Yosten made the motion, seconded by Tonnies, to approve the following Directors Absences: Yosten, Bailey, and Saalfeld from the February Board Meeting and Duane Johnson from the January and February Board meeting. Motion carried on consent agenda.

b. Monthly Education Program – Taken Earlier

c. New Office Update

Sabatka made the motion, seconded by Seier, to enter into a three-year agreement with NextLink to provide internet service for approximately $325 per month and a one-time installation fee of $500. Motion carried all members present voting aye.

d. Sale of Current NRD Office – Update Given

e. HBE 360 Contract – Update Given

f. Texting and Emailing Policy – Update Given

4. Equipment – None

5. Personnel

a. Operation and Maintenance Technician

Saalfeld made the motion, seconded by Jonson, J., to ratify the hiring of Sean O'Brien to fill the vacant Operation and Maintenance position. Motion carried all members present voting aye.

b. NRCS Office Assistant Position – Update Given

6. Finance

a. Approval of Financial Reports

Yosten made the motion, seconded by Tonnies, to approve the final February Financial Statement as attached to the Executive Minutes. Motion carried on consent agenda.

b. Approval of Managers' Expenses

Yosten made the motion, seconded by Tonnies, to approve Manager Gottschalk's time and expense sheets as attached to the Executive Committee Minutes. Motion carried on consent agenda.

c. Accounts Over 90 Days - Update Given

Yosten made the motion, seconded by Tonnies, that the April LPNNRD Executive Committee Minutes be received and placed on file. Motion carried on consent agenda.

B. OPERATIONS COMMITTEE REPORT

1. UNFINISHED BUSIINESS – None

2. WILD NE AND OTHER PROGRAMS – Update Given

3. OPERATION AND MAINTENANCE & OTHER ITEMS

a. Rehabilitation of Cottonwood 21-A – NRCS & HDR – Update Given

b. Wanahoo Basin Investigation for Damage – Update Given

c. No-Till Grass Drill and Triple Axle Dump Trailer - Update Given

d. Hay Areas on Recreation Areas for 2025 – Update Given

e. Fire Incident on Wanahoo Property – Update Given

4. ROCK AND JETTY

Johnson, J., made the motion seconded by Saalfeld, to cost-share with the Timberwood HOA at $6,000 and Platte Valley D & D at $6,000 for their Platte River bank stabilization and levee maintenance. Motion carried all members present voting aye.

5. LAKE WANAHOO

a. Lake Wanahoo Permit Sales - Update Given

b. Lake Wanahoo Camping Revenue – Update Given

c. Clint Johannes Education Building Rentals – Update Given

6. INFORMATION & EDUCATION

a. Information

1. Radio and Digital Ads – Update Given

2. Analytics – Update Given

3. Dodge County Agricultural Society

Yosten made the motion, seconded by Tonnies, to donate $500 to the Dodge County Agricultural Society for sponsorship of 2025 Dodge County Fair. Motion carried on consent agenda.

4. Shell Creek Scholarship

Johnson, J., made the motion seconded by Seier, to approve Aleeya Morris and Brooke Forre each for a $1,000 Shell Creek Watershed Scholarship. Half of the scholarship will be paid after Board approval, with the remaining amount paid after successful completion of the first term. Motion carried all members present voting aye.

b. Education

1. Past Events – Update Given

2. Upcoming Events – Update Given

3. Outdoor Classrooms – Bloom Boxes – Update Given

4. LPNNRD Natural Resources Grant – Update Given

7. RURAL WATER SYSTEMS

a. Rural Water Operations – Update Given

b. Colon – Update Given

c. Bruno – Update Given

d. Other - None

Yosten made the motion, seconded by Tonnies, that the April LPNNRD Operations Committee Minutes be received and placed on file. Motion carried on consent agenda.

C. WATER COMMITTEE REPORT

1. UNFINISHED BUSINESS – NONE

2. REGULATORY

a. GROUNDWATER MANGEMENT AREA

1. Irrigated Acre Transfer

Hilger made the motion, seconded by Harders, to approve the certified irrigation acre transfer to Kolb Farms Inc. from Part of the SE¼-NW¼ and Part of the NW¼-SW¼-S35-T14-R9E to S½-NE¼-S13-T14-9E Saunders County. Motion carried all members present voting aye.

2. Well Permits Program – Update Given

3. Well Permit Duck Pond – Update Given

4. Supplemental Well Permit

Hilger made the motion, seconded by Birkel, to approve the supplemental well permit to Wode Farms for the NW-SW-S14-T14-R8E Saunders County. Motion carried all members present voting aye.

5. Livestock Well Permit

Hilger made the motion, seconded by Birkel, to approve the livestock well permit for Beller Feedlot in NW-SW-S13-T20-R4W Platte County. Motion carried all members present voting aye.

6. Cost-Share Programs

a. NiRIA – Update Given

7. Lower Platte River Basin Water Management Plan Coalition (LPRBC) -Update Given

b. Ground Water Energy Levels – Update Given

3. GROUND WATER PROGRAMS

a. Decommissioned Well Program

1. Well Estimates – Update Given

2. Plugged Wells – Update Given

b. LOWER PLATTE NORTH NRD GROUND WATER STUDIES

1. Phase Area Update

Yosten made the motion, seconded by Tonnies, to approve payment to Richard Shonka for $2,000 for two flow meters. Motion carried on consent agenda.

2. Eastern Nebraska Water Resources Assessment (ENWRA) – Update Given

3. Lower Platte River Consortium – Update Given

c. New Monitoring Well – Update Given

d. Source Water Protection

Hilger made the motion, seconded by Lawrence, to approve payment to In-Situ for $3,636.22 and Downey Well Drilling for $1,055 for data logger, cable, Vulink connection and PVS tubing for assistance to the Village of Abie in drought management. Motion carried all members present voting aye.

1. Newman Grove Well Decommissioning- Update Given

4. Database Update

Hilger made the motion, seconded by Lawrence, to enter into an agreement with Longitude 103 for migrating our current data into their system at a cost of $17,500 of which $10,000 will be paid by NeDNR and the annual cost for maintaining the database will be $16,000 annually. Motion carried.

AYE: Bailey, Birkel, Goldsberry, Hanson, Harders, Hilger, Johnson, J., Lawrence, Meduna, McKnight, Saalfeld, Seier, Tonnies, Sabatka

NAY: Yosten

5. Texting and Email Policy – Update Given

6. Domestic Well Permits – Update Given

7. GMDA Summer Conference – Update Given

8. Surface Water Program -Update Given

9. OTHER

a. Comments from the Public – None

Yosten made the motion, seconded by Tonnies, that the April LPNNRD Water Committee Minutes be received and placed on file. Motion carried on consent agenda.

D. PROJECTS COMMITTEE REPORT

1. UNFINISHED BUSINESS – NONE

2. SWCP

a. Application Approvals - None

b. SWCP Payments - None

c. SWCP Cancellations – None

d. Wahoo Creek Cost Share Applications - None

3. JOINT WATER MANAGEMENT ADVISORY BOARD – Update Given

a. East Fremont/Elkhorn Township Drainage – FEMA – HMPG – Update Given

b. West Fremont – FEMA BRIC – Update Given

c. Rawhide Creek Watershed NRCSA WFPO – Update Given

d. North Bend Drainage District – Update Given

e. Cotterell Diking and Drainage District – Update Given

4. SHELL CREEK WATERSHED

a. Shell Creek Implementation – 319 and NET

Yosten made the motion, seconded by Tonnies, to approve $5,974.96 payment to Jeff Johnson for completed septic system upgrade and financially support SCWIG students with Lincoln tour, polos, and testing supplies. Motion carried on consent agenda.

5. WAHOO CREEK WATERSHED

a. WCW Construction – Update Given

b. Dam Site Planning Update

1. Design – Olsson – Update Given

2. Real Estate Olsson & Great Plains Appraisal – This item will be taken at the end of the meeting.

3. Funding – NRCS WFPO and NeDNR JEDI – Update Given

c. Water Quality – NWQI & 319 – Update Given

6. LOWER PLATTE RIVER COOIDOR ALLIANCE – Update Given

7. MORSE BLUFF LEVEE – UPDATE GIVEN

8. EROSION AND SEDIMENT RULES AND REGULATIONS - None

9. LOESS HILLS RC&D

Yosten made the motion, seconded by Tonnies, to renew our 2025 membership with the Loess Hills RC&D at $350. Motion carried on consent agenda.

10. NEBRASKA BUFFER STRIP PROGRAM

Yosten made the motion, seconded by Tonnies, to approve two NeBSP contract applications: Rodeny Julesen - $5,220 and Todd Maurer - $3,200. Motion carried on consent agenda.

11. HAZARD MITIGATION PLAN – UPDATE GIVEN

12. OTHER – Update Given

Yosten, made the motion, seconded by Tonnies, that the April LPNNRD Projects Committee Minutes be received and placed on file. Motion carried on consent agenda.

7. ADDITIONAL ACTION ITEMS – NONE

8. BILLS TO BE APPROVED

Johnson, J., Yosten made the motion, seconded by Birkel, that all bills be approved, and warrants be drawn in payment of the same. Motion carried all members present voting aye.

9. CONSENT AGENDA ADOPTION

Yosten made the motion, seconded by Tonnies, to approve the April Consent Agenda. Motion carried all members present voting aye.

Item 6.D.5.b.2. - Real Estate – Olsson and Great Plains Appraisal was taken at this time.

Sabatka made the motion, seconded by McKnight, to go into Executive Session at 8:21 p.m. for the purposes of discussing Upper Wahoo Creek Watershed land rights and authorize the following staff to stay: Danielle Allen, Olsson; Cody Gerdes, Great Plains Appraisal; Legal Counsel Lausterer; Staff: Gottschalk, Elliott, Breunig and Chapman. Motion carried all members present voting aye.

Sabatka made the motion, seconded by McKnight, to go out of executive session at 9:09 p.m. Motion carried all members present voting aye.

Meduna made the motion, seconded by Lawrence, to accept appraisals as prepared by Great Plains Appraisal for the Upper Wahoo Creek Watershed sites 77 and 85 and authorize Danielle Allen to move forward with offers. Motion carried all members present voting aye.

McKnight made the motion, seconded by Johnson, to authorize Legal Counsel Lausterer's office to commence the condemnation process on Tract 10 of Wahoo Creek Watershed Site 84 (listed as owned by Dick Cerv), on Tract 6 of Wahoo Creek Watershed Site 55 (listed as owned by Christian/Ostransky), and on Tract 3 of Wahoo Creek Watershed Site 55 (listed as owned by Charles Vesley). Motion caried all members present voting aye.

11. COMMENTS FROM DIRECTORS/GUESTS

12. MEETING ESTABLISHMENT AND ADJOURNMENT

The May Board of Directors Meeting will be held on Monday, May 12, 2025, 6:00 p.m. Meeting adjourned at 9:13 p.m.

Discussion on all agenda items that have “Update Given” can be found in corresponding Committee Minutes.

The undersigned, the duly elected and acting Secretary of the Lower Platte North Natural Resources District (the “District”), hereby certifies that the foregoing is a true and correct copy of the minutes of the Meeting of the Board of Directors of the District held on April 14, 2025, that all of the matters and subjects discussed at the meeting were contained in the agenda for the meeting, kept continually current and readily available for public inspection at the principal office of the District during normal business hours, and except for items of emergency nature, the agenda was not altered later than twenty-four (24) hours before the scheduled commencement of the meeting; that at least one copy of all reproducible material discussed at the meeting was available at the meeting for examination and copying by members of the public; that the above minutes were in written form and available for public inspection within ten working days or prior to the next convened meeting, whichever occurred earlier; and, that reasonable efforts were made to provide all news media requesting notification of the meeting and of the time and place of said meeting and the subjects to be discussed at said meeting.

_____

Bill Saeger, Secretary

Nebraska's Natural Resources Districts
www.nrdnet.org
Protecting Lives • Protecting Property • Protecting the Future

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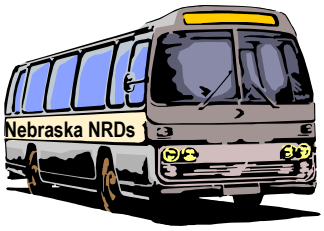

To: NRD Board of Directors, Staff and Conservation Partners
From: Nebraska Association of Resources Districts (NARD)
Re: NRD Basin Tour | June 9-10, 2025
Date: April 25, 2025

You're Invited, Please Register Now!

2025 NRD Basin Tour – Niobrara Basin
Hosted by NARD in Partnership with the Niobrara Basin NRDs
Based in Valentine, Nebraska | June 9–10, 2025

The Nebraska Association of Resources Districts (NARD), in collaboration with the Niobrara Basin NRDs, is pleased to invite you to the **2025 NRD Basin Tour**. Join us for an immersive two-day experience as we explore key projects and programs dedicated to protecting Nebraska's natural resources.

Tour Details:
Monday, June 9

- 11:15 a.m. – 11:45 a.m. (CDT): Lunch at the Niobrara Lodge patio (803 US-20, Valentine, NE)
- 12:00 p.m. (CDT): Bus departs the Niobrara Lodge
- Tour will showcase conservation efforts and innovative practices across the Middle Niobrara NRD
- Evening: Dinner at **Niobrara Valley Vineyards**, Nenzel

Tuesday, June 10

- 7:30 a.m. (CDT): Depart from hotel after breakfast for Spencer Dam
- Tour highlights initiatives across both Middle and Lower Niobrara NRDs
- Lunch included
- Return to Niobrara Lodge by 4:30 p.m. (CDT)

Tour Highlights Include:

- CSS Farms – Seed potato operation
- Drip irrigation & Ponderosa Pine trials
- Fort Niobrara & Cub Creek Reservoir
- Minor Ranch & Niobrara Valley Vineyards
- Lower Niobrara NRD facilities
- Watershed management initiatives & Spencer Dam

Registration Information:
To reserve your seat, please submit your completed registration form to the NARD office **by May 9th**. Space is limited and early registration is encouraged.

Registration Fee Includes:

- All meals, breaks and activities
- Motor coach transportation
- Lodging for Monday night *(NARD will arrange hotel accommodation)*

If you plan to arrive early and need a room for Sunday night, be sure to mark this on your registration form. All lodgings must be booked through NARD.

We look forward to seeing you in the Niobrara Basin this June!

Registration Form

Annual Basin Tour – Niobrara River Basin, June 9-10, 2025

Registration deadline is Friday, May 8. Cancellations received after May 19 are non-refundable.

Basin Tour registration fee will include the following:

- Monday, June 9: Lunch, conservation tour, snacks, beverages, activities, evening group dinner and hotel.
- Tuesday, June 10: Breakfast at the hotel, conservation tour, lunch, snacks, and beverages.

Registration options:

- Registration - with single room occupancy - $450 per person
- Registration - with double room occupancy - $390 per person
- Registration – with NO HOTEL accommodation – $325 per person. If you live in the area and don't need hotel accommodation, use this option to register for the tour.

For those arriving on Sunday for the NARD board meeting, or for the Basin Tour, you must reserve your Sunday night lodging with NARD. Use this form to add Sunday lodging. This is an extra fee not included with basin tour registration.

NRD: _____

Name: _____ Title: _____	**Extra Sunday night Stay Niobrara Lodge - $ 125** (not included in Basin Tour registration)	**Basin Tour Registration. Circle single or double occupancy** (for each person registering)
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double

List any special needs, including dietary restrictions: _____

Tour registration cost per person:

Extra Sunday night, June 8th lodging at Niobrara Lodge. Number of rooms needed - _____ x $ 125 = _____

Basin Tour Registration = Single room occupancy. Number of registrations - _____ x $ 450 = _____

Basin Tour Registration = Double room occupancy. Number of registrations - _____ x $ 390 = _____

Basin Tour Registration = NO HOTEL accommodation. Number of registrations - ____ x $ 325 = _____

***Total submitted* = _____**

Submit payment and registration to: **NARD, 8100 S. 15th St., Ste B, Lincoln, NE 68512.** **Register prior to May 8 (cancellations are non-refundable after May 19).**

2025 Director Absences
* Approved Absence

January	February	March	April	May	June
Engel	Bailey *		Engel		
Johnson, D. *	Birkel^		Johnson, D.		
	Johnson, D. *		Olson		
	Saalfeld *		Saeger		
	Yosten *				

July	August	September	October	November	December
^ Zoom Attendance					

2024 Director Absences
* Approved Absence

January -Virtual	February	March-Virtual 3/11	March Virtual 3/28	April	May	June
Kavan		Lawrence ^	Saeger ^	Johnson, D. *	Bailey*	Bailey*
		Saalfeld		McKnight*^	Lawrence^	Engel*
		Tnnies ^		Olson	Yosten*	Hilger^
				Saalfeld		Johnson, D.*
				Tonnies*^		Meduna*
				Yosten*		Saeger^*
						Yosten*

July	August	September		October - Virtual	November	December
Sabatka	Engel^	Goldsberry		Birkel^	Meduna	Birkel
	Johnson, D.^			Engel^		Olson
				Johnson, D.		Yosten
				Lawrence^		
				Saeger		
				Tonnies^		
March Declared Zoom Mtg						
^ Zoom Attendance						

2023 Director Absences
* Approved Absence

January	February	March	April	May	June
Saalfeld*	Saalfeld	Olson	Bailey ^	Engel	Meduna
	Saeger *		Birkel	Johnson, D.	Sabatka
	Seier		Seier ^	Kavan	Saeger
				Meduna	
				Sabatka	

July	August	September	October	November	December
Meduna*	Bailey	Johnson, D.	Bailey	Johnson, D.	Goldsberry
McKnight ~*	Birkel	Meduna	Johnson, D.		Kavan
Tonnies	Engel	McKnight #	Kavan		Lawrence
Yosten	Kavan	Olson	Olson #		Thompson
			Yosten		Yosten

^ Bailey and Seier were attending Shell Creek Group Tour

~ McKnight attending GMDA Meeting

Participated via Zoom

AIA® Document G701® – 2017

Change Order

PROJECT: *(Name and address)*	CONTRACT INFORMATION:	CHANGE ORDER INFORMATION:
Lower Platte North - Natural Resources District Office Building at Lake Wanahoo Wahoo, Nebraska Lower Platte North - NRD - Lake Wanahoo Wahoo, Nebraska	Contract For: General Construction Date: April 09, 2024	Change Order Number: 004 Date: April 29, 2025
OWNER: *(Name and address)*	**ARCHITECT:** *(Name and address)*	**CONTRACTOR:** *(Name and address)*
Lower Platte North - NRD 511 Commercial Park Road, P.O. Box 126 Wahoo, NE 68066	JEO Architecture, Inc. 2700 Fletcher Avenue Lincoln, Nebraska 68504-1113	Scheele-Kayton Construction 5900 S. 58th, Suite D Lincoln, NE 68516

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

Item No. 1
To provide and install framing for the stained-glass window located along the south wall of Stair #1.
The cost change to the Contract will be an ADD of: $927.00
(Refer to the attached Change Request #013 from Scheele-Kayton Construction dated March 5, 2025.)

Item No. 2
To provide and install a backflow preventer and stub out a 1-inch water line to serve the existing west shop building.
The cost change to the Contract will be an ADD of: $4,248.00
The Contract Time will be extended an additional (2) days.
(Refer to the attached Change Request #014 from Scheele-Kayton Construction dated March 25, 2025.)

Item No. 3
To extend the 1-inch water line that will serve the existing west shop building just beyond the south sidewalk.
The cost change to the Contract will be an ADD of: $4,268.00
The Contract Time will be extended an additional (5) days.
(Refer to the attached Change Request #015 from Scheele-Kayton Construction dated April 4, 2025.)

Item No. 4
This item deletes the requirement to provide and install a booster pump for the domestic water service and adds back in paving for another (19) parking stalls.
The cost change to the Contract will be an ADD of: $0.00
(Refer to the attached Change Request #016 from Scheele-Kayton Construction dated March 25, 2025.)

Item No. 5
To provide and install a guardrail at the flooring opening serving Stair #1.
The cost change to the Contract will be an ADD of: $4,991.00
(Refer to the attached Change Request #017 from Scheele-Kayton Construction dated April 4, 2025.)

The TOTAL cost change for this change order will be an ADD of: $14,434.00

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User Notes:
(3B9ADA3C)

The original Contract Sum was	$	5,519,000.00
The net change by previously authorized Change Orders	$	-760,608.00
The Contract Sum prior to this Change Order was	$	4,758,392.00
The Contract Sum will be increased by this Change Order in the amount of	$	0.00
The new Contract Sum including this Change Order will be	$	4,758,392.00

The Contract Time will be increased by seven (7) days.
The new date of Substantial Completion will be May 28, 2025

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

JEO Architecture, Inc.	Scheele-Kayton Construction	Lower Platte North - NRD
ARCHITECT *(Firm name)*	**CONTRACTOR** *(Firm name)*	**OWNER** *(Firm name)*
SIGNATURE	**SIGNATURE**	**SIGNATURE**
Ryan Dorfmeyer	Connor Kayton	Eric Gottschalk, General Manager
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**	**PRINTED NAME AND TITLE**
4-30-2025		4/30/25
DATE	**DATE**	**DATE**

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User Notes: (3B9ADA3C)

AIA® Document G702® – 1992

Application and Certificate for Payment

TO OWNER:	Lower Platte North Natural Resources District 511 Commercial Park Rd Wahoo, NE 68066	**PROJECT:**	Lower Platte North NRD Office Building	**APPLICATION NO:** 013	**Distribution to:**
					OWNER : [X]
				PERIOD TO: April 30, 2025	ARCHITECT : [X]
				CONTRACT FOR: General Construction	CONTRACTOR : [X]
FROM	Scheele-Kayton Construction, LLC	**VIA**	JEO Architecture, Inc	**CONTRACT DATE:** 04-20-2024	FIELD : [ ]
CONTRACTOR:	5900 S 58th St, Suite D Lincoln, NE 68516	**ARCHITECT:**	2000 Q St #500 Lincoln, NE 68503	**PROJECT NOS:** / /	OTHER : [ ]

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703®, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM		5,519,000.00
2. NET CHANGE BY CHANGE ORDERS		(760,608.00)
3. CONTRACT SUM TO DATE (Line 1 ± 2)		4,758,392.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)		4,312,123.89
5. RETAINAGE:		
a. 5.00% of Completed Work (Column D + E on G703: 4,312,123.89)=	215,606.19	
b. 5.00% of Stored Material (Column F on G703: 0.00)=	0.00	
Total Retainage (Lines 5a + 5b or Total in Column I of G703)		215,606.19
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)		4,096,517.70
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		3,496,776.18
8. CURRENT PAYMENT DUE		599,741.52
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)		661,874.30

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	27,654.00	788,262.00
Total approved this Month	0.00	0.00
TOTALS	27,654.00	788,262.00
NET CHANGES by Change Order		(760,608.00)

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: 4-28-25

State of: Nebraska
County of: Lancaster

Subscribed and sworn to before me this 28th day of April 2025

Notary Public: _____

My Commission expires: March 6, 2029

GENERAL NOTARY-State of Nebraska
MITCHELL HAM
My Comm. Exp. March 06, 2029

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED 599,741.52

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: May 1, 2025

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

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AIA® Document G703® – 1992

Continuation Sheet

AIA Document G702®, Application and Certification for Payment, or G732™, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
Use Column I on Contracts where variable retainage for line items may apply.

Lower Platte North NRD
Office Building

APPLICATION NO: 013
APPLICATION DATE: 04-28-2025
PERIOD TO: April 30, 2025
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G÷C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
001	General Conditions	458,215.00	363,192.00	31,674.00	0.00	394,866.00	86.17%	63,349.00	0.00
005	Owner Testing Allowance	27,500.00	27,500.00	0.00	0.00	27,500.00	100.00%	0.00	0.00
010	Surveying	7,800.00	5,948.00	926.00	0.00	6,874.00	88.13%	926.00	0.00
015	Footings & Foundation Walls	329,890.00	329,890.00	0.00	0.00	329,890.00	100.00%	0.00	0.00
020	Building Floor Slabs	107,832.00	107,832.00	0.00	0.00	107,832.00	100.00%	0.00	0.00
025	Site Paving	241,892.00	56,000.00	120,000.00	0.00	176,000.00	72.76%	65,892.00	0.00
030	Concrete Floor Finishes	4,150.00	0.00	0.00	0.00	0.00	0.00%	4,150.00	0.00
035	Reinforcing	81,992.00	81,992.00	0.00	0.00	81,992.00	100.00%	0.00	0.00
040	Stone Masonry Veneer	64,839.00	0.00	51,630.00	0.00	51,630.00	79.63%	13,209.00	0.00
050	Structural Steel Supply	189,103.00	189,103.00	0.00	0.00	189,103.00	100.00%	0.00	0.00
055	Structural Steel Erection	72,903.00	72,903.00	0.00	0.00	72,903.00	100.00%	0.00	0.00
060	Framing Labor	74,200.00	74,200.00	0.00	0.00	74,200.00	100.00%	0.00	0.00
065	Shop Fabricated Wood Trusses | Lumber Supply	116,783.00	116,783.00	0.00	0.00	116,783.00	100.00%	0.00	0.00
070	Glu-Laminated Construction	61,650.00	61,650.00	0.00	0.00	61,650.00	100.00%	0.00	0.00
075	Thermal Insulation	37,550.00	26,169.00	11,381.00	0.00	37,550.00	100.00%	0.00	0.00
080	Weather Barriers	76,638.00	76,638.00	0.00	0.00	76,638.00	100.00%	0.00	0.00
085	Joint Sealants	14,868.00	0.00	0.00	0.00	0.00	0.00%	14,868.00	0.00
090	Siding	88,227.00	79,815.00	6,400.00	0.00	86,215.00	97.72%	2,012.00	0.00
095	Fascia & Soffit	5,312.00	4,580.00	0.00	0.00	4,580.00	86.22%	732.00	0.00
100	Roofing	59,294.00	59,294.00	0.00	0.00	59,294.00	100.00%	0.00	0.00
105	Gutters & Downspouts	8,976.00	0.00	6,800.00	0.00	6,800.00	75.76%	2,176.00	0.00
110	Drywall | FRP	120,000.00	109,000.00	5,500.00	0.00	114,500.00	95.42%	5,500.00	0.00
115	ACT Ceilings	57,285.00	24,231.00	23,733.00	0.00	47,964.00	83.73%	9,321.00	0.00
120	Wood Doors | HMD | HMF	43,462.00	26,952.96	16,509.04	0.00	43,462.00	100.00%	0.00	0.00
125	Door Hardware	53,051.00	28,578.18	24,472.82	0.00	53,051.00	100.00%	0.00	0.00
130	Overhead Sectional Doors	11,804.00	11,804.00	0.00	0.00	11,804.00	100.00%	0.00	0.00
135	Storefronts | Windows	231,831.00	187,264.00	30,448.00	0.00	217,712.00	93.91%	14,119.00	0.00
140	Resilient Flooring	33,373.00	18,465.00	9,021.00	0.00	27,486.00	82.36%	5,887.00	0.00
145	Tile Carpeting	25,470.00	0.00	20,952.00	0.00	20,952.00	82.26%	4,518.00	0.00

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INVOICE

Thiele Geotech Inc
13478 Chandler Road
Omaha, Nebraska 68138-3716
402-556-2171 office / 402-556-7831 fax
www.thielegeotech.com

Project No: 01.23471.02
Project: Lower Platte North NRD Office & Storage Buildings - Materials Testing
Location: Highway 77 / 92 & County Road 17, Wahoo, NE
Project Manager: Cody Kimball

Invoice No.: 86387
Date: 4/25/2025

REMIT TO: 13478 Chandler Road
Omaha, Nebraska 68138-3716
FTIN 47-0794664
Online Payments Available at:
www.thielegeotech.com

TERMS: **Due Upon Receipt**
PAST DUE BALANCES SUBJECT TO 1.25% SERVICE CHARGE PER MONTH

Bill To: Austin Aufenkamp
Scheele-Kayton Construction
5900 South 58th Street, Suite D
Lincoln, NE 68516

Details

Sample/Location Details	Units	Description	Unit Cost	Total Cost
Work Order ID: 25-03035 Date: 3/25/2025	4.00	Compressive Strength of Cylinder (ea.)	$ 25.00	$ 100.00
	1.00	Concrete Test Set (slump/air/temp/cast 4-4"x8" OR 3-6"x12" cyl)	$ 116.00	$ 116.00
	1.00	Additional Air Content Test (ea.)	$ 34.00	$ 34.00
	1.00	Trip Charge - Zone 2 (/trip)	$ 118.00	$ 118.00
Work Order ID: 25-03230 Date: 3/26/2025	1.00	Trip Charge - Zone 2 (/trip)	$ 118.00	$ 118.00
Work Order ID: 25-03252 Date: 3/27/2025	4.00	Compressive Strength of Cylinder (ea.)	$ 25.00	$ 100.00
	1.00	Concrete Test Set (slump/air/temp/cast 4-4"x8" OR 3-6"x12" cyl)	$ 116.00	$ 116.00
	1.00	Trip Charge - Zone 2 (/trip)	$ 118.00	$ 118.00
Work Order ID: 25-03433 Date: 3/28/2025	1.00	Trip Charge - Zone 2 (/trip)	$ 118.00	$ 118.00
Work Order ID: 25-03985 Date: 4/7/2025	8.00	Compressive Strength of Cylinder (ea.)	$ 25.00	$ 200.00
	2.00	Concrete Test Set (slump/air/temp/cast 4-4"x8" OR 3-6"x12" cyl)	$ 116.00	$ 232.00
	1.00	Trip Charge - Zone 2 (/trip)	$ 118.00	$ 118.00
	1.00	Engineering Technician (/hr.)	$ 102.00	$ 102.00
Work Order ID: 25-04080 Date: 4/8/2025	1.00	Trip Charge - Zone 2 (/trip)	$ 118.00	$ 118.00
Work Order ID: 25-05484 Date: 4/23/2025	2.50	Senior Project Engineer (/hr.)	$ 218.00	$ 545.00

Total: **$ 2,253.00**

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A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G÷C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
150	Tiling	17,391.00	10,170.00	6,956.00	0.00	17,126.00	98.48%	265.00	0.00
155	Painting	43,639.00	23,639.00	18,000.00	0.00	41,639.00	95.42%	2,000.00	0.00
160	Signage | Specialties	32,951.00	0.00	17,404.00	0.00	17,404.00	52.82%	15,547.00	0.00
165	Casework | Countertops Supply	52,680.00	18,608.39	22,306.00	0.00	40,914.39	77.67%	11,765.61	0.00
170	Finish Carpentry	17,875.00	0.00	16,025.00	0.00	16,025.00	89.65%	1,850.00	0.00
175	Elevator	89,970.00	62,979.00	0.00	0.00	62,979.00	70.00%	26,991.00	0.00
180	Below Grade Plumbing Materials & R/I	85,734.00	85,734.00	0.00	0.00	85,734.00	100.00%	0.00	0.00
185	Above Grade Plumbing Materials & R/I	102,241.00	98,105.00	4,136.00	0.00	102,241.00	100.00%	0.00	0.00
190	Pipe Insulation	20,316.00	17,889.00	0.00	0.00	17,889.00	88.05%	2,427.00	0.00
195	Plumbing Fixtures & Equipment	115,839.00	61,420.00	27,768.00	0.00	89,188.00	76.99%	26,651.00	0.00
200	HVAC Testing & Balancing	11,673.00	0.00	0.00	0.00	0.00	0.00%	11,673.00	0.00
205	HVAC Equipment	139,475.00	104,362.00	19,500.00	0.00	123,862.00	88.81%	15,613.00	0.00
210	HVAC Ducts, Casings, Labor, & Misc	199,799.00	154,209.00	23,908.00	0.00	178,117.00	89.15%	21,682.00	0.00
215	HVAC Duct Insulation	25,592.00	20,000.00	5,592.00	0.00	25,592.00	100.00%	0.00	0.00
220	Fire Alarm	12,850.00	3,216.00	2,300.00	0.00	5,516.00	42.93%	7,334.00	0.00
225	Electrical Switch Gear & Material	182,742.00	150,658.00	23,259.00	0.00	173,917.00	95.17%	8,825.00	0.00
230	Light Fixtures	148,428.00	141,251.00	3,250.00	0.00	144,501.00	97.35%	3,927.00	0.00
235	Wiring Devices	40,209.00	26,369.00	0.00	0.00	26,369.00	65.58%	13,840.00	0.00
240	Electrical Labor & Misc	198,156.00	110,756.00	43,962.00	0.00	154,718.00	78.08%	43,438.00	0.00
245	Grading	93,473.00	85,360.00	0.00	0.00	85,360.00	91.32%	8,113.00	0.00
250	Erosion Control	41,120.00	37,330.00	3,790.00	0.00	41,120.00	100.00%	0.00	0.00
255	Excavation & Backfill	81,875.00	81,875.00	0.00	0.00	81,875.00	100.00%	0.00	0.00
260	Striping | Retaining Wall	28,409.00	0.00	24,158.00	0.00	24,158.00	85.04%	4,251.00	0.00
265	Site Utilities	185,000.00	181,050.00	3,950.00	0.00	185,000.00	100.00%	0.00	0.00
270	Performance Bond	57,411.00	57,411.00	0.00	0.00	57,411.00	100.00%	0.00	0.00
275	CO #002 | Doors, Casework, Electrical	10,663.00	5,653.00	1,323.00	0.00	6,976.00	65.42%	3,687.00	0.00
275b	Additional Testing Allowance	8,556.00	1,588.50	2,253.00	0.00	3,841.50	44.90%	4,714.50	0.00
280	CO #003 | Urinal, TVs, Signage, Posts	8,435.00	1,400.00	2,020.00	0.00	3,420.00	40.55%	5,015.00	0.00
	GRAND TOTAL	**4,758,392.00**	**3,680,817.03**	**631,306.86**	**0.00**	**4,312,123.89**	**90.62%**	**446,268.11**	**0.00**

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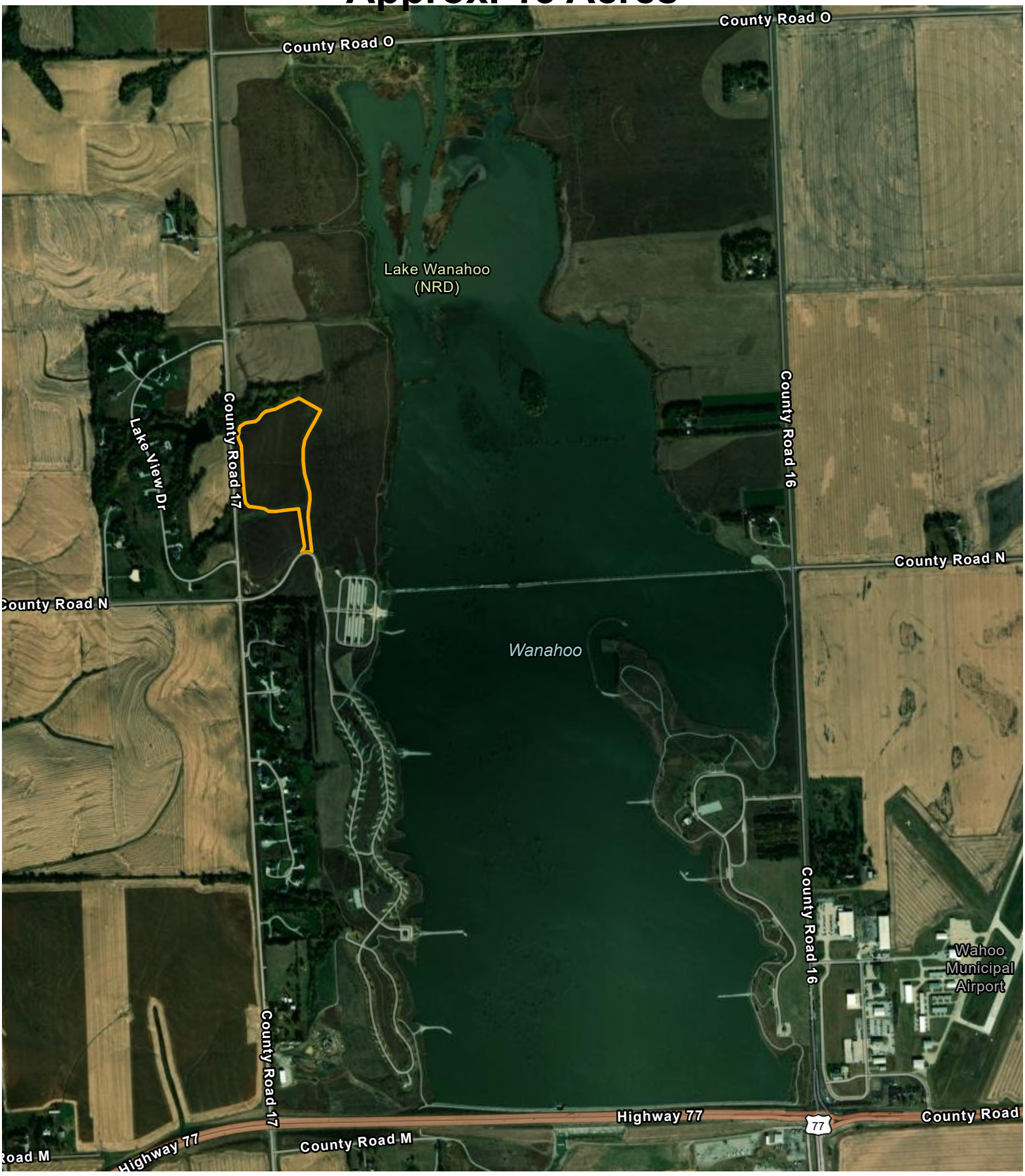
(680e4265a41a38a2c22b5434)

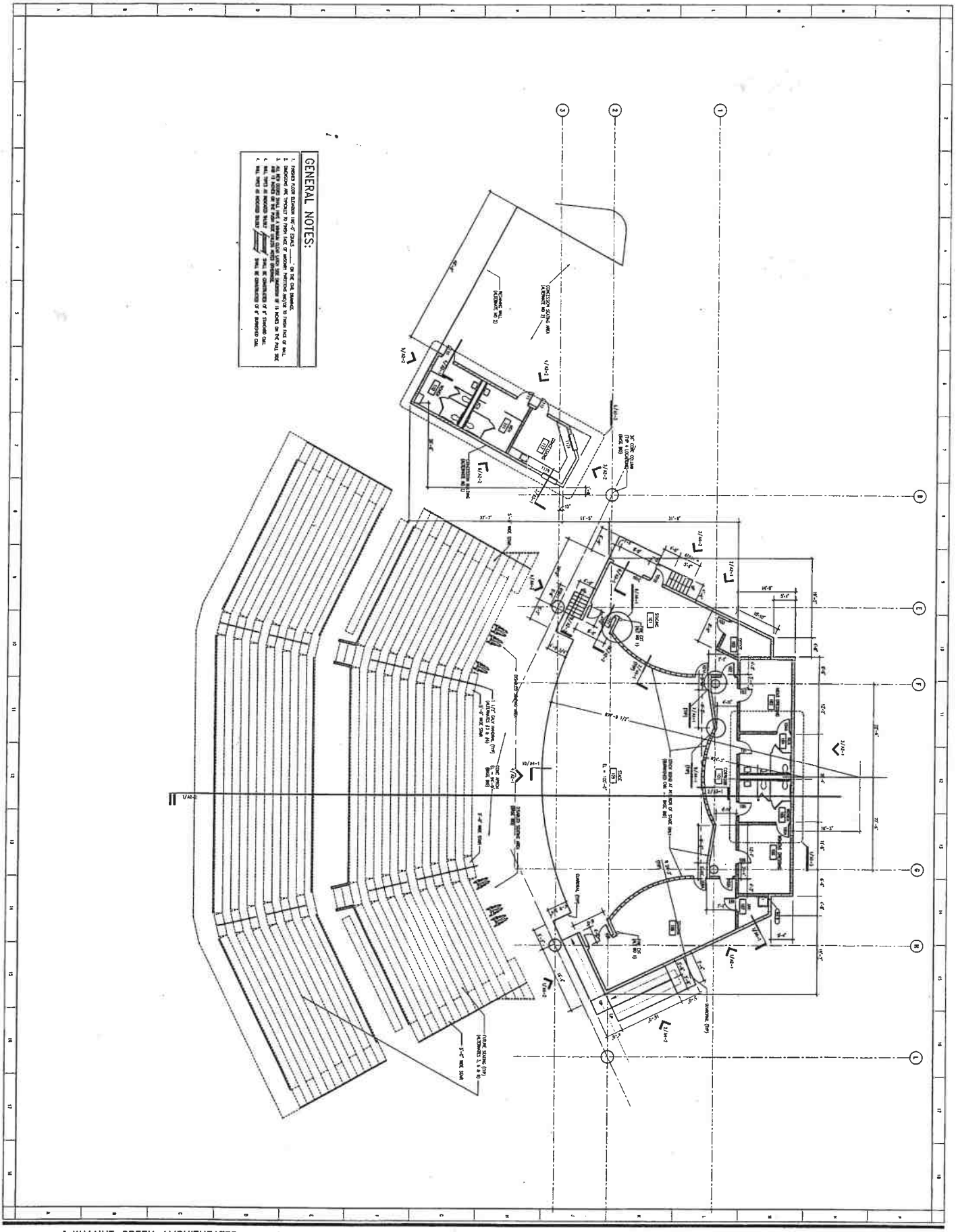
Amphitheather Planning Area
Approx. 15 Acres



Date Created: 5/12/2025

Amphitheather Planning Area
Approx. 15 Acres

Date Created: 5/12/2025



WALNUT CREEK AMPHITHEATER
PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
PAPILLION, NE

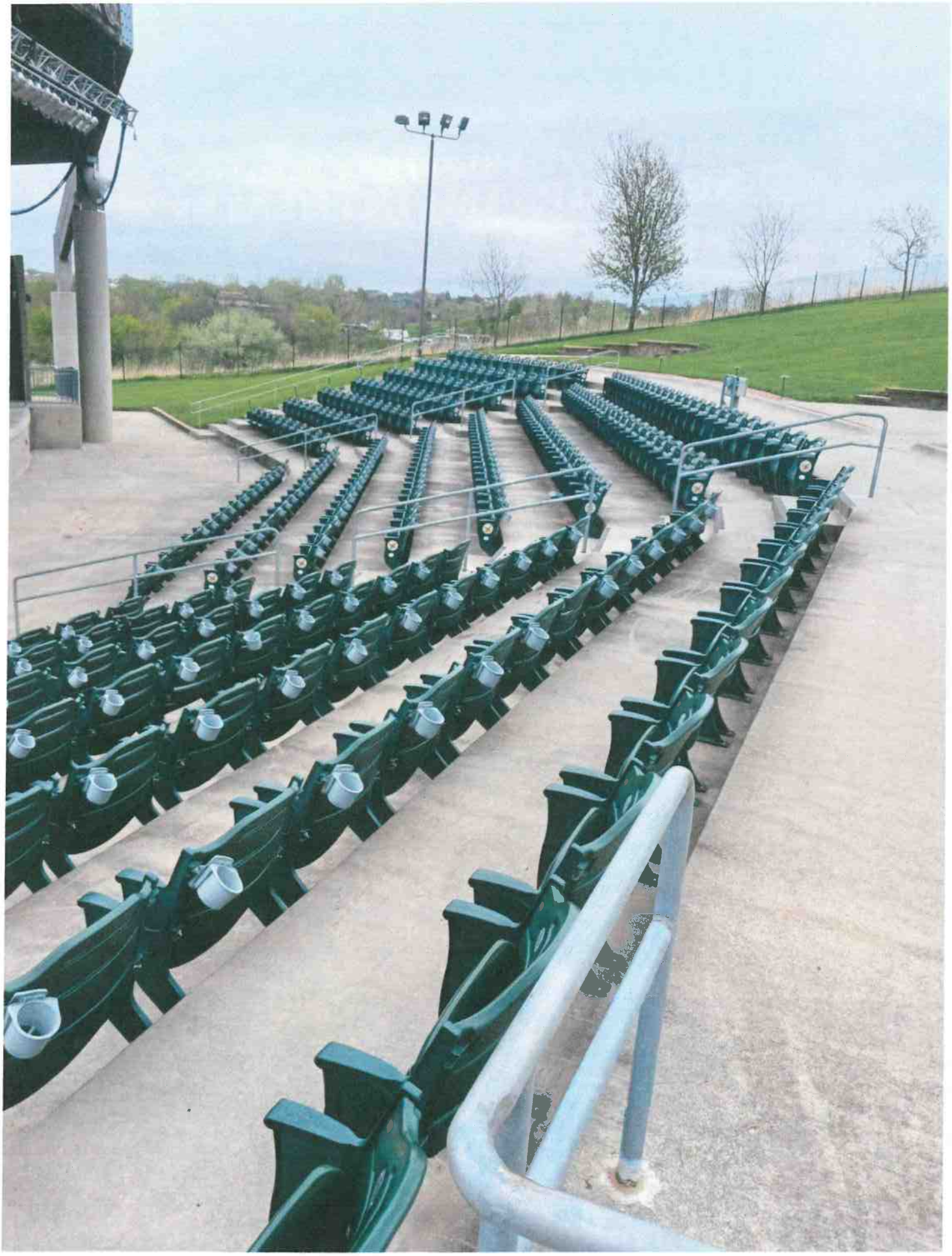
FLOOR PLAN

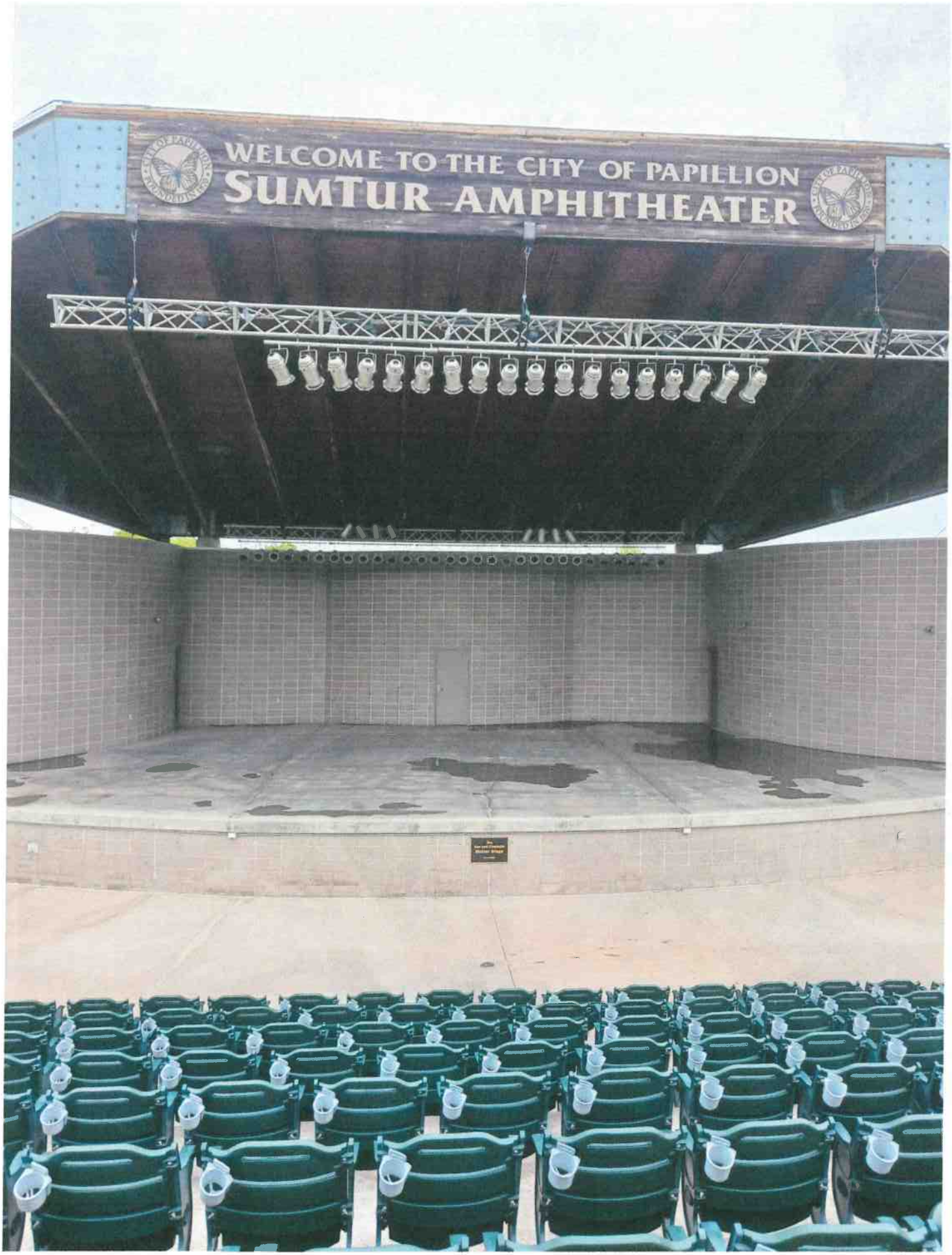
PROJECT No.: 441402

A1-2

THE SCHEMMER ASSOCIATES
Architects Engineers

ISSUE DATE: 9/28/94
REVISIONS:




WELCOME TO THE CITY OF PAPILLION
SUMTUR AMPHITHEATER

AMPHITHEATER DISCUSSION ON THE PROCESS AT THE MAY 12TH NRD BOARD MEETING

April 23, 2025 -

Meeting with the City of Wahoo Planning/Zoning Administrator

Including Eric, Jerry J. and Donor Lonnie Hanson

Discussed what would be needed by the City to be able to construct a 350 seat Amphitheater along Chestnut Avenue, on the NRD Property

April 25, 2025-

J. Johnson traveled to Papillion to visit with Doug Higgins, Caretaker of the SUM-TUR Amphitheater. In that conversation he handed me the "Flash drive" with all the Architect plans. The proposed theater on Lake Wanahoo will be the same, maybe slightly smaller.

He pointed out some things that should have been built differently.

May 1st Operations/Maintenance Committee

Lonnie Hanson attended this meeting

Showed pictures of SUM TUR Theater

Committee members voted to present the project to the Ex. Committee

May 1st EX. Committee

The Process, Plan, and pictures were presented to the Ex. Committee

May 1st City of Wahoo Planning/Zoning meeting

Mr. Hanson and his wife attended

After discussion, the City P/Z committee will conduct a Public Hearing

7:00 pm June 5th, Small conference room, City Hall

J. Johnson met with proposed builder – Buckmaster Construction, Ithaca, Ne.

Discussed the project and the process

He wants to start moving dirt as soon as all agreements are finalized

May 6th J. Johnson met with Saunders County Zoning Administrator & Saunders Co Board of Supervisors

May 12th NRD Board meeting

Lonnie Hanson is here to present the plan and answer questions

May 13th Wahoo City Council meeting

Will discuss project details and set a Public Hearing date June 24t

May 27th- Saunders County Board meeting –9:00 am Likely sign off on the project and authorize the City of Wahoo to do the permitting, inspections, etc.

May 27th – Wahoo City Council 7:00 pm

May 29th – Operations/Maintenance Committee meeting

May 29th – Executive Committee meeting

June 9th- NRD Board meeting

June 10th – Wahoo City Council meeting

June 24th Wahoo City Council meeting - Public Hearing

The city will issue building permit and provide inspections.

This would be the final City vote to approve the project

July 3rd – Operations Committee meeting

July 3rd- EX. Committee meeting

July 14th- NRD Board meeting

HBE
CPAs & Consultants | Wealth Management

HBE 360
Client Accounting & CFO Solutions

April 2025

ERIC GOTTSCHALK
LOWER PLATTE NORTH NRD
PO BOX 126
WAHOO NE 68066-0126

000712.000

AGREEMENT TO PROVIDE HBE 360 SERVICES (ENGAGEMENT LETTER)

Dear Eric:

This Engagement Letter will confirm the agreement for and terms of Accounting and Advisory Services (hereinafter Services) to be provided to LOWER PLATTE NORTH NRD (hereinafter Organization) by HBE LLP (hereinafter HBE). Please read this Engagement Letter carefully as it outlines the expectations of both parties. This letter includes the entire agreement of the parties and specifically identifies those Services included, as well as those not included. If you have any questions regarding this Engagement Letter, or if any of the terms do not meet with your approval, please contact Kiley A. Wiechman directly prior to signing this letter.

Compilation with Report

At Organization's request and under its direction, HBE will perform the complete and comprehensive services described in Appendices A and B, attached hereto and incorporated herein by this reference.

Additionally, you have requested that we prepare the financial statements of Organization, which comprise the monthly statements of net position and the related statements of activities during the years ending June 30, 2026, 2027, 2028, and 2029 and perform a compilation engagement with respect to those financial statements. These financial statements will not include a statement of cash flows and related notes to the financial statements as required by the accounting principles generally accepted in the United States of America.

A compilation differs significantly from a review or an audit of financial statements. A compilation does not contemplate performing inquiry, analytical review procedures, or other procedures performed in a review. Consequently, the information provided by management will not be verified, corroborated, reviewed, or audited. Additionally, a compilation does not contemplate obtaining an understanding of the entity's system of internal control; assessing fraud risk; testing accounting records by obtaining sufficient appropriate audit evidence through inspection, observation, confirmation, or the examination of source documents (e.g., cancelled checks or bank images); or performing other procedures ordinarily occurring in an audit or review of financial statements. Therefore, a compilation does not provide a basis for expressing any level of assurance on the financial statements being compiled. Because we are performing our compilation work as accountants rather than as auditors, LOWER PLATTE NORTH NRD should not record or describe our services as an "audit" or "auditing" in its minutes or books of record.

The document we submit to you will also include the statements of activities – actual vs. budget. We will compile the supplementary information, but we will not audit or review such information, nor express an opinion, a conclusion, or provide any assurance on it.

Our Responsibilities

The objective of our engagement is to:

a. Prepare financial statements in accordance with the accounting principles generally accepted in the United States of America based on information provided by you; and
b. Apply accounting and financial reporting expertise to assist you in the presentation of financial statements without undertaking to obtain or provide any assurance that there are no material modifications that should be made to the financial statements in order for them to be in accordance with accounting principles generally accepted in the United States of America.

We will conduct our compilation engagement in accordance with Statements on Standards for Accounting and Review Services (SSARSs) promulgated by the Accounting and Review Services Committee of the AICPA and comply with the AICPA's Code of Professional Conduct, including the ethical principles of integrity, objectivity, professional competence, and due care.

We are not required to, and will not, verify the accuracy or completeness of the information you will provide to us for the engagement or otherwise gather evidence for the purpose of expressing an opinion or a conclusion. Accordingly, we will not express an opinion or a conclusion nor provide any assurance on the financial statements.

If applicable, we will prepare your payroll checks and compute required withholdings based on hours worked, rates of pay, tax jurisdictions, and withholding information provided by you or your representative. You will need to review all payroll checks prior to signing them and notify us promptly of any errors. We will notify you of required payroll tax deposits. Failure to make these deposits on a timely basis will subject you to penalties and interest.

If applicable, we will prepare quarterly and annual payroll tax returns, including federal and state unemployment tax returns, Forms W-2, as required, as well as your annual 1099 forms. We will not determine whether any independent contractors should be recharacterized as employees. You will need to review the returns prior to signing them and notify us promptly of any errors or omissions.

Any significant changes in the number of employees, various miscellaneous deductions, or other items involved could cause an increase in our fees. We also require that you provide complete information in good "working order" for us, with checks and deposits coded to the proper accounts. We will discuss with you in advance any proposed increase in our fees.

Our engagement cannot be relied upon to disclose errors, fraudulent financial reporting, misappropriation of assets, or noncompliance with laws and regulations that may have occurred. However, we will inform the appropriate level of management of any material errors and of any evidence or information that comes to our attention during the performance of our engagement that fraud may have occurred. We will also report to the appropriate level of management any evidence or information that comes to our attention regarding any potential noncompliance with laws and regulations that may have occurred, unless it is clearly inconsequential.

Your Responsibilities

The engagement to be performed is conducted on the basis that you acknowledge and understand that our role is to prepare financial statements in accordance with accounting principles generally accepted in the United States of America and assist you in the presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America. You have the following overall responsibilities that are fundamental to our undertaking the engagement in accordance with SSARSs:

a. The selection of accounting principles generally accepted in the United States of America as the financial reporting framework to be applied in the preparation of the financial statements.
b. The preparation and fair presentation of financial statements in accordance with accounting principles generally accepted in the United States of America.
c. The design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the financial statements that are free from material misstatements, whether due to fraud or error.
d. The prevention and detection of fraud.
e. To ensure that the entity complies with the laws and regulations applicable to its activities.
f. The accuracy and completeness of the records, documents, explanations, and other information, including significant judgments, you provide to us for the compilation engagement.
g. To provide us with:
    i. Access to all information of which you are aware is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, and other matters.
    ii. Additional information that we may request from you for the purpose of the compilation engagement.
    iii. Unrestricted access to persons within the entity of whom we determine it necessary to make inquiries.

You are also responsible for all management decisions and responsibilities and for designating an individual with suitable skills, knowledge, and experience to oversee our preparation of your financial statements and any additional non-attest services designated in Appendix A. You are responsible for evaluating the adequacy and results of the services performed and accepting responsibility for such services.

If we are authorized to set-up the automatic payment of tax liabilities using an electronic payment service provided by federal or any individual states or local jurisdictions, it is your responsibility to verify the amounts and that sufficient funds are in the account to cover the scheduled payment amount. Unless instructed otherwise, all automatically scheduled payments will be set to come out of your account on the due date of the corresponding return. You are responsible for interest, penalties or fees related but not limited to incorrect payment amounts or resulting bank fees.

Our Report

As part of our engagement, we will issue a report that will state that we did not audit or review the financial statements and that, accordingly, we do not express an opinion, a conclusion, nor provide any assurance on them. There may be circumstances in which the report differs from the expected form and content.

Our report will disclose that the Company's management has elected to omit the statement of cash flows and substantially all of the disclosures required by the accounting principles generally accepted in the United States of America. If the omitted statement of cash flows and disclosures were to be included in the financial statements, they might influence the user's conclusions about the Company's financial position, results of operations, and cash flows. Accordingly, the financial statements will not be designed for those who are not informed about such matters.

We will also disclose that we are not independent in our report.

You agree to include our accountant's compilation report in any document containing financial statements that indicates that we have performed a compilation engagement on such financial statements and, prior to inclusion of the report, to ask our permission to do so.

Other Relevant Information

As part of our engagement, we will also perform the non-attest services identified in the Appendices. With respect to any non-attest services we perform, we will not assume management responsibilities on behalf of Organization. However, we will provide advice and recommendations to assist management of Organization in performing its responsibilities.

Organization's management is responsible for (a) making all management decisions and performing all management functions; (b) assigning a competent individual to oversee the services; (c) evaluating the adequacy of the services performed; (d) evaluating and accepting responsibility for the results of the services performed; and (e) establishing and maintaining internal controls, including monitoring ongoing activities.

Our responsibilities and limitations of the engagement are as follows:

- We will perform the services in accordance with applicable professional standards.
- This engagement is limited to the services outlined in the Appendices. Our firm, in its sole professional judgment, reserves the right to refuse to take any action that could be construed as making management decisions or performing management functions not otherwise described herein, including determining account codings and approving journal entries and will notify Organization of any such refusal.

Additionally, if Organization has questions and/or concerns regarding the ongoing financial reporting, accounting records, and business management issues, HBE will provide additional assistance and describe any alternatives to which HBE is aware. The advice and related alternatives from HBE will be based on our knowledge, training, and experience, but at all times, the decisions made by Organization are strictly those of Organization, as is the responsibility for the financial records of Organization.

If necessary, HBE may suggest Organization contact an attorney, one of our strategic partners with specific expertise, or another party who may be better suited to assist Organization.

A successful working relationship requires a significant commitment from both parties. Organization is responsible to have staff available to work with HBE, to provide timely responses to questions, calls, and emails, and to devote the resources necessary to achieve the objectives of this agreement. If the information provided by Organization is not submitted in a timely manner or is incomplete or unusable, HBE reserves the right to charge additional fees and expenses for services required to correct the problem and/or update accounting records upon receipt of past-due information. If this occurs, HBE will contact Organization to discuss the matter and the anticipated delay in performing services.

HBE will rely on the Board of Directors of Organization and its management to discharge the forgoing responsibilities, therefore, Organization holds harmless and releases HBE, its partners and employees from all claims, liabilities, losses, and costs arising in circumstances where there has been a knowing misrepresentation by a member of the Organization's management, which has caused, in any respect, HBE's inability to discover such matters should they exist, except to the extent caused by the negligence or willful misconduct of HBE, or its partners or employees. This provision shall survive the termination of this Engagement Letter for Services.

Communications

Communication is vital to a strong working relationship. To best serve Organization, HBE's Services are provided in a virtual environment. HBE has many ways of working with Organization remotely. HBE prefers to work remotely as it makes scheduling appointments more efficient, it is a more cost-effective alternative for both parties, and it allows HBE to be more readily available to answer Organization's questions as they arise. Occasionally, face to face communication is necessary, however, the most widely used form of communication for Services provided will be via email and telephone.

With regard to the electronic dissemination of financial statements, including financial statements published electronically on your Internet website, you understand that electronic sites are a means to distribute information and, therefore, we are not required to read the information contained in these sites or to consider the consistency of other information in the electronic site with the original document.

Hardware and Software Warranties

During the course of the agreement, HBE may recommend the purchase and installation of computer or technological hardware, software, communications, or services by Organization. Warranties, to the extent they exist, are provided only by the manufacturer/developer/vendor of those computer or software products. HBE will do its best to provide appropriate recommendations when available, but the final decision and responsibility to purchase any computer or software products is at the sole discretion of Organization.

Computer Consulting Limitations

HBE has a basic understanding of computer hardware, but our area of expertise is in accounting software and related integrated applications. HBE does not have the ability to work on your network, computer hardware, Windows configuration, mapping of drives or any other computer related issues. We advise that you maintain an ongoing relationship with a qualified IT professional and/or company to ensure that you have assistance available when technology needs arise. This includes your obligation to ensure that you have access to the internet in order to work with the software solutions and other "cloud-based" applications utilized by HBE as a core part of the Services provided to Organization.

Financial Investment - Fees

Organization's financial investment in ongoing Services with HBE, as well as the scope of Services, is outlined in the Appendices of this Engagement Letter. In order to ensure seamless access to the Services from HBE, Organization's investment is conveniently structured as a monthly recurring automatic bank draft. Fees are more fully described in Appendix B.

Legally Required Services

In the event our firm or any of its employees or agents is called as a witness or requested to provide any information whether oral, written, or electronic in any judicial, quasi-judicial, or administrative hearing or trial regarding information or communications that you have provided to this firm, or any documents and workpapers prepared by HBE in accordance with the terms of this agreement, you agree to pay any and all reasonable expenses, including fees and costs for our time at the rates then in effect, as well as any legal or other fees that we incur as a result of such appearance or production of documents.

Confidentiality

HBE agrees to take reasonable steps to protect all Confidential Information and to use the Confidential Information only in connection with performing Services hereunder. For purposes of this Engagement Letter, Confidential Information shall mean any and all information which is private and not in the public domain for Organization and is provided, obtained, or produced in connection with the Services provided whether in written, oral, digital or other tangible form, including, without limitation, all information furnished at any time relating to Organization's Organization, customers, intellectual property, processes, strategies, all portions of any analyses, compilations, data, studies, or other documents prepared by HBE that contain or are based on any furnished information or that reflect review of such information, and any and all information concerning Organization's plans and activities, ideas, projects, software, methodologies, processes, tools, experience, customers and suppliers, financial information, and any other information, which ought reasonably under the circumstances to be considered confidential (the "Confidential Information"). HBE agrees to take reasonable steps necessary to ensure that the confidentiality of the Confidential Information is maintained and that such Confidential Information is protected from unauthorized disclosure. Without limiting the generality of the foregoing, HBE shall not disclose Confidential Information to any party outside Organization, without the prior written approval of Organization. HBE represents that, as a matter of policy, it informs its personnel concerning maintaining the confidentiality of client information. The parties hereto agree that equitable relief, including injunctive relief and specific performance, shall be available in the event of any breach of the provisions of this agreement. Such remedies shall not be deemed to be the exclusive remedies for a breach of this agreement but shall be in addition to all other remedies available at law or equity. Organization shall assume all responsibility relating to adherence with privacy and disclosure requirements relating to the use and sharing of information in its industry.

Organization acknowledges that the proprietary information, documents, materials, management techniques, and other intellectual property utilized by HBE are a material source of the Services performed and that these materials were developed prior to this agreement. Any new forms, software, documents, or intellectual property developed by HBE for use by Organization shall belong to Organization and Organization shall have the right to use them. All report templates, manuals, forms, checklists, questionnaires, letters, agreements (including this one), and other documents created by HBE prior to our association with Organization, which is made available to Organization, are proprietary to HBE. Organization, nor any of its agents, shall copy, electronically store, reproduce, or make available to anyone other than Organization's personnel, any of HBE's proprietary documents. This shall apply to all materials, whether in digital or "hard copy" format.

Third Party Disclosure and the Use of Third-Party Services

We may from time to time and depending on the circumstances and nature of the services we are providing, share your confidential information with third-party service providers, some of whom may be cloud-based, but we remain committed to maintaining the confidentiality and security of your information. Accordingly, we maintain internal policies, procedures, and safeguards to protect the confidentiality of your personal information. In addition, we will secure confidentiality terms with all service providers to maintain the confidentiality of your information and will take reasonable precautions to determine that they have appropriate procedures in place to prevent the unauthorized release of your confidential information to others. In the event that we are unable to secure appropriate confidentiality terms with a third-party service provider, you will be asked to provide your consent prior to the sharing of your confidential information with the third-party service provider. Although we will use our best efforts to make the sharing of your information with such third parties secure from unauthorized access, no completely secure system for electronic data transfer exists. As such, by your signature below, you understand that the firm makes no warranty, expressed or implied, on the security of electronic data transfers.

You authorize that any and all information furnished to us for or in connection with the preparation of tax returns under this engagement letter may, for as long as HBE LLP is engaged, be disclosed to third party service providers for purposes of assisting us in providing bookkeeping services, tax return preparation and/or tax planning services. Such third party service providers may be located within or outside the United States. Disclosures under this paragraph may consist of all information contained in tax returns. If you wish to request a limited disclosure of tax return information, you must inform us. Both we and the third party service providers who will receive this information will maintain adequate data protection safeguards (as required by the regulations under 26 U.S.C. Section 7216) to protect your privacy and prevent unauthorized access to tax return information.

Email – Waiver of Liability

In connection with this engagement, we may communicate with you or others via email transmission. We take reasonable measures to secure your confidential information in our email transmissions. However, as emails can be intercepted and read, disclosed, or otherwise used or communicated by an unintended third party, or may not be delivered to each of the parties to whom they are directed and only to such parties, we cannot guarantee or warrant that emails from us will be properly delivered to and read only by the addressee. Therefore, we specifically disclaim and waive any liability or responsibility whatsoever for interception or unintentional disclosure or communication of email transmissions, or for the unauthorized use or failed delivery of emails transmitted by us in connection with the performance of this engagement. In that regard, you agree that we shall have no liability for any loss or damage to any person or entity resulting from the use of email transmissions, including any consequential, incidental, direct, indirect, or special damages, such as loss of sales or anticipated profits, or disclosure or communication of confidential or proprietary information.

Record Retention

It is our policy to keep records related to this engagement for 7 years. However, HBE does not keep any original client records, so we will return those to you at the completion of the services rendered under this engagement. It is your responsibility to retain and protect your records (which includes any work product we provide to you as well as any records that we return) for possible future use, including potential examination by government or regulatory agencies. The balance of our engagement file, other than the compiled financial statement, which we will provide to you at the conclusion of the engagement, is our property, and we will provide copies of such documents at our discretion and if compensated for any time and costs associated with the effort. HBE does not accept responsibility for hosting client information; therefore, you have the sole responsibility for ensuring you retain and maintain in your possession all your financial and non-financial information, data and records.

HBE will utilize established and reputable third-party applications (including internet-based application providers) to provide Services to Organization, such as online filing of Accounts Payable or other Organization documents. By signing this Engagement Letter Organization acknowledges their understanding of the Services to be provided and agrees that HBE is not liable for record retention or any other services provided by these established and reputable third parties. This shall be true even in the event HBE absorbs the cost (in part or in full) of a third-party service as a benefit to Organization. At all times, Organization shall assume responsibility for a decision to maintain hard copies of original documents or to limit document retention to the digital copies stored by the web application. HBE is not responsible for permanent retention of Organization's source documents.

In the unlikely event that HBE does obtain any original documents from Organization, all said documents shall be returned to Organization promptly upon completion of work. HBE does not and will not retain copies of documents. It is the responsibility of Organization to safeguard documents in case of future need.

If this agreement ends for any reason, Organization will have the option to continue any third-party subscription-based services at Organization's expense. Organization agrees to complete the transfer of services to its name and assume responsibility for payment within 10 days of the end of HBE's Services. The "end date" will be defined as the 11th business day following the date shown on the email or letter of termination/resignation transmitted by either party. Organization understands that failure to assume responsibility for these services may result in said services being cancelled. Additional fees may apply if Organization later elects to restore said services or to request records from the third-party provider.

Mediation/Arbitration

If any dispute arises among the parties hereto, the parties agree to first try in good faith to settle the dispute by mediation under Nebraska law for resolving professional accounting and related services disputes before resorting to litigation. Costs of any mediation proceeding shall be shared equally by all parties.

The parties agree that any dispute over fees charged by HBE to Organization shall be submitted for resolution by arbitration in accordance with the Rules for Professional Accounting and Related Services Disputes of the American Arbitration Association, except that under all circumstances the arbitrator must follow the laws of Nebraska. Such arbitration shall be binding and final. In agreeing to arbitration, the parties acknowledge that, in the event of a dispute over fees charged by HBE, the parties give up the right to have the dispute decided in a court of law before a judge or jury and instead accept the use of arbitration for resolution. The prevailing party shall be entitled to an award of reasonable attorneys' fees and costs incurred in connection with the arbitration of the dispute in an amount to be determined by the arbitrator.

Third Party Settlements

In the event that HBE is or may be obligated to pay any cost, settlement, judgment, fine, penalty, or similar award or sanction as a result of a claim, investigation, or other proceeding instituted by any third party, then to the extent that such obligation is or may be a direct or indirect result of Organization's intentional or knowing misrepresentation or provision to HBE of inaccurate or incomplete information in connection with this agreement, and not any failure on HBE's part to comply with professional standards, negligence or willful misconduct by HBE, Organization agrees to indemnify, defend, and hold harmless HBE against such obligations.

Governing Law

This Agreement shall be governed by and construed in accordance with the laws of the State of Nebraska.

Assignment

All obligations provided under this agreement are between HBE and Organization and neither party shall assign any rights or delegate any obligations hereunder without the other party's prior written consent. Any attempted assignment without the required consent shall be null and void.

Costs of Enforcement and Claim Limitations

In the event a party is adjudged to be in breach of this agreement, including, as to Organization, any payment obligations, and, as to HBE, any confidentiality obligations, the party in breach shall reimburse the non-breaching party for its reasonable out-of-pocket costs of enforcing the provisions of this agreement, including reasonable attorneys' fees and disbursements to the extent permitted by law.

In the event we are required to respond to a subpoena, court order or other legal processes for the production of documents and/or testimony relative to information we obtained and/or prepared during the course of this engagement, you agree to compensate us at our standard hourly rates then existing for the time we expend in connection with such response, and to reimburse us for all of our out-of-pocket costs incurred in that regard.

Termination of Services

In the event of a material default on the part of Organization, HBE reserves the right to suspend or terminate work, with forty-five (45) days prior written notice, except in the event of nonpayment, in which case HBE may suspend or terminate work within fifteen (15) days prior written notice to Organization. Upon suspension or termination, HBE will use commercially reasonable efforts to transfer any information in HBE's possession to Organization or its designated representative. Similarly, in the event of a material default on the part of HBE, Organization reserves the right to suspend or terminate this letter, with forty-five (45) days prior written notice to HBE.

If work is suspended due to lack of payment and HBE later receives payment from Organization along with a request to resume services, HBE will provide Organization with an updated timeline for completion of any past due work. Organization understands that this may result in significant delays in processing. HBE reserves the right to suspend work immediately if, during the course of Services, HBE becomes aware of any material matters which would compromise HBE's professional or legal standing in any manner.

Any dispute regarding billed amounts must be submitted in writing within 30 days of the invoice date; email is acceptable. No amounts may be disputed after said 30-day period.

If work is suspended or terminated as provided herein, Organization agrees that HBE will not be responsible for Organization's failure to meet government and other deadlines, for any penalties or interest that may be assessed against Organization resulting from failure to meet such deadlines, and for any other damages, including consequential damages.

If we elect to terminate our services for nonpayment, or for any other reason provided for in this letter, our engagement will be deemed to have been completed upon written notification of termination, even if we have not completed our report. You will be obligated to compensate us through the date of termination.

Insurance Requirements

Each party has general liability insurance to cover its employees and the activities described in this Engagement Letter and related Appendices.

Non-Solicitation

HBE values each and every one of its clients, as well as each and every one of its employees. As we're sure you have also done in your business, we have spent a great deal of time and resources to locate, train and retain employees. Therefore, HBE respectively requests that Organization does not solicit our employees to work for Organization.

Conclusion

This engagement letter is contractual in nature and includes all of the relevant terms that will govern the engagement for which it has been prepared. The terms of this letter supersede any prior agreements, discussions or understandings. No amendment or modification of this agreement shall be valid unless in writing, signed by both parties. Additional services may be requested from time to time and if this occurs, HBE will communicate with Organization regarding the scope and estimated cost of these additional services. Requests for additional services will necessitate issuance of a Service Order (Appendix C) which will act as an addendum to this agreement, or a separate engagement letter will be issued to reflect the obligations of both parties.

The terms of this agreement are valid if signed by both parties within 30 days of the date of this Engagement Letter. After that date an updated agreement may be necessary, which will include any changes to fees, billing structure, or any other aspect of Services to be performed.

If, after full consideration and consultation with counsel if so desired, the Organization agrees that the foregoing terms shall govern this engagement, please sign the copy of this letter in the space provided and return the original signed letter to our office, keeping a fully executed copy for your records.

We look forward to a continued relationship with your organization, and we are available to discuss the contents of this letter or other professional services you may desire. If you request us to perform additional services not contemplated or described in this engagement letter, we will provide you with a separate agreement outlining those additional services and fees.

Very truly yours,

Kiley A. Wiechman, CPA
Partner

APPROVED:

The above Engagement Letter and supporting Appendices confirm Organization's understanding of the Services to be performed and the limitations of those services.

LOWER PLATTE NORTH NRD

By: _____

Title: _____

Date: _____

Print Name: _____

Appendix A

Services Provided

Annual Services

- Assistance with preparation of annual IRS Forms 1096 and 1099
- Year-end accounting adjustments and closing of books, and the preparation and fair presentation of the annual financial statement in accordance with the United States of American generally accepted accounting principles
- Annual budget assistance
- Coordination of annual audit

Monthly Services

- Posting of monthly journal entries (Depreciation, Amortization, Other)
- Bank Account Reconciliations (Including loans and lines of credit)
- Credit Card Account Reconciliations
- Other Balance Sheet Account Reconciliations
- Monthly management reporting and consultation meeting with HBE
- Lodging Tax and Sales Tax filings
- Grants and accounts receivable tracking
- Fixed asset maintenance
- Posting of summary transactions into accounting records from reports obtained from the utility billing system
- Accounts Payable Processing - using BILL

Bi-Weekly Services

- Download/Data Entry of Deposit transactions
- Download/Data Entry of "other" banking and transaction activity
- ADP payroll processing and benefits management (health insurance deductions, retirement payable preparation, etc.)

As-Needed Services

- Assistance with vendor communications relating to obtaining W-9s. HBE will provide assistance in this area, but we do not assume responsibility for the completeness/accuracy of the W-9 information we receive from you and/or from your vendors.
- Chart of Account and Reporting updates
- Manage banking relationships
- Designing internal controls relevant to the preparation and fair presentation of the financial statements
- Assist in the selection of accounting principles and assisting the organization in the application of accounting principles

Additional Services

All Services other than those identified above, including reports not identified above, will be considered outside the scope of the Engagement and will be treated as Additional Services subject to additional fees. Any said Additional Services will require a Service Order Request (Appendix C).

Appendix B

Service Level Agreement, Financial Policies and Fees

HBE Accounting Team

Services will be provided by the following HBE team members:

Kiley Wiechman, Partner
Grant Nuttelmann, Director
Stacey Gerdts, Client Manager

Additional/alternate staff shall be assigned as needed and when appropriate.

Processing and Reporting

In order to ensure timely and accurate ongoing services, it is important that Organization provide HBE with current transactions, accounts payable, and other ongoing information. To that end, Organization shall ensure that all documents are timely submitted. Organization's documents will be processed timely if all information is complete and there are no open questions. The schedule of processing and reporting will be determined by the parties and included in the processes and procedures binder that will be created for Organization. This schedule may be changed by mutual agreement of the parties.

Financial Investment – Fees

Full-Service 360 Program

Service Year	**Monthly Fee**	**Annual Fees**
July 1, 2025-June 30, 2026	$8,085	$97,020
July 1, 2026-June 30, 2027	$8,400	$100,800
July 1, 2027-June 30, 2028	$8,745	$104,940
July 1, 2028-June 30, 2029	$9,095	$109,140

HBE will meet regularly with LOWER PLATTE NORTH NRD to evaluate the contract against the Services provided to-date to determine if potential adjustments are needed.

In addition to our accounting services, our third-party vendor fees will be invoiced separately as follows:

Bill.com Transaction Fees (billed separately)

ACH Payments..... $ 0.49 per ACH
Check Payments..... $ 1.69 per check
Stop Payments..... $ 25.00 per item
Returned Checks..... $ 3.00 per item
Overnight Delivery Fee..... $ 23.00 per item

Fees for Out-of-Scope Services

Additional services not set forth in this proposal are subject to an hourly rate based on the experience and ability of the professional staff plus out-of-pocket expenses. Billing rates are subject to small changes without notice unless we have a written agreement with you which designates specific billing rates or the total fee to be charged. As of April 2025, our professional staff hourly rates are as follows:

Partner…….$325.00 - $360.00 per hour
Director/Manager……$175.00 - $250.00 per hour
Accountant……..$125.00 - $185.00 per hour
Client Accountant……...$125.00 - $160.00 per hour

Payment Method

We request that you allow us to bill your fixed fee via recurring automatic draft (ACH) to your bank account at the beginning of each month.

Out of Pocket Expenses

Organization shall be charged separately for any travel and/or any out-of-pocket expenses HBE incurs on Organization's behalf (office supplies, postage, etc.). These charges will be invoiced monthly and due within 30 days of the invoice date. HBE, at its discretion, reserves the right to request payment in advance for estimated out-of-pocket expenses.

Appendix C

ERIC GOTTSCHALK
LOWER PLATTE NORTH NRD
PO BOX 126
WAHOO NE 68066-0126

000712.000

RE: Addendum to Existing Engagement Letter

Service Order Request

Dear Board of Directors:

This letter is to confirm a request for the following services, which are outside the scope of the initial Engagement Letter:

<<Description of the nature of services>>

By signing this Addendum to the existing Engagement Letter, Organization is providing consent for HBE to initiate services and receive payment as described below. All other terms and conditions relating to the Services Organization has requested are as outlined in the Engagement Letter.

Estimated Fee for the services described above: $ _____

Balance due in order to begin work: $ _____

With this signed agreement, Organization authorizes HBE to draft payment electronically for the "balance due" shown above using the credit card or bank account on file with HBE.

Estimated start date of this request: _____

Estimated completion date of this request: _____

Notes: _____

_____

_____

APPROVED:

_____ _____
Signature Title

_____ _____
Printed Name Date

SAMPLE

AUTHORIZATION AGREEMENT FOR PRE-AUTHORIZED (ACH) PAYMENTS

I (we) authorize HBE LLP ("COMPANY") to initiate debit entries to my (our) account as follows:

▣Checking Account ☐Savings Account

at the depository financial institution named below ("DEPOSITORY"). I (we) acknowledge that ACH transactions that I (we) authorize from my (our) account must comply with the provisions of United States law.

Depository Name: Union Bank & Trust

Routing Number: 104910795 Account Number: 602890084

Regular Payment: $ 8,085 Maximum Payment: $ $8,894

Payment Frequency: Monthly

Special Instructions: For the service period of July 1, 2025 to June 30, 2026

(Subject to change upon notification by company or association)

Disclosures

This authority is to remain in full force and effect until "COMPANY" has received written notification from me (or either of us) of my (our) request to revoke this authorization. I (we) understand that the "COMPANY" requires at least 10 days prior notice in order to cancel this authorization. In no event shall it be effective with respect to entries processed by the "COMPANY" prior to receipt of notice of termination.

I (we) further authorize the "COMPANY" to initiate such credit entries to said account as may be necessary to correct any erroneous debit entries previously initiated thereto. I (we) authorize the "DEPOSITORY" to accept and to credit or debit the amount of such entries to my (our) account.

I (we) have the right to stop payment of any entry by notification to "DEPOSITORY" prior to the posting of item to the account.

The undersigned hereby agrees that all entries initiated hereunder are to be governed in all respects by the Rules of the National ACH Association as now or hereafter in effect and agrees to be bound thereby:

Client Name(s): Lower Platte North NRD Client ID: 000712.000

Signed: _____ Date: _____

Signed: _____ Date: _____

AUTHORIZATION AGREEMENT FOR PRE-AUTHORIZED (ACH) PAYMENTS

I (we) authorize HBE LLP ("COMPANY") to initiate debit entries to my (our) account as follows:

▣Checking Account ☐Savings Account

at the depository financial institution named below ("DEPOSITORY"). I (we) acknowledge that ACH transactions that I (we) authorize from my (our) account must comply with the provisions of United States law.

Depository Name: Union Bank & Trust

Routing Number: 104910795 Account Number: 602890084

Regular Payment: $ 8,400 Maximum Payment: $ $9,240

Payment Frequency: Monthly

Special Instructions: For the service period of July 1, 2026 to June 30, 2027

(Subject to change upon notification by company or association)

Disclosures

This authority is to remain in full force and effect until "COMPANY" has received written notification from me (or either of us) of my (our) request to revoke this authorization. I (we) understand that the "COMPANY" requires at least 10 days prior notice in order to cancel this authorization. In no event shall it be effective with respect to entries processed by the "COMPANY" prior to receipt of notice of termination.

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The undersigned hereby agrees that all entries initiated hereunder are to be governed in all respects by the Rules of the National ACH Association as now or hereafter in effect and agrees to be bound thereby:

Client Name(s): Lower Platte North NRD Client ID: 000712.000

Signed: _____ Date: _____

Signed: _____ Date: _____

AUTHORIZATION AGREEMENT FOR PRE-AUTHORIZED (ACH) PAYMENTS

I (we) authorize HBE LLP ("COMPANY") to initiate debit entries to my (our) account as follows:

▣Checking Account ☐Savings Account

at the depository financial institution named below ("DEPOSITORY"). I (we) acknowledge that ACH transactions that I (we) authorize from my (our) account must comply with the provisions of United States law.

Depository Name: Union Bank & Trust

Routing Number: 104910795 Account Number: 602890084

Regular Payment: $ 8,745 Maximum Payment: $ $9,620

Payment Frequency: Monthly

Special Instructions: For the service period of July 1, 2027 to June 30, 2028

(Subject to change upon notification by company or association)

Disclosures

This authority is to remain in full force and effect until "COMPANY" has received written notification from me (or either of us) of my (our) request to revoke this authorization. I (we) understand that the "COMPANY" requires at least 10 days prior notice in order to cancel this authorization. In no event shall it be effective with respect to entries processed by the "COMPANY" prior to receipt of notice of termination.

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The undersigned hereby agrees that all entries initiated hereunder are to be governed in all respects by the Rules of the National ACH Association as now or hereafter in effect and agrees to be bound thereby:

Client Name(s): Lower Platte North NRD Client ID: 000712.000

Signed: _____ Date: _____

Signed: _____ Date: _____

AUTHORIZATION AGREEMENT FOR PRE-AUTHORIZED (ACH) PAYMENTS

I (we) authorize HBE LLP ("COMPANY") to initiate debit entries to my (our) account as follows:

▣Checking Account ☐Savings Account

at the depository financial institution named below ("DEPOSITORY"). I (we) acknowledge that ACH transactions that I (we) authorize from my (our) account must comply with the provisions of United States law.

Depository Name: Union Bank & Trust

Routing Number: 104910795 Account Number: 602890084

Regular Payment: $ 9,095 Maximum Payment: $ $10,005

Payment Frequency: Monthly

Special Instructions: For the service period of July 1, 2028 to June 30, 2029

(Subject to change upon notification by company or association)

Disclosures

This authority is to remain in full force and effect until "COMPANY" has received written notification from me (or either of us) of my (our) request to revoke this authorization. I (we) understand that the "COMPANY" requires at least 10 days prior notice in order to cancel this authorization. In no event shall it be effective with respect to entries processed by the "COMPANY" prior to receipt of notice of termination.

I (we) further authorize the "COMPANY" to initiate such credit entries to said account as may be necessary to correct any erroneous debit entries previously initiated thereto. I (we) authorize the "DEPOSITORY" to accept and to credit or debit the amount of such entries to my (our) account.

I (we) have the right to stop payment of any entry by notification to "DEPOSITORY" prior to the posting of item to the account.

The undersigned hereby agrees that all entries initiated hereunder are to be governed in all respects by the Rules of the National ACH Association as now or hereafter in effect and agrees to be bound thereby:

Client Name(s): Lower Platte North NRD Client ID: 000712.000

Signed: _____ Date: _____

Signed: _____ Date: _____

Financial Statements and Accountant's Compilation Report

Lower Platte North Natural Resources District

March 31, 2025

HBE

CPAs & Consultants | Wealth Management

HBE 360

Client Accounting & CFO Solutions

HBE

CPAs & Consultants | Wealth Management

HBE 360
Client Accounting & CFO Solutions

ACCOUNTANT'S COMPILATION REPORT

The Board of Directors
Lower Platte North Natural Resources District
Wahoo, Nebraska

Management is responsible for the accompanying financial statements of the Lower Platte North Natural Resources District, which comprise the Statements of Net Position as of March 31, 2025, and the related Statements of Activities for the month and nine months then ended in accordance with accounting principles generally accepted in the United States of America. We have performed a compilation engagement in accordance with Statements on Standards for Accounting and Review Services promulgated by the Accounting and Review Services Committee of the AICPA. We did not audit or review the financial statements, nor were we required to perform any procedures to verify the accuracy or the completeness of the information provided by management. We do not express an opinion, a conclusion, nor provide any form of assurance on these financial statements.

Management has elected to omit substantially all of the disclosures and statements of cash flows required by accounting principles generally accepted in the United States of America. If the omitted disclosures were included in the financial statements, they might influence the user's conclusions about the Organization's financial position, results of operations, and cash flows. Accordingly, the financial statements are not designed for those who are not informed about such matters.

The accompanying Statements of Activities – Actual vs. Budget are presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information is the responsibility of management. The supplemental information, except the budget information, was subject to our compilation engagement. We have not audited or reviewed the supplementary information and do not express an opinion, a conclusion, nor provide any assurance on such information. The budget information presented in the Actual vs. Budget is of a nonaccounting nature and has not been subjected to our compilation engagement.

We are not independent with respect to the Lower Platte North Natural Resources District.

HBE LLP

Lincoln, Nebraska

May 1, 2025

Lower Platte North NRD
Statements of Net Position

	Natural Resources District As of 03/31/2025	Rural Water-Bruno As of 03/31/2025	Rural Water-Colon As of 03/31/2025	All Districts As of 03/31/2025
Assets				
Current Assets				
Cash and Cash Equivalents				
101000 - Change Box	0.00	60.00	90.00	150.00
101200 - Change Box - Game & Parks	150.00	0.00	0.00	150.00
101300 - Change Box - Lake Wanahoo	825.00	0.00	0.00	825.00
102001 - Cash - Union Bank	154,335.66	0.00	0.00	154,335.66
103000 - Cash - County Treasurer	150,409.68	0.00	0.00	150,409.68
104000 - Cash - Education Building Res.	12,160.00	0.00	0.00	12,160.00
111100 - Investments - NRD - NPAIT	2,638.06	0.00	0.00	2,638.06
111105 - Union Bank STFIT	2,830,391.38	0.00	0.00	2,830,391.38
Total Cash and Cash Equivalents	3,150,909.78	60.00	90.00	3,151,059.78
Accounts Receivable, Net				
Accounts Receivable				
105000 - Accounts Receivable	1,319,671.48	3,872.89	6,207.40	1,329,751.77
105060 - Due from Bruno Water Fund	194,805.25	0.00	0.00	194,805.25
105070 - Due from Colon Water Fund	6,610.10	0.00	0.00	6,610.10
109000 - Taxes Receivable	2,731,587.89	0.00	0.00	2,731,587.89
Total Accounts Receivable	4,252,674.72	3,872.89	6,207.40	4,262,755.01
Total Accounts Receivable, Net	4,252,674.72	3,872.89	6,207.40	4,262,755.01
Inventory				
165503 - Rural Water Inventory	0.00	6,569.29	9,853.93	16,423.22
Total Inventory	0.00	6,569.29	9,853.93	16,423.22
Prepaid Expenses				
116000 - Prepaid Expenses	94,544.87	0.00	0.00	94,544.87
Total Prepaid Expenses	94,544.87	0.00	0.00	94,544.87
Other Current Assets				
111225 - Investments - Borrow Fund - NPAIT	143,518.32	0.00	0.00	143,518.32
111250 - Investments - Alliance GIS Project	8,581.82	0.00	0.00	8,581.82
111550 - Investments - Elkhorn Breakout	146,816.68	0.00	0.00	146,816.68
111600 - Investments - Wanahoo SRA	620,359.40	0.00	0.00	620,359.40
111650 - Investments - Colon Reserve NPAIT	0.00	0.00	9,641.27	9,641.27
Total Other Current Assets	919,276.22	0.00	9,641.27	928,917.49
Total Current Assets	8,417,405.59	10,502.18	25,792.60	8,453,700.37
Fixed Assets, Net of Depreciation				
Fixed Assets				
140210 - Water Line Capital Improvement	0.00	726,156.51	1,180,075.05	1,906,231.56
140226 - Colon Water Loan Fees	0.00	0.00	2,000.00	2,000.00
160000 - Conservation Property	123,971.00	0.00	0.00	123,971.00
161000 - Land	11,474,172.58	0.00	0.00	11,474,172.58
162000 - Infrastructure	30,689,263.56	0.00	0.00	30,689,263.56
162500 - Land Improvements	623,922.90	0.00	0.00	623,922.90
163000 - Buildings	5,094,601.92	0.00	0.00	5,094,601.92
165000 - Machinery & Equipment	196,340.12	0.00	0.00	196,340.12
165100 - Machinery & Equipment - O & M	709,293.90	0.00	0.00	709,293.90
165200 - Machinery & Equipment - Water	345,887.45	0.00	0.00	345,887.45
165300 - Machinery & Equipment - Projects	87,917.52	0.00	0.00	87,917.52
165400 - Machinery & Equipment - I & E	2,628.66	0.00	0.00	2,628.66
165505 - Rural Water Equipment	0.00	20,511.18	30,766.78	51,277.96
165507 - Lake Wanahoo Equipment	24,000.00	0.00	0.00	24,000.00
167000 - Auto and Truck	373,215.97	0.00	0.00	373,215.97
169000 - Equipment	15,057.27	0.00	0.00	15,057.27
169100 - Office Equipment	20,031.58	0.00	0.00	20,031.58
169200 - Computer Equipment	84,701.47	0.00	0.00	84,701.47
169300 - GIS Equipment	13,422.53	0.00	0.00	13,422.53

Lower Platte North NRD
Statements of Net Position

	Natural Resources District As of 03/31/2025	Rural Water-Bruno As of 03/31/2025	Rural Water-Colon As of 03/31/2025	All Districts As of 03/31/2025
169400 - Director's Computers	2,903.67	0.00	0.00	2,903.67
169500 - Master Data Base Water	332,795.00	0.00	0.00	332,795.00
169700 - GW Monitoring Equipment	129,185.43	0.00	0.00	129,185.43
Total Fixed Assets	50,343,312.53	746,667.69	1,212,841.83	52,302,822.05
Accumulated Depreciation				
140228 - Accum Depr - Colon Loan Fees	0.00	0.00	841.70	841.70
162900 - Accum Depr - Infra. & Land Imp.	4,913,324.62	0.00	0.00	4,913,324.62
164000 - Accum Depr - Buildings	590,472.80	0.00	0.00	590,472.80
165700 - Accum Depr - Water Line	0.00	154,817.03	295,488.10	450,305.13
166000 - Accum Depr - Machinery & Equipment	683,575.07	14,483.37	21,724.86	719,783.30
168000 - Accum Depr - Auto & Truck	248,062.88	0.00	0.00	248,062.88
169550 - Accum Depr - Master DB Water	129,961.41	0.00	0.00	129,961.41
170000 - Accum Depr - Office Equipment	112,248.84	0.00	0.00	112,248.84
Total Accumulated Depreciation	6,677,645.62	169,300.40	318,054.66	7,165,000.68
Total Property and Equipment	43,665,666.91	577,367.29	894,787.17	45,137,821.37
Total Assets	**$ 52,083,072.50**	**$ 587,869.47**	**$ 920,579.77**	**$ 53,591,521.74**
Liabilities and Fund Balance				
Liabilities				
Current Liabilities				
Accounts Payable				
201000 - Accounts Payable	954,859.89	2,112.80	2,687.83	959,660.52
201100 - Sewer Collections Payable	0.00	0.00	7,900.80	7,900.80
202060 - Due to General Fund	0.00	194,805.25	6,610.10	201,415.35
Total Accounts Payable	954,859.89	196,918.05	17,198.73	1,168,976.67
Accrued Liabilities				
200700 - Colon RW Accrued Interest	0.00	0.00	462.24	462.24
206001 - Accrued Compensated Absences	224,731.87	3,331.07	4,996.60	233,059.54
207305 - Lodging Tax Czechland	8.30	0.00	0.00	8.30
207306 - Sales Tax Payable Wanahoo	268.56	0.00	0.00	268.56
207307 - Lodging Tax Wanahoo	244.63	0.00	0.00	244.63
208302 - Flexible Spending	29.93	0.00	0.00	29.93
Total Accrued Liabilities	225,283.29	3,331.07	5,458.84	234,073.20
Other Current Liabilities				
204000 - Deposits	0.00	400.00	3,600.00	4,000.00
204500 - Deferred Income	13,004.57	0.00	0.00	13,004.57
204600 - Education Building Deposits	12,460.00	0.00	0.00	12,460.00
207300 - Sales Tax Payable	341.83	92.28	148.10	582.21
207304 - Sales Tax Payable Czechland	8.86	0.00	0.00	8.86
231000 - Permits Liability - DEE	364.00	0.00	0.00	364.00
Total Other Current Liabilities	26,179.26	492.28	3,748.10	30,419.64
Total Current Liabilities	1,206,322.44	200,741.40	26,405.67	1,433,469.51
Long Term Liabilities				
Note Payable - Long Term				
200600 - Note Payable - Colon Rural Water	0.00	0.00	21,330.94	21,330.94
Total Long Term Note Payable	0.00	0.00	21,330.94	21,330.94
Total Long Term Liabilities	0.00	0.00	21,330.94	21,330.94
Total Liabilities	1,206,322.44	200,741.40	47,736.61	1,454,800.45
Fund Balances				
Net Assets				

Lower Platte North NRD
Statements of Net Position

	Natural Resources District As of 03/31/2025	Rural Water-Bruno As of 03/31/2025	Rural Water-Colon As of 03/31/2025	All Districts As of 03/31/2025
Net Assets - Not Designated	44,180,881.12	384,036.71	872,725.32	45,437,643.15
Net Assets - Designated				
12 - Districtwide Flood Reduction	2,600,000.00	0.00	0.00	2,600,000.00
8 - Farm Bill Tech Assistance	125,191.00	0.00	0.00	125,191.00
10 - Groundwater Sinking	100,000.00	0.00	0.00	100,000.00
4 - Intergov'tl Emergency Repair	100,000.00	0.00	0.00	100,000.00
13 - Joint Water Mgmt E Fremont	440,000.00	0.00	0.00	440,000.00
11 - Large Structure O&M	200,000.00	0.00	0.00	200,000.00
5 - Project Op and Maintenance	100,000.00	0.00	0.00	100,000.00
6 - Shell Creek Land Treatment	100,000.00	0.00	0.00	100,000.00
7 - Water Studies	30,000.00	0.00	0.00	30,000.00
Total Net Assets - Designated	3,795,191.00	0.00	0.00	3,795,191.00
Total Net Assets	47,976,072.12	384,036.71	872,725.32	49,232,834.15
Change in Net Position	2,900,677.94	3,091.36	117.84	2,903,887.14
Total Fund Balances	50,876,750.06	387,128.07	872,843.16	52,136,721.29
Total Liabilities and Fund Balance	**$ 52,083,072.50**	**$ 587,869.47**	**$ 920,579.77**	**$ 53,591,521.74**

See Accountant's Compilation Report

Lower Platte North NRD
Statements of Activities
For the Month Ended

	Natural Resources District Month Ending 03/31/2025	Rural Water-Bruno Month Ending 03/31/2025	Rural Water-Colon Month Ending 03/31/2025	All Districts Month Ending 03/31/2025
Income				
Federal Income				
303206 - Wahoo Creek 319 Grant	0.00	0.00	0.00	0.00
303207 - Shell Creek 319 Grant	0.00	0.00	0.00	0.00
303209 - Shell Creek Phase II 319 - NDEE	0.00	0.00	0.00	0.00
303210 - Shell Creek Phase II - 319 DEQ	0.00	0.00	0.00	0.00
303225 - Wahoo Creek WS PL566	0.00	0.00	0.00	0.00
303250 - Water Smart Grant	0.00	0.00	0.00	0.00
303400 - Sand and Duck 319	0.00	0.00	0.00	0.00
303475 - Cottonwood 319	0.00	0.00	0.00	0.00
303960 - Hazard Mitigation - Federal	12,780.38	0.00	0.00	12,780.38
303961 - FEMA - Flood Funds	98,945.70	0.00	0.00	98,945.70
303966 - FEMA - Hazard Mitigation Plan Update	0.00	0.00	0.00	0.00
303962 - NEMA - Flood Funds	16,490.95	0.00	0.00	16,490.95
303963 - FEMA - 428 Funds	32,319.00	0.00	0.00	32,319.00
303964 - Federal - NRCS	2,676.98	0.00	0.00	2,676.98
303965 - Federal Wanahoo - Stilling	0.00	0.00	0.00	0.00
Total Federal Income	**$ 163,213.01**	**$ 0.00**	**$ 0.00**	**$ 163,213.01**
State Income				
301203 - Motor Vehicle Pro-Rate	2,912.15	0.00	0.00	2,912.15
301309 - Water Sustainability Fund	3,000.00	0.00	0.00	3,000.00
301310 - Shell Creek NET	4,293.31	0.00	0.00	4,293.31
301325 - JEDI Funding	133,362.14	0.00	0.00	133,362.14
Total State Income	**143,567.60**	**0.00**	**0.00**	**143,567.60**
Local Income				
304105 - Education Building Rent	1,150.00	0.00	0.00	1,150.00
304112 - Dirt Sales - Wanahoo	521.97	0.00	0.00	521.97
Total Local Income	**1,671.97**	**0.00**	**0.00**	**1,671.97**
Rural Water Income				
304240 - Water Sales	0.00	3,568.00	3,899.40	7,467.40
304295 - Colon Sewer Fees	0.00	0.00	2,633.60	2,633.60
304261 - Other Revenue	0.00	2.34	80.28	82.62
Total Rural Water Income	**0.00**	**3,570.34**	**6,613.28**	**10,183.62**
Property Tax Income				
305100 - General Fund Property Taxes-Boone	2,175.35	0.00	0.00	2,175.35
305200 - General Fund Property Taxes-Butler	484.18	0.00	0.00	484.18
305300 - General Fund Property Taxes-Colfax	129.61	0.00	0.00	129.61
305400 - General Fund Property Taxes-Dodge	3,784.29	0.00	0.00	3,784.29
305500 - General Fund Property Taxes-Madison	51.11	0.00	0.00	51.11
305600 - General Fund Property Taxes-Platte	1,566.49	0.00	0.00	1,566.49
305700 - General Fund Property Taxes-Saunders	3,422.46	0.00	0.00	3,422.46
Total Property Tax Income	**11,613.49**	**0.00**	**0.00**	**11,613.49**
Investment Income				
311350 - Interest - NPAIT Elkhorn	533.94	0.00	0.00	533.94
311400 - Interest - NPAIT Wanahoo SRA	2,256.17	0.00	0.00	2,256.17
311500 - Interest - NPAIT NRD	9.61	0.00	0.00	9.61
311600 - Interest - STFIT NRD	9,838.35	0.00	0.00	9,838.35
311700 - Interest - UBT NRD	65.59	0.00	0.00	65.59
304350 - Colon RW Interest - NPAIT	0.00	0.00	35.02	35.02
Total Investment Income	**12,703.66**	**0.00**	**35.02**	**12,738.68**
Miscellaneous Income				
309350 - Sales - Well Permits	150.00	0.00	0.00	150.00
309500 - Equipment Rent	375.00	0.00	0.00	375.00
310000 - Chemigation Permits	5,126.00	0.00	0.00	5,126.00
310200 - Czechland Camping Fees	32.49	0.00	0.00	32.49
310201 - Wanahoo Park Permits	3,477.50	0.00	0.00	3,477.50
310202 - Lake Wanahoo Camping	4,520.31	0.00	0.00	4,520.31
313000 - Miscellaneous Income	257.24	0.00	0.00	257.24
315000 - RWD Administrative Fees	373.37	0.00	0.00	373.37
316000 - Employee/Director Reimb	565.92	0.00	0.00	565.92
318000 - Special Project Income	4,916.00	0.00	0.00	4,916.00
Total Miscellaneous Income	**19,793.83**	**0.00**	**0.00**	**19,793.83**
Total Income	**352,563.56**	**3,570.34**	**6,648.30**	**362,782.20**
Expenses				

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	Natural Resources District Month Ending 03/31/2025	Rural Water-Bruno Month Ending 03/31/2025	Rural Water-Colon Month Ending 03/31/2025	All Districts Month Ending 03/31/2025
Administration Expenses				
Bonds				
410100 - Bonds	1,388.00	0.00	0.00	1,388.00
Total Bonds	**1,388.00**	**0.00**	**0.00**	**1,388.00**
Dues & Membership				
410202 - Dues & Membership - NACD	148.00	0.00	0.00	148.00
410203 - Dues - NARD	2,768.95	0.00	0.00	2,768.95
Total Dues & Membership	**2,916.95**	**0.00**	**0.00**	**2,916.95**
Fees and Licenses				
410302 - NRD Fees And Licenses	150.00	0.00	0.00	150.00
410304 - NRD Union Bank Fees	45.52	0.00	0.00	45.52
Total Fees and Licenses	**195.52**	**0.00**	**0.00**	**195.52**
Insurance				
410501 - Insurance-Auto	1,551.33	0.00	0.00	1,551.33
410502 - Insurance-Errors & Omissions	479.25	0.00	0.00	479.25
410504 - Insurance-Liability	5,849.60	0.00	0.00	5,849.60
410505 - Insurance-Property	2,667.67	0.00	0.00	2,667.67
Total Insurance	**10,547.85**	**0.00**	**0.00**	**10,547.85**
Interest Expense				
410600 - Interest Expense	0.00	0.00	77.04	77.04
Total Interest Expense	**0.00**	**0.00**	**77.04**	**77.04**
Maintenance Contracts				
410800 - Maintenance Contracts	308.09	0.00	0.00	308.09
Total Maintenance Contracts	**308.09**	**0.00**	**0.00**	**308.09**
Office Supply & Expense				
410902 - Office Supplies & Equip	13.33	0.00	0.00	13.33
410904 - Letterhead, Envelopes & Forms	34.12	0.00	0.00	34.12
410906 - Office Expense - Other	406.64	0.00	0.00	406.64
Total Office Supply & Expense	**454.09**	**0.00**	**0.00**	**454.09**
Computer Supply & Expense				
411002 - Computer Consultant	1,383.80	0.00	0.00	1,383.80
411004 - Computer Software	459.02	0.00	0.00	459.02
411006 - Email	414.00	0.00	0.00	414.00
Total Computer Supply & Expense	**2,256.82**	**0.00**	**0.00**	**2,256.82**
Postage				
411200 - Postage	1,009.75	0.00	0.00	1,009.75
Total Postage	**1,009.75**	**0.00**	**0.00**	**1,009.75**
Professional Services				
411301 - Prof Serv-Accounting	7,700.00	0.00	0.00	7,700.00
411304 - Prof Serv-Legal - General	1,964.00	0.00	0.00	1,964.00
411311 - Washington Expense	2,300.00	0.00	0.00	2,300.00
Total Professional Services	**11,964.00**	**0.00**	**0.00**	**11,964.00**
Rent Expense				
411400 - Rent Expense	255.38	0.00	0.00	255.38
Total Rent Expense	**255.38**	**0.00**	**0.00**	**255.38**
Telephone Expense				
411601 - Telephone - Cellular	967.52	0.00	0.00	967.52
411602 - Local Phone & Internet	803.94	0.00	0.00	803.94
Total Telephone Expense	**1,771.46**	**0.00**	**0.00**	**1,771.46**
Utilities				
411700 - Utilities Expense	701.19	0.00	0.00	701.19
Total Utilities	**701.19**	**0.00**	**0.00**	**701.19**
Total Administration Expenses	**33,769.10**	**0.00**	**77.04**	**33,846.14**
Information & Education Expenses				
Education				
420109 - Education Outreach	103.00	0.00	0.00	103.00
Total Education	**103.00**	**0.00**	**0.00**	**103.00**
Information				
420208 - Miscellaneous	455.00	0.00	0.00	455.00
420209 - Ktic Ad	523.00	0.00	0.00	523.00
420211 - E-Ads	530.90	0.00	0.00	530.90
Total Information	**1,508.90**	**0.00**	**0.00**	**1,508.90**
Total Information & Education Expenses	**1,611.90**	**0.00**	**0.00**	**1,611.90**
Operation & Maintenance				

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	Natural Resources District Month Ending 03/31/2025	Rural Water-Bruno Month Ending 03/31/2025	Rural Water-Colon Month Ending 03/31/2025	All Districts Month Ending 03/31/2025
Auto and Truck				
430101 - Auto & Truck Gas	1,008.27	0.00	0.00	1,008.27
430102 - Auto & Truck R&M	190.21	0.00	0.00	190.21
Total Auto and Truck	**1,198.48**	**0.00**	**0.00**	**1,198.48**
Building Maintenance				
430201 - Bldg Maintenance	46.05	0.00	0.00	46.05
430202 - Office Cleaning	495.00	0.00	0.00	495.00
430203 - Garbage Maintenance	101.72	0.00	0.00	101.72
Total Building Maintenance	**642.77**	**0.00**	**0.00**	**642.77**
Operation and Maintenance				
430401 - Czechland & Homestead	144.69	0.00	0.00	144.69
430403 - Operation & Maintenance	57.03	0.00	0.00	57.03
430406 - Wanahoo Park Operation	362.00	0.00	0.00	362.00
430407 - Monitoring Wanahoo Dam	1,215.00	0.00	0.00	1,215.00
430408 - Wanahoo Rec Mgmt	1,743.59	0.00	0.00	1,743.59
430409 - Lake Wanahoo Education Building	411.79	0.00	0.00	411.79
Total Operation and Maintenance	**3,934.10**	**0.00**	**0.00**	**3,934.10**
Other				
430804 - O&M One-Call Services	30.57	0.00	0.00	30.57
Total Other	**30.57**	**0.00**	**0.00**	**30.57**
Total Operation & Maintenance	**5,805.92**	**0.00**	**0.00**	**5,805.92**
Personnel Expenses				
Director Expense				
440101 - Director Meeting Expense	3,065.64	0.00	0.00	3,065.64
440102 - Director Mileage Expense	4,492.60	0.00	0.00	4,492.60
440104 - Computer Stipend	1,250.00	0.00	0.00	1,250.00
Total Director Expense	**8,808.24**	**0.00**	**0.00**	**8,808.24**
Employee Benefits				
440301 - Dental Insurance	1,815.38	0.00	0.00	1,815.38
440302 - Health Insurance	30,585.05	0.00	0.00	30,585.05
440303 - Retirement Benefit - 414H	6,970.84	0.00	0.00	6,970.84
440304 - Retirement Benefit - 457 Plan	1,410.31	0.00	0.00	1,410.31
440306 - Workmans Comp Benefit	1,937.33	0.00	0.00	1,937.33
440307 - Employee Benefits - Other	(29.39)	0.00	0.00	(29.39)
440309 - Flexible Spending Fee	24.00	0.00	0.00	24.00
Total Employee Benefits	**42,713.52**	**0.00**	**0.00**	**42,713.52**
Payroll Taxes				
440401 - FICA - ER	6,034.43	0.00	0.00	6,034.43
440402 - Medicare - ER	1,411.25	0.00	0.00	1,411.25
Total Payroll Taxes	**7,445.68**	**0.00**	**0.00**	**7,445.68**
Personnel Expense				
440501 - Personnel Meeting Exp	6,461.55	0.00	0.00	6,461.55
440502 - Personnel Mileage Exp	543.20	0.00	0.00	543.20
440504 - Personnel Uniform Exp	595.99	0.00	0.00	595.99
Total Personnel Expense	**7,600.74**	**0.00**	**0.00**	**7,600.74**
Salaries				
440601 - Salaries - Administration	20,467.76	0.00	0.00	20,467.76
440602 - Salaries - Clerical	2,403.72	0.00	0.00	2,403.72
440604 - Salaries - I & E	8,983.54	0.00	0.00	8,983.54
440605 - Salaries - Op & Maint	12,878.30	0.00	0.00	12,878.30
440606 - NRCS Support	15,963.94	0.00	0.00	15,963.94
440607 - Salaries - Projects	8,046.22	0.00	0.00	8,046.22
440608 - Salaries - Water	30,571.34	0.00	0.00	30,571.34
440616 - Lake Wanhoo Park Op.	3,981.34	0.00	0.00	3,981.34
Total Salaries	**103,296.16**	**0.00**	**0.00**	**103,296.16**
Total Personnel Expenses	**169,864.34**	**0.00**	**0.00**	**169,864.34**
Projects Expenses				
Inter-Governmental				
450123 - Hazard Mitigation Update	17,040.50	0.00	0.00	17,040.50
Total Inter-Governmental	**17,040.50**	**0.00**	**0.00**	**17,040.50**
Total Projects Expenses	**17,040.50**	**0.00**	**0.00**	**17,040.50**
Water Expenses				
Groundwater Management Plan				
460110 - Basin Wide Water Plan	2,000.00	0.00	0.00	2,000.00
460111 - Flow Meter Maintenance	27,705.00	0.00	0.00	27,705.00

Lower Platte North NRD
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	Natural Resources District Month Ending 03/31/2025	Rural Water-Bruno Month Ending 03/31/2025	Rural Water-Colon Month Ending 03/31/2025	All Districts Month Ending 03/31/2025
Total Groundwater Management Plan	**29,705.00**	**0.00**	**0.00**	**29,705.00**
Groundwater Programs				
460204 - GW Quality Program	518.00	0.00	0.00	518.00
460213 - GW Memberships and Subscriptions	300.00	0.00	0.00	300.00
Total Groundwater Programs	**818.00**	**0.00**	**0.00**	**818.00**
Special Projects				
460519 - Hydrological Study	5,000.00	0.00	0.00	5,000.00
460522 - Groundwater Management Plan Rev	21,704.09	0.00	0.00	21,704.09
Total Special Projects	**26,704.09**	**0.00**	**0.00**	**26,704.09**
Land Treatment				
450803 - Shell Creek Watershed Plan 319	2,109.94	0.00	0.00	2,109.94
Total Land Treatment	**2,109.94**	**0.00**	**0.00**	**2,109.94**
Total Water Expenses	**59,337.03**	**0.00**	**0.00**	**59,337.03**
Rural Water District Expenses				
570201 - Water Purchase	0.00	1,771.58	865.03	2,636.61
570204 - Testing	0.00	15.00	15.00	30.00
570206 - Repair	0.00	7.20	10.79	17.99
570208 - Lpnnrd Adm. Fee	0.00	178.40	194.97	373.37
570210 - Health/Life/Vision/LTD - ER	0.00	202.67	304.00	506.67
570211 - Dental - ER	0.00	21.72	32.59	54.31
570212 - 414H ER Contributions	0.00	59.01	88.52	147.53
570215 - ER Social Security Tax	0.00	78.84	126.95	205.79
570216 - ER Medicare Tax	0.00	18.44	29.69	48.13
570217 - Salaries	0.00	695.57	903.05	1,598.62
570219 - Fees And Licenses	0.00	17.13	25.68	42.81
570220 - Rural Water One-Call	0.00	0.85	2.55	3.40
570223 - Rural Water Gasoline	0.00	65.35	35.63	100.98
570224 - Rural Water Personnel Meeting	0.00	191.75	287.64	479.39
570308 - Colon Meter House Expense	0.00	0.00	248.54	248.54
570309 - Colon Sewer Collections	0.00	0.00	2,633.60	2,633.60
Total Rural Water District Expenses	**0.00**	**3,323.51**	**5,804.23**	**9,127.74**
Depreciation Expense				
Depreciation				
908000 - Depreciation Expense	57,665.30	677.91	1,432.90	59,776.11
908350 - Amortization Expense - Colon	0.00	0.00	4.16	4.16
Total Depreciation	**57,665.30**	**677.91**	**1,437.06**	**59,780.27**
Total Depreciation Expense	**57,665.30**	**677.91**	**1,437.06**	**59,780.27**
Total Expenses	**345,094.09**	**4,001.42**	**7,318.33**	**356,413.84**
Total Change in Net Position	**$ 7,469.47**	**$ (431.08)**	**$ (670.03)**	**$ 6,368.36**

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	Natural Resources District Year To Date 03/31/2025	Rural Water-Bruno Year To Date 03/31/2025	Rural Water-Colon Year To Date 03/31/2025	All Districts Year To Date 03/31/2025
Income				
Federal Income				
303206 - Wahoo Creek 319 Grant	0.00	0.00	0.00	0.00
303207 - Shell Creek 319 Grant	55,523.79	0.00	0.00	55,523.79
303209 - Shell Creek Phase II 319 - NDEE	0.00	0.00	0.00	0.00
303210 - Shell Creek Phase II - 319 DEQ	0.00	0.00	0.00	0.00
303225 - Wahoo Creek WS PL566	91,146.44	0.00	0.00	91,146.44
303250 - Water Smart Grant	0.00	0.00	0.00	0.00
303400 - Sand and Duck 319	0.00	0.00	0.00	0.00
303475 - Cottonwood 319	0.00	0.00	0.00	0.00
303960 - Hazard Mitigation - Federal	105,956.53	0.00	0.00	105,956.53
303961 - FEMA - Flood Funds	201,552.77	0.00	0.00	201,552.77
303966 - FEMA - Hazard Mitigation Plan Update	0.00	0.00	0.00	0.00
303962 - NEMA - Flood Funds	33,736.21	0.00	0.00	33,736.21
303963 - FEMA - 428 Funds	228,685.37	0.00	0.00	228,685.37
303964 - Federal - NRCS	47,740.01	0.00	0.00	47,740.01
303965 - Federal Wanahoo - Stilling	0.00	0.00	0.00	0.00
Total Federal Income	**$ 764,341.12**	**$ 0.00**	**$ 0.00**	**$ 764,341.12**
State Income				
301201 - Natural Resources WQ Fund	13,993.07	0.00	0.00	13,993.07
301203 - Motor Vehicle Pro-Rate	6,094.18	0.00	0.00	6,094.18
301309 - Water Sustainability Fund	28,800.00	0.00	0.00	28,800.00
301310 - Shell Creek NET	79,496.94	0.00	0.00	79,496.94
301315 - WSF and EA Application	(3,168.00)	0.00	0.00	(3,168.00)
301325 - JEDI Funding	1,344,182.32	0.00	0.00	1,344,182.32
301900 - State Grant - NE Buffer Strip	51,771.76	0.00	0.00	51,771.76
304100 - Lake Wanahoo - Other	22,578.72	0.00	0.00	22,578.72
Total State Income	**1,543,748.99**	**0.00**	**0.00**	**1,543,748.99**
Local Income				
304105 - Education Building Rent	14,295.00	0.00	0.00	14,295.00
304112 - Dirt Sales - Wanahoo	8,805.00	0.00	0.00	8,805.00
304500 - JWMAB	19,292.25	0.00	0.00	19,292.25
Total Local Income	**42,392.25**	**0.00**	**0.00**	**42,392.25**
Rural Water Income				
304240 - Water Sales	0.00	42,383.25	39,598.00	81,981.25
304275 - Colon Hook Up Fees	0.00	0.00	3,000.00	3,000.00
304295 - Colon Sewer Fees	0.00	0.00	24,135.15	24,135.15
304261 - Other Revenue	3,000.00	680.71	890.85	4,571.56
Total Rural Water Income	**3,000.00**	**43,063.96**	**67,624.00**	**113,687.96**
Property Tax Income				
305100 - General Fund Property Taxes-Boone	118,979.40	0.00	0.00	118,979.40
305200 - General Fund Property Taxes-Butler	366,055.57	0.00	0.00	366,055.57
305300 - General Fund Property Taxes-Colfax	314,472.52	0.00	0.00	314,472.52
305400 - General Fund Property Taxes-Dodge	1,136,985.23	0.00	0.00	1,136,985.23
305500 - General Fund Property Taxes-Madison	51,546.38	0.00	0.00	51,546.38
305600 - General Fund Property Taxes-Platte	442,237.78	0.00	0.00	442,237.78
305700 - General Fund Property Taxes-Saunders	1,216,506.04	0.00	0.00	1,216,506.04
Total Property Tax Income	**3,646,782.92**	**0.00**	**0.00**	**3,646,782.92**
Investment Income				
311350 - Interest - NPAIT Elkhorn	5,155.87	0.00	0.00	5,155.87
311400 - Interest - NPAIT Wanahoo SRA	21,187.95	0.00	0.00	21,187.95
311500 - Interest - NPAIT NRD	92.53	0.00	0.00	92.53
311600 - Interest - STFIT NRD	157,936.64	0.00	0.00	157,936.64
311700 - Interest - UBT NRD	623.83	0.00	0.00	623.83
304350 - Colon RW Interest - NPAIT	0.00	0.00	338.60	338.60
Total Investment Income	**184,996.82**	**0.00**	**338.60**	**185,335.42**
Miscellaneous Income				
309100 - Sales - Trees	1,777.50	0.00	0.00	1,777.50
309350 - Sales - Well Permits	1,250.00	0.00	0.00	1,250.00
309360 - Sales - Sample Kits	3,416.00	0.00	0.00	3,416.00
309400 - Sales - Other	1,425.00	0.00	0.00	1,425.00
309500 - Equipment Rent	6,140.20	0.00	0.00	6,140.20
310000 - Chemigation Permits	6,571.00	0.00	0.00	6,571.00
310100 - Check Valve Sales	477.40	0.00	0.00	477.40
310200 - Czechland Camping Fees	8,946.36	0.00	0.00	8,946.36

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	Natural Resources District Year To Date 03/31/2025	Rural Water-Bruno Year To Date 03/31/2025	Rural Water-Colon Year To Date 03/31/2025	All Districts Year To Date 03/31/2025
310201 - Wanahoo Park Permits	35,182.00	0.00	0.00	35,182.00
310202 - Lake Wanahoo Camping	71,661.80	0.00	0.00	71,661.80
313000 - Miscellaneous Income	8,899.84	0.00	0.00	8,899.84
315000 - RWD Administrative Fees	4,099.07	0.00	0.00	4,099.07
316000 - Employee/Director Reimb	906.09	0.00	0.00	906.09
317000 - Loss Or Gain On Sale Of Assets	23,492.70	0.00	0.00	23,492.70
318000 - Special Project Income	4,916.00	0.00	0.00	4,916.00
Total Miscellaneous Income	**179,160.96**	**0.00**	**0.00**	**179,160.96**
Total Income	**6,364,423.06**	**43,063.96**	**67,962.60**	**6,475,449.62**
Expenses				
Administration Expenses				
Bonds				
410100 - Bonds	1,388.00	0.00	0.00	1,388.00
Total Bonds	**1,388.00**	**0.00**	**0.00**	**1,388.00**
Dues & Membership				
410202 - Dues & Membership - NACD	1,332.00	0.00	0.00	1,332.00
410203 - Dues - NARD	24,866.25	0.00	0.00	24,866.25
410204 - Dues - NWRA	1,950.00	0.00	0.00	1,950.00
410205 - Dues & Membership - Other	1,878.00	0.00	0.00	1,878.00
Total Dues & Membership	**30,026.25**	**0.00**	**0.00**	**30,026.25**
Fees and Licenses				
410302 - NRD Fees And Licenses	45,355.13	0.00	0.00	45,355.13
410304 - NRD Union Bank Fees	435.74	0.00	0.00	435.74
Total Fees and Licenses	**45,790.87**	**0.00**	**0.00**	**45,790.87**
Insurance				
410501 - Insurance-Auto	10,131.24	0.00	0.00	10,131.24
410502 - Insurance-Errors & Omissions	4,489.74	0.00	0.00	4,489.74
410504 - Insurance-Liability	51,108.60	0.00	0.00	51,108.60
410505 - Insurance-Property	22,717.53	0.00	0.00	22,717.53
Total Insurance	**88,447.11**	**0.00**	**0.00**	**88,447.11**
Interest Expense				
410600 - Interest Expense	0.00	0.00	698.93	698.93
Total Interest Expense	**0.00**	**0.00**	**698.93**	**698.93**
Legal Notices				
410701 - Legal Notices	2,352.62	0.00	0.00	2,352.62
Total Legal Notices	**2,352.62**	**0.00**	**0.00**	**2,352.62**
Maintenance Contracts				
410800 - Maintenance Contracts	3,701.82	0.00	0.00	3,701.82
Total Maintenance Contracts	**3,701.82**	**0.00**	**0.00**	**3,701.82**
Office Supply & Expense				
410901 - Copier Supplies	550.90	0.00	0.00	550.90
410902 - Office Supplies & Equip	1,136.26	0.00	0.00	1,136.26
410903 - Franklin Supplies	217.42	0.00	0.00	217.42
410904 - Letterhead, Envelopes & Forms	243.55	0.00	0.00	243.55
410905 - Reference Books	708.99	0.00	0.00	708.99
410906 - Office Expense - Other	1,079.75	0.00	0.00	1,079.75
Total Office Supply & Expense	**3,936.87**	**0.00**	**0.00**	**3,936.87**
Computer Supply & Expense				
411002 - Computer Consultant	9,110.00	0.00	0.00	9,110.00
411003 - Computer Repairs & Parts	84.36	0.00	0.00	84.36
411004 - Computer Software	4,777.27	0.00	0.00	4,777.27
411006 - Email	3,726.00	0.00	0.00	3,726.00
411011 - Computers & Equipment	1,130.89	0.00	0.00	1,130.89
Total Computer Supply & Expense	**18,828.52**	**0.00**	**0.00**	**18,828.52**
Postage				
411200 - Postage	5,117.49	0.00	0.00	5,117.49
Total Postage	**5,117.49**	**0.00**	**0.00**	**5,117.49**
Professional Services				
411301 - Prof Serv-Accounting	69,374.73	0.00	0.00	69,374.73
411302 - Prof Serv-Annual Audit	14,900.00	0.00	0.00	14,900.00
411304 - Prof Serv-Legal - General	11,478.40	0.00	0.00	11,478.40
411311 - Washington Expense	20,500.00	0.00	0.00	20,500.00
Total Professional Services	**116,253.13**	**0.00**	**0.00**	**116,253.13**

Lower Platte North NRD
Statements of Activities
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	Natural Resources District Year To Date 03/31/2025	Rural Water-Bruno Year To Date 03/31/2025	Rural Water-Colon Year To Date 03/31/2025	All Districts Year To Date 03/31/2025
Rent Expense				
411400 - Rent Expense	823.82	0.00	0.00	823.82
Total Rent Expense	**823.82**	**0.00**	**0.00**	**823.82**
Support to Organizations				
411502 - R C & D Organizations	4,290.47	0.00	0.00	4,290.47
Total Support to Organizations	**4,290.47**	**0.00**	**0.00**	**4,290.47**
Telephone Expense				
411601 - Telephone - Cellular	8,287.46	0.00	0.00	8,287.46
411602 - Local Phone & Internet	7,032.07	0.00	0.00	7,032.07
Total Telephone Expense	**15,319.53**	**0.00**	**0.00**	**15,319.53**
Utilities				
411700 - Utilities Expense	6,960.05	0.00	0.00	6,960.05
Total Utilities	**6,960.05**	**0.00**	**0.00**	**6,960.05**
Total Administration Expenses	**343,236.55**	**0.00**	**698.93**	**343,935.48**
Information & Education Expenses				
Education				
420103 - Land & Range Judging Contest	1,207.08	0.00	0.00	1,207.08
420104 - Outdoor Classrooms	4.29	0.00	0.00	4.29
420106 - Miscellaneous Education Expense	290.00	0.00	0.00	290.00
420109 - Education Outreach	1,261.59	0.00	0.00	1,261.59
Total Education	**2,762.96**	**0.00**	**0.00**	**2,762.96**
Information				
420201 - Annual Report/Viaduct	15,451.22	0.00	0.00	15,451.22
420203 - Expositions And Display	633.04	0.00	0.00	633.04
420205 - Phrography, Cameras, Video	11.68	0.00	0.00	11.68
420208 - Miscellaneous	455.00	0.00	0.00	455.00
420209 - Ktic Ad	2,339.00	0.00	0.00	2,339.00
420211 - E-Ads	2,090.90	0.00	0.00	2,090.90
420212 - TV Promotion	3,740.00	0.00	0.00	3,740.00
Total Information	**24,720.84**	**0.00**	**0.00**	**24,720.84**
Scholarships and Grants				
420307 - Shell Crk Watershd Scholarship	2,000.00	0.00	0.00	2,000.00
Total Scholarships and Grants	**2,000.00**	**0.00**	**0.00**	**2,000.00**
Other				
420401 - Art Supplies	16.13	0.00	0.00	16.13
420402 - Cooperative Projects/Donations	110.00	0.00	0.00	110.00
420404 - Promotional Materials	758.84	0.00	0.00	758.84
420405 - Recognition Banquet & Awards	231.00	0.00	0.00	231.00
420410 - Continuing Ed - I&E Dept	400.00	0.00	0.00	400.00
Total Other	**1,515.97**	**0.00**	**0.00**	**1,515.97**
Total Information & Education Expenses	**30,999.77**	**0.00**	**0.00**	**30,999.77**
Operation & Maintenance				
Auto and Truck				
430101 - Auto & Truck Gas	13,660.71	0.00	0.00	13,660.71
430102 - Auto & Truck R&M	2,542.82	0.00	0.00	2,542.82
Total Auto and Truck	**16,203.53**	**0.00**	**0.00**	**16,203.53**
Building Maintenance				
430201 - Bldg Maintenance	229.73	0.00	0.00	229.73
430202 - Office Cleaning	4,180.00	0.00	0.00	4,180.00
430203 - Garbage Maintenance	910.17	0.00	0.00	910.17
Total Building Maintenance	**5,319.90**	**0.00**	**0.00**	**5,319.90**
Operation and Maintenance				
430401 - Czechland & Homestead	5,848.08	0.00	0.00	5,848.08
430402 - Equipment Upkeep	15,891.40	0.00	0.00	15,891.40
430403 - Operation & Maintenance	136,163.16	0.00	0.00	136,163.16
430406 - Wanahoo Park Operation	59,952.21	0.00	0.00	59,952.21
430407 - Monitoring Wanahoo Dam	8,829.94	0.00	0.00	8,829.94
430408 - Wanahoo Rec Mgmt	43,436.86	0.00	0.00	43,436.86
430409 - Lake Wanahoo Education Building	18,681.14	0.00	0.00	18,681.14
Total Operation and Maintenance	**288,802.79**	**0.00**	**0.00**	**288,802.79**
Project Repairs				
430503 - Project Repairs - Other	11,500.00	0.00	0.00	11,500.00
Total Project Repairs	**11,500.00**	**0.00**	**0.00**	**11,500.00**
Other				

Lower Platte North NRD
Statements of Activities
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	Natural Resources District Year To Date 03/31/2025	Rural Water-Bruno Year To Date 03/31/2025	Rural Water-Colon Year To Date 03/31/2025	All Districts Year To Date 03/31/2025
430804 - O&M One-Call Services	261.98	0.00	0.00	261.98
Total Other	**261.98**	**0.00**	**0.00**	**261.98**
Total Operation & Maintenance	**322,088.20**	**0.00**	**0.00**	**322,088.20**
Personnel Expenses				
Director Expense				
440101 - Director Meeting Expense	10,223.44	0.00	0.00	10,223.44
440102 - Director Mileage Expense	11,395.61	0.00	0.00	11,395.61
440104 - Computer Stipend	3,600.00	0.00	0.00	3,600.00
Total Director Expense	**25,219.05**	**0.00**	**0.00**	**25,219.05**
Director Per Diem				
440200 - Director Per Diem	12,870.00	0.00	0.00	12,870.00
Total Director Per Diem	**12,870.00**	**0.00**	**0.00**	**12,870.00**
Employee Benefits				
440301 - Dental Insurance	16,026.83	0.00	0.00	16,026.83
440302 - Health Insurance	280,085.22	0.00	0.00	280,085.22
440303 - Retirement Benefit - 414H	60,181.09	0.00	0.00	60,181.09
440304 - Retirement Benefit - 457 Plan	1,410.31	0.00	0.00	1,410.31
440306 - Workmans Comp Benefit	14,540.22	0.00	0.00	14,540.22
440307 - Employee Benefits - Other	52.77	0.00	0.00	52.77
440309 - Flexible Spending Fee	184.00	0.00	0.00	184.00
Total Employee Benefits	**372,480.44**	**0.00**	**0.00**	**372,480.44**
Payroll Taxes				
440401 - FICA - ER	59,183.37	0.00	0.00	59,183.37
440402 - Medicare - ER	13,841.34	0.00	0.00	13,841.34
Total Payroll Taxes	**73,024.71**	**0.00**	**0.00**	**73,024.71**
Personnel Expense				
440501 - Personnel Meeting Exp	29,415.36	0.00	0.00	29,415.36
440502 - Personnel Mileage Exp	1,822.53	0.00	0.00	1,822.53
440504 - Personnel Uniform Exp	1,621.52	0.00	0.00	1,621.52
440505 - Personnel Exp-Other	27.90	0.00	0.00	27.90
Total Personnel Expense	**32,887.31**	**0.00**	**0.00**	**32,887.31**
Salaries				
440601 - Salaries - Administration	191,074.48	0.00	0.00	191,074.48
440602 - Salaries - Clerical	22,835.34	0.00	0.00	22,835.34
440604 - Salaries - I & E	85,343.63	0.00	0.00	85,343.63
440605 - Salaries - Op & Maint	139,332.33	0.00	0.00	139,332.33
440606 - NRCS Support	151,377.95	0.00	0.00	151,377.95
440607 - Salaries - Projects	76,439.09	0.00	0.00	76,439.09
440608 - Salaries - Water	283,816.33	0.00	0.00	283,816.33
440616 - Lake Wanhoo Park Op.	70,083.18	0.00	0.00	70,083.18
Total Salaries	**1,020,302.33**	**0.00**	**0.00**	**1,020,302.33**
Total Personnel Expenses	**1,536,783.84**	**0.00**	**0.00**	**1,536,783.84**
Projects Expenses				
Inter-Governmental				
450115 - Dike & Drainage Assistance	60,000.00	0.00	0.00	60,000.00
450119 - JWMAB Dodge Co	25,723.00	0.00	0.00	25,723.00
450123 - Hazard Mitigation Update	137,186.50	0.00	0.00	137,186.50
Total Inter-Governmental	**222,909.50**	**0.00**	**0.00**	**222,909.50**
Special Projects				
450406 - Special Projects-Platte	50,000.00	0.00	0.00	50,000.00
Total Special Projects	**50,000.00**	**0.00**	**0.00**	**50,000.00**
Other Projects				
450705 - Schuyler 205	13,000.00	0.00	0.00	13,000.00
Total Other Projects	**13,000.00**	**0.00**	**0.00**	**13,000.00**
Platte River Corridor Alliance				
411101 - PRCA - Administration	6,843.00	0.00	0.00	6,843.00
411129 - USGS Monitoring at Leshara	4,360.00	0.00	0.00	4,360.00
Total Platte River Corridor Alliance	**11,203.00**	**0.00**	**0.00**	**11,203.00**
Total Projects Expenses	**297,112.50**	**0.00**	**0.00**	**297,112.50**
Water Expenses				
Groundwater Management Plan				
460101 - GWMP - Cost - Share	5,489.28	0.00	0.00	5,489.28
460102 - GWMP - Information & Education	413.77	0.00	0.00	413.77
460103 - GWMP - Nitrogen Classes	281.59	0.00	0.00	281.59

Lower Platte North NRD
Statements of Activities
For the Periods Ended

	Natural Resources District Year To Date 03/31/2025	Rural Water-Bruno Year To Date 03/31/2025	Rural Water-Colon Year To Date 03/31/2025	All Districts Year To Date 03/31/2025
460110 - Basin Wide Water Plan	4,000.00	0.00	0.00	4,000.00
460111 - Flow Meter Maintenance	27,705.00	0.00	0.00	27,705.00
Total Groundwater Management Plan	**37,889.64**	**0.00**	**0.00**	**37,889.64**
Groundwater Programs				
460201 - Decommissioned Wells	6,681.88	0.00	0.00	6,681.88
460203 - GW Levels	46.99	0.00	0.00	46.99
460204 - GW Quality Program	10,505.03	0.00	0.00	10,505.03
460206 - Monitoring Wells	51.79	0.00	0.00	51.79
460209 - Groundwater Programs Other	949.50	0.00	0.00	949.50
460213 - GW Memberships and Subscriptions	2,700.00	0.00	0.00	2,700.00
Total Groundwater Programs	**20,935.19**	**0.00**	**0.00**	**20,935.19**
Regulatory				
460301 - Chemigation	105.33	0.00	0.00	105.33
Total Regulatory	**105.33**	**0.00**	**0.00**	**105.33**
Surface Water Programs				
460403 - Stream Flow	19,010.00	0.00	0.00	19,010.00
Total Surface Water Programs	**19,010.00**	**0.00**	**0.00**	**19,010.00**
Special Projects				
460503 - Special Projects - Other	675.11	0.00	0.00	675.11
460504 - ENWRA	15,000.00	0.00	0.00	15,000.00
460519 - Hydrological Study	48,000.00	0.00	0.00	48,000.00
460520 - Nitrate Assessment	24,187.75	0.00	0.00	24,187.75
460522 - Groundwater Management Plan Rev	66,708.85	0.00	0.00	66,708.85
Total Special Projects	**154,571.71**	**0.00**	**0.00**	**154,571.71**
Land Treatment				
450201 - Ne Buffer Strip	51,771.76	0.00	0.00	51,771.76
450207 - Nswcp Supplement	4,500.00	0.00	0.00	4,500.00
450211 - Trees	2,374.61	0.00	0.00	2,374.61
450803 - Shell Creek Watershed Plan 319	119,406.31	0.00	0.00	119,406.31
450805 - Shell Creek Phase I (New)	14,431.05	0.00	0.00	14,431.05
Total Land Treatment	**192,483.73**	**0.00**	**0.00**	**192,483.73**
Total Water Expenses	**424,995.60**	**0.00**	**0.00**	**424,995.60**
Rural Water District Expenses				
570201 - Water Purchase	0.00	19,513.27	10,081.29	29,594.56
570204 - Testing	0.00	135.00	186.00	321.00
570206 - Repair	0.00	504.99	228.89	733.88
570207 - Other Expenses	0.00	21.59	32.46	54.05
570208 - Lpnnrd Adm. Fee	0.00	2,119.16	1,979.91	4,099.07
570210 - Health/Life/Vision/LTD - ER	0.00	1,823.52	2,735.23	4,558.75
570211 - Dental - ER	0.00	195.48	293.31	488.79
570212 - 414H ER Contributions	0.00	588.61	882.94	1,471.55
570215 - ER Social Security Tax	0.00	782.37	1,199.96	1,982.33
570216 - ER Medicare Tax	0.00	182.96	280.62	463.58
570217 - Salaries	0.00	6,069.06	8,677.40	14,746.46
570219 - Fees And Licenses	0.00	137.04	205.44	342.48
570220 - Rural Water One-Call	0.00	21.02	396.37	417.39
570221 - Rural Water Hand Tools & Supplies	0.00	68.43	102.64	171.07
570222 - RW Dues And Memberships	0.00	220.00	330.00	550.00
570223 - Rural Water Gasoline	0.00	623.74	410.02	1,033.76
570224 - Rural Water Personnel Meeting	0.00	491.75	377.64	869.39
570231 - Rural Water Equipment Upkeep	0.00	373.41	560.11	933.52
570308 - Colon Meter House Expense	0.00	0.00	1,549.61	1,549.61
570309 - Colon Sewer Collections	0.00	0.00	23,702.40	23,702.40
Total Rural Water District Expenses	**0.00**	**33,871.40**	**54,212.24**	**88,083.64**
Capital Expenditures - Small Items				
480105 - Capital Outlay Small Items (Equipment)	1,720.99	0.00	0.00	1,720.99
Total Capital Expenditures - Small Items	**1,720.99**	**0.00**	**0.00**	**1,720.99**
Depreciation Expense				
Depreciation				
908000 - Depreciation Expense	506,807.67	6,101.20	12,896.10	525,804.97
908350 - Amortization Expense - Colon	0.00	0.00	37.49	37.49
Total Depreciation	**506,807.67**	**6,101.20**	**12,933.59**	**525,842.46**
Total Depreciation Expense	**506,807.67**	**6,101.20**	**12,933.59**	**525,842.46**
Total Expenses	**3,463,745.12**	**39,972.60**	**67,844.76**	**3,571,562.48**

Lower Platte North NRD
Statements of Activities
For the Periods Ended

	Natural Resources District Year To Date 03/31/2025	Rural Water-Bruno Year To Date 03/31/2025	Rural Water-Colon Year To Date 03/31/2025	All Districts Year To Date 03/31/2025
Total Change in Net Position	**$ 2,900,677.94**	**$ 3,091.36**	**$ 117.84**	**$ 2,903,887.14**

Lower Platte North NRD
Supplemental Schedule
Statements of Activities - Actual vs. Budget

	Month Ending 03/31/2025 MTD Actual	Year To Date 03/31/2025 FYTD Actual	Annual Budget June 30, 2025 FY2025	$ Difference Annual Budget	Percentage Annual Budget
Change in Net Position					
Income					
Federal Income					
303206 - Wahoo Creek 319 Grant	0.00	0.00	30,000.00	(30,000.00)	0.00 %
303207 - Shell Creek 319 Grant	0.00	55,523.79	160,000.00	(104,476.21)	34.70 %
303225 - Wahoo Creek WS PL566	0.00	91,146.44	1,000,000.00	(908,853.56)	9.11 %
303960 - Hazard Mitigation - Federal	12,780.38	105,956.53	159,750.00	(53,793.47)	66.33 %
303961 - FEMA - Flood Funds	98,945.70	201,552.77	375,000.00	(173,447.23)	53.75 %
303962 - NEMA - Flood Funds	16,490.95	33,736.21	142,087.00	(108,350.79)	23.74 %
303963 - FEMA - 428 Funds	32,319.00	228,685.37	540,182.00	(311,496.63)	42.33 %
303964 - Federal - NRCS	2,676.98	47,740.01	115,552.00	(67,811.99)	41.31 %
Total Federal Income	**163,213.01**	**764,341.12**	**2,522,571.00**	**(1,758,229.88)**	**30.30 %**
State Income					
301201 - Natural Resources WQ Fund	0.00	13,993.07	50,000.00	(36,006.93)	27.99 %
301202 - Decommissioned Wells	0.00	0.00	6,000.00	(6,000.00)	0.00 %
301203 - Motor Vehicle Pro-Rate	2,912.15	6,094.18	8,400.00	(2,305.82)	72.55 %
301309 - Water Sustainability Fund	3,000.00	28,800.00	100,000.00	(71,200.00)	28.80 %
301310 - Shell Creek NET	4,293.31	79,496.94	100,000.00	(20,503.06)	79.50 %
301315 - WSF and EA Application	0.00	(3,168.00)	0.00	(3,168.00)	0.00 %
301325 - JEDI Funding	133,362.14	1,344,182.32	4,000,000.00	(2,655,817.68)	33.60 %
301900 - State Grant - NE Buffer Strip	0.00	51,771.76	52,500.00	(728.24)	98.61 %
304100 - Lake Wanahoo - Other	0.00	22,578.72	25,000.00	(2,421.28)	90.31 %
Total State Income	**143,567.60**	**1,543,748.99**	**4,341,900.00**	**(2,798,151.01)**	**35.55 %**
Local Income					
304105 - Education Building Rent	1,150.00	14,295.00	17,000.00	(2,705.00)	84.09 %
304112 - Dirt Sales - Wanahoo	521.97	8,805.00	10,000.00	(1,195.00)	88.05 %
304400 - Flow Meter Maint. Reimb.	0.00	0.00	1,000.00	(1,000.00)	0.00 %
304500 - JWMAB	0.00	19,292.25	15,500.00	3,792.25	124.47 %
Total Local Income	**1,671.97**	**42,392.25**	**43,500.00**	**(1,107.75)**	**97.45 %**
Rural Water Income					
304261 - Other Revenue	0.00	3,000.00	0.00	3,000.00	0.00 %
Total Rural Water Income	**0.00**	**3,000.00**	**0.00**	**3,000.00**	**0.00 %**
Property Tax Income					
305100 - General Fund Property Taxes-Boone	2,175.35	118,979.40	96,000.00	22,979.40	123.94 %
305200 - General Fund Property Taxes-Butler	484.18	366,055.57	370,000.00	(3,944.43)	98.93 %
305300 - General Fund Property Taxes-Colfax	129.61	314,472.52	318,500.00	(4,027.48)	98.74 %
305400 - General Fund Property Taxes-Dodge	3,784.29	1,136,985.23	1,064,000.00	72,985.23	106.86 %
305500 - General Fund Property Taxes-Madison	51.11	51,546.38	48,500.00	3,046.38	106.28 %
305600 - General Fund Property Taxes-Platte	1,566.49	442,237.78	401,000.00	41,237.78	110.28 %
305700 - General Fund Property Taxes-Saunders	3,422.46	1,216,506.04	1,185,000.00	31,506.04	102.66 %
Total Property Tax Income	**11,613.49**	**3,646,782.92**	**3,483,000.00**	**163,782.92**	**104.70 %**
Investment Income					
311350 - Interest - NPAIT Elkhorn	533.94	5,155.87	1,200.00	3,955.87	429.66 %
311400 - Interest - NPAIT Wanahoo SRA	2,256.17	21,187.95	25,000.00	(3,812.05)	84.75 %
311500 - Interest - NPAIT NRD	9.61	92.53	100.00	(7.47)	92.53 %
311600 - Interest - STFIT NRD	9,838.35	157,936.64	150,000.00	7,936.64	105.29 %
311700 - Interest - UBT NRD	65.59	623.83	1,000.00	(376.17)	62.38 %
Total Investment Income	**12,703.66**	**184,996.82**	**177,300.00**	**7,696.82**	**104.34 %**
Miscellaneous Income					

Lower Platte North NRD
Supplemental Schedule
Statements of Activities - Actual vs. Budget

	Month Ending 03/31/2025 MTD Actual	Year To Date 03/31/2025 FYTD Actual	Annual Budget June 30, 2025 FY2025	$ Difference Annual Budget	Percentage Annual Budget
309100 - Sales - Trees	0.00	1,777.50	30,000.00	(28,222.50)	5.93 %
309350 - Sales - Well Permits	150.00	1,250.00	1,750.00	(500.00)	71.43 %
309360 - Sales - Sample Kits	0.00	3,416.00	2,000.00	1,416.00	170.80 %
309400 - Sales - Other	0.00	1,425.00	3,500.00	(2,075.00)	40.71 %
309500 - Equipment Rent	375.00	6,140.20	8,500.00	(2,359.80)	72.24 %
310000 - Chemigation Permits	5,126.00	6,571.00	24,000.00	(17,429.00)	27.38 %
310100 - Check Valve Sales	0.00	477.40	1,000.00	(522.60)	47.74 %
310200 - Czechland Camping Fees	32.49	8,946.36	10,000.00	(1,053.64)	89.46 %
310201 - Wanahoo Park Permits	3,477.50	35,182.00	85,000.00	(49,818.00)	41.39 %
310202 - Lake Wanahoo Camping	4,520.31	71,661.80	120,000.00	(48,338.20)	59.72 %
312000 - Salaries-Other NRD	0.00	0.00	95,000.00	(95,000.00)	0.00 %
313000 - Miscellaneous Income	257.24	8,899.84	20,000.00	(11,100.16)	44.50 %
315000 - RWD Administrative Fees	373.37	4,099.07	5,500.00	(1,400.93)	74.53 %
316000 - Employee/Director Reimb	565.92	906.09	3,000.00	(2,093.91)	30.20 %
317000 - Loss Or Gain On Sale Of Assets	0.00	23,492.70	800,000.00	(776,507.30)	2.94 %
318000 - Special Project Income	4,916.00	4,916.00	35,000.00	(30,084.00)	14.05 %
Total Miscellaneous Income	**19,793.83**	**179,160.96**	**1,244,250.00**	**(1,065,089.04)**	**14.40 %**
Total Income	**352,563.56**	**6,364,423.06**	**11,812,521.00**	**(5,448,097.94)**	**53.88 %**
Expenses					
Administration Expenses					
Bonds					
410100 - Bonds	1,388.00	1,388.00	1,500.00	(112.00)	92.53 %
Total Bonds	**1,388.00**	**1,388.00**	**1,500.00**	**(112.00)**	**92.53 %**
Dues & Membership					
410201 - Dues & Membership - Chamber	0.00	0.00	450.00	(450.00)	0.00 %
410202 - Dues & Membership - NACD	148.00	1,332.00	1,776.00	(444.00)	75.00 %
410203 - Dues - NARD	2,768.95	24,866.25	33,227.00	(8,360.75)	74.84 %
410204 - Dues - NWRA	0.00	1,950.00	1,950.00	0.00	100.00 %
410205 - Dues & Membership - Other	0.00	1,878.00	3,200.00	(1,322.00)	58.69 %
Total Dues & Membership	**2,916.95**	**30,026.25**	**40,603.00**	**(10,576.75)**	**73.95 %**
Fees and Licenses					
410302 - NRD Fees And Licenses	150.00	45,355.13	30,000.00	15,355.13	151.18 %
410304 - NRD Union Bank Fees	45.52	435.74	600.00	(164.26)	72.62 %
Total Fees and Licenses	**195.52**	**45,790.87**	**30,600.00**	**15,190.87**	**149.64 %**
GIS					
410401 - GIS Activities	0.00	0.00	2,000.00	(2,000.00)	0.00 %
Total GIS	**0.00**	**0.00**	**2,000.00**	**(2,000.00)**	**0.00 %**
Insurance					
410501 - Insurance-Auto	1,551.33	10,131.24	16,000.00	(5,868.76)	63.32 %
410502 - Insurance-Errors & Omissions	479.25	4,489.74	7,100.00	(2,610.26)	63.24 %
410504 - Insurance-Liability	5,849.60	51,108.60	71,000.00	(19,891.40)	71.98 %
410505 - Insurance-Property	2,667.67	22,717.53	26,000.00	(3,282.47)	87.38 %
Total Insurance	**10,547.85**	**88,447.11**	**120,100.00**	**(31,652.89)**	**73.64 %**
Legal Notices					
410701 - Legal Notices	0.00	2,352.62	4,000.00	(1,647.38)	58.82 %
410702 - Other Notices and Advertising	0.00	0.00	100.00	(100.00)	0.00 %
Total Legal Notices	**0.00**	**2,352.62**	**4,100.00**	**(1,747.38)**	**57.38 %**
Maintenance Contracts					
410800 - Maintenance Contracts	308.09	3,701.82	5,000.00	(1,298.18)	74.04 %

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Total Maintenance Contracts	**308.09**	**3,701.82**	**5,000.00**	**(1,298.18)**	**74.04 %**
Office Supply & Expense					
410901 - Copier Supplies	0.00	550.90	1,000.00	(449.10)	55.09 %
410902 - Office Supplies & Equip	13.33	1,136.26	6,000.00	(4,863.74)	18.94 %
410903 - Franklin Supplies	0.00	217.42	500.00	(282.58)	43.48 %
410904 - Letterhead, Envelopes & Forms	34.12	243.55	1,500.00	(1,256.45)	16.24 %
410905 - Reference Books	0.00	708.99	1,000.00	(291.01)	70.90 %
410906 - Office Expense - Other	406.64	1,079.75	2,500.00	(1,420.25)	43.19 %
Total Office Supply & Expense	**454.09**	**3,936.87**	**12,500.00**	**(8,563.13)**	**31.49 %**
Computer Supply & Expense					
411002 - Computer Consultant	1,383.80	9,110.00	15,000.00	(5,890.00)	60.73 %
411003 - Computer Repairs & Parts	0.00	84.36	5,000.00	(4,915.64)	1.69 %
411004 - Computer Software	459.02	4,777.27	13,500.00	(8,722.73)	35.39 %
411005 - Computer Magazines/Video	0.00	0.00	100.00	(100.00)	0.00 %
411006 - Email	414.00	3,726.00	4,500.00	(774.00)	82.80 %
411011 - Computers & Equipment	0.00	1,130.89	8,000.00	(6,869.11)	14.14 %
411012 - Website Design & Hosting	0.00	0.00	350.00	(350.00)	0.00 %
Total Computer Supply & Expense	**2,256.82**	**18,828.52**	**46,450.00**	**(27,621.48)**	**40.54 %**
Postage					
411200 - Postage	1,009.75	5,117.49	4,500.00	617.49	113.72 %
Total Postage	**1,009.75**	**5,117.49**	**4,500.00**	**617.49**	**113.72 %**
Professional Services					
411301 - Prof Serv-Accounting	7,700.00	69,374.73	92,400.00	(23,025.27)	75.08 %
411302 - Prof Serv-Annual Audit	0.00	14,900.00	14,900.00	0.00	100.00 %
411304 - Prof Serv-Legal - General	1,964.00	11,478.40	12,000.00	(521.60)	95.65 %
411305 - Prof Serv-Legal-Other	0.00	0.00	3,000.00	(3,000.00)	0.00 %
411307 - Prof Services-Other	0.00	0.00	3,000.00	(3,000.00)	0.00 %
411311 - Washington Expense	2,300.00	20,500.00	27,600.00	(7,100.00)	74.28 %
Total Professional Services	**11,964.00**	**116,253.13**	**152,900.00**	**(36,646.87)**	**76.03 %**
Rent Expense					
411400 - Rent Expense	255.38	823.82	1,500.00	(676.18)	54.92 %
Total Rent Expense	**255.38**	**823.82**	**1,500.00**	**(676.18)**	**54.92 %**
Support to Organizations					
411501 - Locally Lead Conservation Groups	0.00	0.00	500.00	(500.00)	0.00 %
411502 - R C & D Organizations	0.00	4,290.47	500.00	3,790.47	858.09 %
Total Support to Organizations	**0.00**	**4,290.47**	**1,000.00**	**3,290.47**	**429.05 %**
Telephone Expense					
411601 - Telephone - Cellular	967.52	8,287.46	12,500.00	(4,212.54)	66.30 %
411602 - Local Phone & Internet	803.94	7,032.07	10,000.00	(2,967.93)	70.32 %
Total Telephone Expense	**1,771.46**	**15,319.53**	**22,500.00**	**(7,180.47)**	**68.09 %**
Utilities					
411700 - Utilities Expense	701.19	6,960.05	12,000.00	(5,039.95)	58.00 %
Total Utilities	**701.19**	**6,960.05**	**12,000.00**	**(5,039.95)**	**58.00 %**
Total Administration Expenses	**33,769.10**	**343,236.55**	**457,253.00**	**(114,016.45)**	**75.06 %**
Information & Education Expenses					
Education					
420103 - Land & Range Judging Contest	0.00	1,207.08	1,000.00	207.08	120.71 %
420104 - Outdoor Classrooms	0.00	4.29	2,500.00	(2,495.71)	0.17 %
420106 - Miscellaneous Education Expense	0.00	290.00	500.00	(210.00)	58.00 %

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420107 - Water Testing Event	0.00	0.00	500.00	(500.00)	0.00 %
420108 - Spring Conservation Sensation	0.00	0.00	3,500.00	(3,500.00)	0.00 %
420109 - Education Outreach	103.00	1,261.59	3,500.00	(2,238.41)	36.05 %
Total Education	**103.00**	**2,762.96**	**11,500.00**	**(8,737.04)**	**24.03 %**
Information					
420201 - Annual Report/Viaduct	0.00	15,451.22	15,000.00	451.22	103.01 %
420202 - Books And Pamphlets	0.00	0.00	1,000.00	(1,000.00)	0.00 %
420203 - Expositions And Display	0.00	633.04	2,000.00	(1,366.96)	31.65 %
420205 - Phrography, Cameras, Video	0.00	11.68	1,500.00	(1,488.32)	0.78 %
420206 - Soil & Water Stewardship Mat.	0.00	0.00	100.00	(100.00)	0.00 %
420208 - Miscellaneous	455.00	455.00	1,500.00	(1,045.00)	30.33 %
420209 - Ktic Ad	523.00	2,339.00	3,500.00	(1,161.00)	66.83 %
420211 - E-Ads	530.90	2,090.90	1,700.00	390.90	122.99 %
420212 - TV Promotion	0.00	3,740.00	3,500.00	240.00	106.86 %
420213 - Promotion Videos	0.00	0.00	3,000.00	(3,000.00)	0.00 %
Total Information	**1,508.90**	**24,720.84**	**32,800.00**	**(8,079.16)**	**75.37 %**
Scholarships and Grants					
420305 - Camp And Workshop Scholarships	0.00	0.00	3,000.00	(3,000.00)	0.00 %
420307 - Shell Crk Watershd Scholarship	0.00	2,000.00	3,000.00	(1,000.00)	66.67 %
420309 - Middle/High School Natural Resources Grant	0.00	0.00	1,000.00	(1,000.00)	0.00 %
Total Scholarships and Grants	**0.00**	**2,000.00**	**7,000.00**	**(5,000.00)**	**28.57 %**
Other					
420401 - Art Supplies	0.00	16.13	250.00	(233.87)	6.45 %
420402 - Cooperative Projects/Donations	0.00	110.00	500.00	(390.00)	22.00 %
420404 - Promotional Materials	0.00	758.84	4,000.00	(3,241.16)	18.97 %
420405 - Recognition Banquet & Awards	0.00	231.00	2,000.00	(1,769.00)	11.55 %
420407 - Cooperative Partnerships	0.00	0.00	1,000.00	(1,000.00)	0.00 %
420409 - N.American Envirothon	0.00	0.00	1,000.00	(1,000.00)	0.00 %
420410 - Continuing Ed - I&E Dept	0.00	400.00	500.00	(100.00)	80.00 %
Total Other	**0.00**	**1,515.97**	**9,250.00**	**(7,734.03)**	**16.39 %**
Total Information & Education Expenses	**1,611.90**	**30,999.77**	**60,550.00**	**(29,550.23)**	**51.20 %**
Operation & Maintenance					
Auto and Truck					
430101 - Auto & Truck Gas	1,008.27	13,660.71	25,000.00	(11,339.29)	54.64 %
430102 - Auto & Truck R&M	190.21	2,542.82	7,200.00	(4,657.18)	35.32 %
Total Auto and Truck	**1,198.48**	**16,203.53**	**32,200.00**	**(15,996.47)**	**50.32 %**
Building Maintenance					
430201 - Bldg Maintenance	46.05	229.73	3,500.00	(3,270.27)	6.56 %
430202 - Office Cleaning	495.00	4,180.00	6,000.00	(1,820.00)	69.67 %
430203 - Garbage Maintenance	101.72	910.17	1,200.00	(289.83)	75.85 %
Total Building Maintenance	**642.77**	**5,319.90**	**10,700.00**	**(5,380.10)**	**49.72 %**
Community Forestry Program					
430300 - Community Forestry	0.00	0.00	2,000.00	(2,000.00)	0.00 %
Total Community Forestry Program	**0.00**	**0.00**	**2,000.00**	**(2,000.00)**	**0.00 %**
Operation and Maintenance					
430401 - Czechland & Homestead	144.69	5,848.08	6,500.00	(651.92)	89.97 %
430402 - Equipment Upkeep	0.00	15,891.40	12,000.00	3,891.40	132.43 %
430403 - Operation & Maintenance	57.03	136,163.16	166,000.00	(29,836.84)	82.03 %
430404 - Tree Supplies	0.00	0.00	250.00	(250.00)	0.00 %

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430406 - Wanahoo Park Operation	362.00	59,952.21	60,000.00	(47.79)	99.92 %
430407 - Monitoring Wanahoo Dam	1,215.00	8,829.94	20,000.00	(11,170.06)	44.15 %
430408 - Wanahoo Rec Mgmt	1,743.59	43,436.86	60,000.00	(16,563.14)	72.39 %
430409 - Lake Wanahoo Education Building	411.79	18,681.14	15,000.00	3,681.14	124.54 %
Total Operation and Maintenance	**3,934.10**	**288,802.79**	**339,750.00**	**(50,947.21)**	**85.00 %**
Project Repairs					
430503 - Project Repairs - Other	0.00	11,500.00	5,000.00	6,500.00	230.00 %
430504 - Rawhide Channel Maintenance	0.00	0.00	2,000.00	(2,000.00)	0.00 %
Total Project Repairs	**0.00**	**11,500.00**	**7,000.00**	**4,500.00**	**164.29 %**
Steam Bank Stabilization					
430601 - Stream Bank - Perennial Streams	0.00	0.00	5,000.00	(5,000.00)	0.00 %
430602 - Stream Bank - Platte/Elkhorn Rivers	0.00	0.00	10,000.00	(10,000.00)	0.00 %
Total Steam Bank Stabilization	**0.00**	**0.00**	**15,000.00**	**(15,000.00)**	**0.00 %**
Wildlife Habitat Programs					
430701 - Wild Nebraska	0.00	0.00	1,000.00	(1,000.00)	0.00 %
Total Wildlife Habitat Programs	**0.00**	**0.00**	**1,000.00**	**(1,000.00)**	**0.00 %**
Other					
430801 - NRCS Flags	0.00	0.00	1,000.00	(1,000.00)	0.00 %
430802 - Stock For Resale - Trees	0.00	0.00	15,000.00	(15,000.00)	0.00 %
430803 - Lower Platte Weed Mgmt Area	0.00	0.00	60,000.00	(60,000.00)	0.00 %
430804 - O&M One-Call Services	30.57	261.98	150.00	111.98	174.65 %
430805 - IceJam Monitoring	0.00	0.00	500.00	(500.00)	0.00 %
Total Other	**30.57**	**261.98**	**76,650.00**	**(76,388.02)**	**0.34 %**
Total Operation & Maintenance	**5,805.92**	**322,088.20**	**484,300.00**	**(162,211.80)**	**66.51 %**
Personnel Expenses					
Director Expense					
440101 - Director Meeting Expense	3,065.64	10,223.44	20,000.00	(9,776.56)	51.12 %
440102 - Director Mileage Expense	4,492.60	11,395.61	16,000.00	(4,604.39)	71.22 %
440104 - Computer Stipend	1,250.00	3,600.00	5,700.00	(2,100.00)	63.16 %
Total Director Expense	**8,808.24**	**25,219.05**	**41,700.00**	**(16,480.95)**	**60.48 %**
Director Per Diem					
440200 - Director Per Diem	0.00	12,870.00	30,000.00	(17,130.00)	42.90 %
Total Director Per Diem	**0.00**	**12,870.00**	**30,000.00**	**(17,130.00)**	**42.90 %**
Employee Benefits					
440301 - Dental Insurance	1,815.38	16,026.83	24,000.00	(7,973.17)	66.78 %
440302 - Health Insurance	30,585.05	280,085.22	385,000.00	(104,914.78)	72.75 %
440303 - Retirement Benefit - 414H	6,970.84	60,181.09	89,000.00	(28,818.91)	67.62 %
440304 - Retirement Benefit - 457 Plan	1,410.31	1,410.31	4,000.00	(2,589.69)	35.26 %
440305 - Tuition Reimbursement	0.00	0.00	3,000.00	(3,000.00)	0.00 %
440306 - Workmans Comp Benefit	1,937.33	14,540.22	23,000.00	(8,459.78)	63.22 %
440307 - Employee Benefits - Other	(29.39)	52.77	2,500.00	(2,447.23)	2.11 %
440309 - Flexible Spending Fee	24.00	184.00	300.00	(116.00)	61.33 %
440311 - Unemployment Insurance Benefit	0.00	0.00	500.00	(500.00)	0.00 %
440312 - Accrued Compensated Absences	0.00	0.00	1,000.00	(1,000.00)	0.00 %
Total Employee Benefits	**42,713.52**	**372,480.44**	**532,300.00**	**(159,819.56)**	**69.98 %**
Payroll Taxes					
440401 - FICA - ER	6,034.43	59,183.37	83,000.00	(23,816.63)	71.31 %
440402 - Medicare - ER	1,411.25	13,841.34	19,500.00	(5,658.66)	70.98 %
Total Payroll Taxes	**7,445.68**	**73,024.71**	**102,500.00**	**(29,475.29)**	**71.24 %**

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Personnel Expense					
440501 - Personnel Meeting Exp	6,461.55	29,415.36	35,000.00	(5,584.64)	84.04 %
440502 - Personnel Mileage Exp	543.20	1,822.53	3,500.00	(1,677.47)	52.07 %
440503 - Safety Committee	0.00	0.00	1,000.00	(1,000.00)	0.00 %
440504 - Personnel Uniform Exp	595.99	1,621.52	2,500.00	(878.48)	64.86 %
440505 - Personnel Exp-Other	0.00	27.90	1,200.00	(1,172.10)	2.33 %
Total Personnel Expense	**7,600.74**	**32,887.31**	**43,200.00**	**(10,312.69)**	**76.13 %**
Salaries					
440601 - Salaries - Administration	20,467.76	191,074.48	263,680.00	(72,605.52)	72.46 %
440602 - Salaries - Clerical	2,403.72	22,835.34	31,248.00	(8,412.66)	73.08 %
440603 - Employee Recognition Program	0.00	0.00	1,300.00	(1,300.00)	0.00 %
440604 - Salaries - I & E	8,983.54	85,343.63	116,786.00	(31,442.37)	73.08 %
440605 - Salaries - Op & Maint	12,878.30	139,332.33	226,291.00	(86,958.67)	61.57 %
440606 - NRCS Support	15,963.94	151,377.95	284,747.00	(133,369.05)	53.16 %
440607 - Salaries - Projects	8,046.22	76,439.09	104,601.00	(28,161.91)	73.08 %
440608 - Salaries - Water	30,571.34	283,816.33	391,895.00	(108,078.67)	72.42 %
440616 - Lake Wanhoo Park Op.	3,981.34	70,083.18	95,000.00	(24,916.82)	73.77 %
Total Salaries	**103,296.16**	**1,020,302.33**	**1,515,548.00**	**(495,245.67)**	**67.32 %**
Total Personnel Expenses	**169,864.34**	**1,536,783.84**	**2,265,248.00**	**(728,464.16)**	**67.84 %**
Projects Expenses					
Inter-Governmental					
450110 - Platte Center Bank Stab. Phase LI	0.00	0.00	1,000.00	(1,000.00)	0.00 %
450114 - Trails	0.00	0.00	15,000.00	(15,000.00)	0.00 %
450115 - Dike & Drainage Assistance	0.00	60,000.00	60,000.00	0.00	100.00 %
450119 - JWMAB Dodge Co	0.00	25,723.00	45,000.00	(19,277.00)	57.16 %
450123 - Hazard Mitigation Update	17,040.50	137,186.50	213,000.00	(75,813.50)	64.41 %
Total Inter-Governmental	**17,040.50**	**222,909.50**	**334,000.00**	**(111,090.50)**	**66.74 %**
Special Projects					
450309 - SA No-Till Conf/Shell Creek	0.00	0.00	1,000.00	(1,000.00)	0.00 %
450406 - Special Projects-Platte	0.00	50,000.00	50,000.00	0.00	100.00 %
450407 - Special Projects-Saunders	0.00	0.00	3,650,000.00	(3,650,000.00)	0.00 %
Total Special Projects	**0.00**	**50,000.00**	**3,701,000.00**	**(3,651,000.00)**	**1.35 %**
Wanahoo					
450506 - Lake Level Mgmt Plan	0.00	0.00	5,000.00	(5,000.00)	0.00 %
450509 - Wanahoo - Other	0.00	0.00	5,000.00	(5,000.00)	0.00 %
Total Wanahoo	**0.00**	**0.00**	**10,000.00**	**(10,000.00)**	**0.00 %**
Other Projects					
450705 - Schuyler 205	0.00	13,000.00	13,000.00	0.00	100.00 %
Total Other Projects	**0.00**	**13,000.00**	**13,000.00**	**0.00**	**100.00 %**
Platte River Corridor Alliance					
411101 - PRCA - Administration	0.00	6,843.00	6,843.00	0.00	100.00 %
411129 - USGS Monitoring at Leshara	0.00	4,360.00	5,320.00	(960.00)	81.95 %
Total Platte River Corridor Alliance	**0.00**	**11,203.00**	**12,163.00**	**(960.00)**	**92.11 %**
Total Projects Expenses	**17,040.50**	**297,112.50**	**4,070,163.00**	**(3,773,050.50)**	**7.30 %**
Water Expenses					
Groundwater Management Plan					
460101 - GWMP - Cost - Share	0.00	5,489.28	15,000.00	(9,510.72)	36.60 %
460102 - GWMP - Information & Education	0.00	413.77	1,500.00	(1,086.23)	27.58 %
460103 - GWMP - Nitrogen Classes	0.00	281.59	3,000.00	(2,718.41)	9.39 %

Lower Platte North NRD
Supplemental Schedule
Statements of Activities - Actual vs. Budget

	Month Ending 03/31/2025 MTD Actual	Year To Date 03/31/2025 FYTD Actual	Annual Budget June 30, 2025 FY2025	$ Difference Annual Budget	Percentage Annual Budget
460104 - GWMP - Permits	0.00	0.00	100.00	(100.00)	0.00 %
460110 - Basin Wide Water Plan	2,000.00	4,000.00	10,000.00	(6,000.00)	40.00 %
460111 - Flow Meter Maintenance	27,705.00	27,705.00	24,000.00	3,705.00	115.44 %
Total Groundwater Management Plan	**29,705.00**	**37,889.64**	**53,600.00**	**(15,710.36)**	**70.69 %**
Groundwater Programs					
460201 - Decommissioned Wells	0.00	6,681.88	19,000.00	(12,318.12)	35.17 %
460203 - GW Levels	0.00	46.99	500.00	(453.01)	9.40 %
460204 - GW Quality Program	518.00	10,505.03	15,000.00	(4,494.97)	70.03 %
460205 - Mead - NOP	0.00	0.00	100.00	(100.00)	0.00 %
460206 - Monitoring Wells	0.00	51.79	10,000.00	(9,948.21)	0.52 %
460209 - Groundwater Programs Other	0.00	949.50	28,000.00	(27,050.50)	3.39 %
460212 - GW Monitoring Equip SQS#2	0.00	0.00	250.00	(250.00)	0.00 %
460213 - GW Memberships and Subscriptions	300.00	2,700.00	5,500.00	(2,800.00)	49.09 %
Total Groundwater Programs	**818.00**	**20,935.19**	**78,350.00**	**(57,414.81)**	**26.72 %**
Regulatory					
460301 - Chemigation	0.00	105.33	1,000.00	(894.67)	10.53 %
460302 - Irrigation Runoff	0.00	0.00	750.00	(750.00)	0.00 %
Total Regulatory	**0.00**	**105.33**	**1,750.00**	**(1,644.67)**	**6.02 %**
Surface Water Programs					
460403 - Stream Flow	0.00	19,010.00	19,010.00	0.00	100.00 %
Total Surface Water Programs	**0.00**	**19,010.00**	**19,010.00**	**0.00**	**100.00 %**
Special Projects					
460503 - Special Projects - Other	0.00	675.11	56,000.00	(55,324.89)	1.21 %
460504 - ENWRA	0.00	15,000.00	30,000.00	(15,000.00)	50.00 %
460519 - Hydrological Study	5,000.00	48,000.00	165,000.00	(117,000.00)	29.09 %
460520 - Nitrate Assessment	0.00	24,187.75	25,000.00	(812.25)	96.75 %
460521 - Lower Platte Consortium	0.00	0.00	250.00	(250.00)	0.00 %
460522 - Groundwater Management Plan Rev	21,704.09	66,708.85	73,000.00	(6,291.15)	91.38 %
Total Special Projects	**26,704.09**	**154,571.71**	**349,250.00**	**(194,678.29)**	**44.26 %**
Land Treatment					
450201 - Ne Buffer Strip	0.00	51,771.76	52,000.00	(228.24)	99.56 %
450204 - Shell Creek	0.00	0.00	20,000.00	(20,000.00)	0.00 %
450206 - Emergency Terrace Repair	0.00	0.00	5,000.00	(5,000.00)	0.00 %
450207 - Nswcp Supplement	0.00	4,500.00	25,000.00	(20,500.00)	18.00 %
450211 - Trees	0.00	2,374.61	3,000.00	(625.39)	79.15 %
450802 - Wahoo Creek Watershed Plan-319	0.00	0.00	30,000.00	(30,000.00)	0.00 %
450803 - Shell Creek Watershed Plan 319	2,109.94	119,406.31	260,000.00	(140,593.69)	45.93 %
450805 - Shell Creek Phase I (New)	0.00	14,431.05	0.00	14,431.05	0.00 %
Total Land Treatment	**2,109.94**	**192,483.73**	**395,000.00**	**(202,516.27)**	**48.73 %**
Total Water Expenses	**59,337.03**	**424,995.60**	**896,960.00**	**(471,964.40)**	**47.38 %**
Total Expenses	**287,428.79**	**2,955,216.46**	**8,234,474.00**	**(5,279,257.54)**	**35.89 %**
Total Change in Net Position	**65,134.77**	**3,409,206.60**	**3,578,047.00**	**(168,840.40)**	**95.28 %**

Lower Platte North NRD
Supplemental Schedule
Statements of Activities - Actual vs. Budget
Rural Water District - Bruno

	Month Ending 03/31/2025 MTD Actual	Year To Date 03/31/2025 FYTD Actual	Annual Budget June 30, 2025 FY2025	$ Difference Annual Budget	Percentage Annual Budget
Change in Net Position					
Rural Water Income					
304240 - Water Sales	3,568.00	42,383.25	42,400.00	(16.75)	99.96 %
304261 - Other Revenue	2.34	680.71	2,000.00	(1,319.29)	34.04 %
Total Rural Water Income	**3,570.34**	**43,063.96**	**44,400.00**	**(1,336.04)**	**96.99 %**
Rural Water District Expenses					
570201 - Water Purchase	1,771.58	19,513.27	25,800.00	(6,286.73)	75.63 %
570204 - Testing	15.00	135.00	400.00	(265.00)	33.75 %
570206 - Repair	7.20	504.99	1,600.00	(1,095.01)	31.56 %
570207 - Other Expenses	0.00	21.59	600.00	(578.41)	3.60 %
570208 - Lpnnrd Adm. Fee	178.40	2,119.16	2,200.00	(80.84)	96.33 %
570210 - Health/Life/Vision/LTD - ER	202.67	1,823.52	2,600.00	(776.48)	70.14 %
570211 - Dental - ER	21.72	195.48	300.00	(104.52)	65.16 %
570212 - 414H ER Contributions	59.01	588.61	840.00	(251.39)	70.07 %
570215 - ER Social Security Tax	78.84	782.37	1,080.00	(297.63)	72.44 %
570216 - ER Medicare Tax	18.44	182.96	260.00	(77.04)	70.37 %
570217 - Salaries	695.57	6,069.06	10,000.00	(3,930.94)	60.69 %
570219 - Fees And Licenses	17.13	137.04	400.00	(262.96)	34.26 %
570220 - Rural Water One-Call	0.85	21.02	50.00	(28.98)	42.04 %
570221 - Rural Water Hand Tools & Supplies	0.00	68.43	200.00	(131.57)	34.22 %
570222 - RW Dues And Memberships	0.00	220.00	220.00	0.00	100.00 %
570223 - Rural Water Gasoline	65.35	623.74	600.00	23.74	103.96 %
570224 - Rural Water Personnel Meeting	191.75	491.75	400.00	91.75	122.94 %
570229 - Rural Water Insurance Expense	0.00	0.00	400.00	(400.00)	0.00 %
570230 - Rural Water Equipment Rental	0.00	0.00	1,000.00	(1,000.00)	0.00 %
570231 - Rural Water Equipment Upkeep	0.00	373.41	1,000.00	(626.59)	37.34 %
570232 - Rural Water Compensated Absences	0.00	0.00	400.00	(400.00)	0.00 %
Total Rural Water District Expenses	**3,323.51**	**33,871.40**	**50,350.00**	**(16,478.60)**	**67.27 %**
Total Change in Net Position	**246.83**	**9,192.56**	**(5,950.00)**	**15,142.56**	**(154.50) %**

Lower Platte North NRD
Supplemental Schedule
Statements of Activities - Actual vs. Budget
Rural Water District - Colon

	Month Ending 03/31/2025 MTD Actual	Year To Date 03/31/2025 FYTD Actual	Annual Budget June 30, 2025 FY2025	$ Difference Annual Budget	Percentage Annual Budget
Change in Net Position					
Rural Water Income					
304240 - Water Sales	3,899.40	39,598.00	63,600.00	(24,002.00)	62.26 %
304275 - Colon Hook Up Fees	0.00	3,000.00	6,000.00	(3,000.00)	50.00 %
304295 - Colon Sewer Fees	2,633.60	24,135.15	31,000.00	(6,864.85)	77.86 %
304261 - Other Revenue	80.28	890.85	3,000.00	(2,109.15)	29.70 %
Total Rural Water Income	**6,613.28**	**67,624.00**	**103,600.00**	**(35,976.00)**	**65.27 %**
Investment Income					
304350 - Colon RW Interest - NPAIT	35.02	338.60	400.00	(61.40)	84.65 %
Total Investment Income	**35.02**	**338.60**	**400.00**	**(61.40)**	**84.65 %**
Rural Water District Expenses					
570201 - Water Purchase	865.03	10,081.29	17,200.00	(7,118.71)	58.61 %
570204 - Testing	15.00	186.00	600.00	(414.00)	31.00 %
570206 - Repair	10.79	228.89	2,400.00	(2,171.11)	9.54 %
570207 - Other Expenses	0.00	32.46	900.00	(867.54)	3.61 %
570208 - Lpnnrd Adm. Fee	194.97	1,979.91	3,300.00	(1,320.09)	60.00 %
570210 - Health/Life/Vision/LTD - ER	304.00	2,735.23	3,900.00	(1,164.77)	70.13 %
570211 - Dental - ER	32.59	293.31	450.00	(156.69)	65.18 %
570212 - 414H ER Contributions	88.52	882.94	1,260.00	(377.06)	70.07 %
570215 - ER Social Security Tax	126.95	1,199.96	1,620.00	(420.04)	74.07 %
570216 - ER Medicare Tax	29.69	280.62	390.00	(109.38)	71.95 %
570217 - Salaries	903.05	8,677.40	15,000.00	(6,322.60)	57.85 %
570219 - Fees And Licenses	25.68	205.44	600.00	(394.56)	34.24 %
570220 - Rural Water One-Call	2.55	396.37	75.00	321.37	528.49 %
570221 - Rural Water Hand Tools & Supplies	0.00	102.64	300.00	(197.36)	34.21 %
570222 - RW Dues And Memberships	0.00	330.00	330.00	0.00	100.00 %
570223 - Rural Water Gasoline	35.63	410.02	900.00	(489.98)	45.56 %
570224 - Rural Water Personnel Meeting	287.64	377.64	600.00	(222.36)	62.94 %
570229 - Rural Water Insurance Expense	0.00	0.00	600.00	(600.00)	0.00 %
570230 - Rural Water Equipment Rental	0.00	0.00	1,500.00	(1,500.00)	0.00 %
570231 - Rural Water Equipment Upkeep	0.00	560.11	1,500.00	(939.89)	37.34 %
570232 - Rural Water Compensated Absences	0.00	0.00	600.00	(600.00)	0.00 %
570305 - Colon - Annual Bond Payment	0.00	0.00	3,355.00	(3,355.00)	0.00 %
570308 - Colon Meter House Expense	248.54	1,549.61	1,250.00	299.61	123.97 %
570309 - Colon Sewer Collections	2,633.60	23,702.40	31,000.00	(7,297.60)	76.46 %
570330 - Colon RW Bad Debt Expense	0.00	0.00	1,000.00	(1,000.00)	0.00 %
Total Rural Water District Expenses	**5,804.23**	**54,212.24**	**90,630.00**	**(36,417.76)**	**59.82 %**
Total Change in Net Position	**844.07**	**13,750.36**	**13,370.00**	**380.36**	**102.84 %**

Lower Platte North NRD

Supplemental Schedule - Actual vs. Budget - Capital Expenses and Debt Service Payments

	Year To Date 3/31/2025 *Actual*	Year Ending 6/30/2025 *Budget*	$ Difference Annual Budget	Percentage Annual Budget
Capital Improvements - Real Property				
Generator	35,910.00	60,622.00	(24,712.00)	59.24%
Storage Building 40x60	45,463.50	204,000.00	(158,536.50)	22.29%
Wahoo Creek Design/Flood Reduction Real Estate Svc	136,358.87	0.00	136,358.87	0.00%
Wahoo Creek Additional Dams	720,594.32	0.00	720,594.32	0.00%
Lake Wanahoo Breakwater Repairs	99,845.02	0.00	99,845.02	0.00%
Wahoo Creek Land Rights - Easements	525,851.00	0.00	525,851.00	0.00%
Office Building	3,146,185.03	2,200,000.00	946,185.03	0.00%
Office Building - Furnishings/Infrastructure	991.03	150,000.00	(149,008.97)	0.66%
Cottonwood 21A	47,740.01	82,552.00	(34,811.99)	57.83%
Wanahoo FEMA Repairs	163,057.85	500,000.00	(336,942.15)	0.00%
Wanahoo Utility Improvements	3,920.00	35,000.00	(31,080.00)	0.00%
Wanahoo Fish Cleaning Station	0.00	15,000.00	(15,000.00)	0.00%
Wanahoo General Store	9,832.00	25,000.00	(15,168.00)	39.33%
Wanahoo Pedestal Upgrade	7,950.00	0.00	7,950.00	0.00%
Large Structure O&M Sinking Fund	0.00	100,000.00	(100,000.00)	0.00%
District Wide Flood Reduction Sinking Fund	0.00	400,000.00	(400,000.00)	0.00%
JWMAB Sinking Fund	0.00	440,000.00	(440,000.00)	0.00%
Total Capital Improvements - Real Property	**4,943,698.63**	**4,212,174.00**	**731,524.63**	**117.37%**
Capital Outlay				
Machinery & Equipment (Gooseneck Trailer, Dump Trailer, Boom Lift, Wanahoo Pontoon Boat)	150,829.42	141,616.00	9,213.42	106.51%
Auto and Trucks (1/2 Ton Truck, Replacement Vehicle)	42,416.00	80,000.00	(37,584.00)	53.02%
Flow Meter	12,571.58	12,310.00	261.58	102.12%
Computer Equipment (Firewall/Switches)	24,515.93	0.00	24,515.93	0.00%
RW Billing Software & Reader	12,570.00	12,570.00	0.00	100.00%
Other Capital Outlay - Equipment	1,720.99	0.00	1,720.99	0.00%
Total Capital Outlay	**244,623.92**	**246,496.00**	**(1,872.08)**	**0.00%**
Additional Expenditures				
New Office Building	0.00	1,250,000.00	(1,250,000.00)	0.00%
Total Additional Expenditures	**0.00**	**1,250,000.00**	**(1,250,000.00)**	**0.00%**
Debt Service Payments				
Colon RW Note	3,355.00	3,355.00	0.00	100.00%
Total Debt Service Payments	**3,355.00**	**3,355.00**	**0.00**	**100.00%**
Grand Total All Expenses w/o Depreciation	**8,234,977.65**	**10,387,479.00**	**(2,152,501.35)**	**79.28%**

Week #1

Lower Platte North NRD Time Sheet

Name Eric Gottschalk

Period Covered 3/22/25 to 3/28/25

You must enter "pm" for times after 12:59 or the form will not calculate correctly!

	Date	Start Time	Stop Time	Work Hours	Other Hours	Duties Performed	Miles	Meals	Other Exp.
Sat	3/22	4:00 pm	5:00 pm	1.00		Education Building Issues Power Out on 6 circuts			
Sun	3/23								
Mon	3/24	7:30 am	12:00 pm	4.50		Leadership Team Meeting, Wahoo Creek, Mail / E-mails			
Tues	3/25	8:00 am 5:15 pm	3:45 pm 6:45 pm	9.25		Meet w/GC at Construction Site, Time Sheets, Wanahoo Receipts/Envelopes, District Mgt.			
Wed	3/26	8:00 am 1:15 pm 5:15 pm	12:45 pm 3:45 pm 6:00 pm	8.00		District Management, Personnel - O&M Position, Wanahoo deposits/envelopes,			
Thurs	3/27	7:30 am	11:00 am	3.50		Wahoo Creek, NRCS Phone discussions, Budget Review/Planning, District Management			
Fri	3/28	7:30 am 1:15 pm	12:45 pm 4:30 pm	8.50		Committee Prep, Meet w/NE Realty - Auction, NARD Conference Material Prep, District Management			
			Week #1 Totals	34.75	0		0	$0.00	$0.00

Supervisor	Manager	Assistant Manager	Treasurer
	E		
Date	Date	Date	Date
	4/8/25		

Expenses

Mileage x 0.7	$ 63.00
Meals	$0.00
Other Exp.	$0.00
Total	**$ 63.00**

I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT

Signature of person filing form

Date

Week #2

Lower Platte North NRD Time Sheet

Name Eric Gottschalk

Period Covered 3/29/25 to 4/4/25

You must enter "pm" for times after 12:59 or the form will not calculate correctly!

	Date	Start Time	Stop Time	Work Hours	Other Hours	Duties Performed	Miles	Meals	Other Exp.
Sat	3/29				8.00	Travel To D.C. - NARD Conference	45		
Sun	3/30								
Mon	3/31				8.00	NARD Washington D.C. Conference			
Tues	4/1				8.00	NARD Washington D.C. Conference			
Wed	4/2				8.00	NARD Washington D.C. Conference	45		
Thurs	4/3	7:15 am	4:00 pm	8.75		Projects Committee, Water Committee, Operations Committee, Exec. Committee, Committee follow-up, Personnel - O&M Tech. Position Interview			
Fri	4/4	7:45 am	9:15 am	1.50	3.00	Personnel - O&M Tech. Position Interview, District Mgt.			
						Week #2 Totals	90	$0.00	$0.00
				34.75	0	**Totals Week #1**	0	$0.00	$0.00
				45	**35**	**Two Week Totals**	**90**	**$0.00**	**$0.00**

Annual Leave & Sick Leave

	Previous Balance	Earned This Pay Period	Used This Pay Period	New Balance
Annual Leave	240.00	8.00	3.00	**245.00**
Sick Leave	744.00	4.00	0.00	**748.00**

#	Program Areas	Hours
11	Administration	29.00
14	District Management	35.50
15	Personnel	12.50
31	I&E Administration	
41	O&M Administration	
51	Projects Administration	
61	Water Administration	
71	Rural Water Administration	
52	Conservation Program	
Holiday		
1	Annual Leave	3.00
2	Sick Leave	
Other		
	Total:	**80**

RESET FORM

This will delete ALL data on form, including name, AL/SL values and Program Areas labels.

Week #1

Lower Platte North NRD Time Sheet

Name Eric Gottschalk

Period Covered 4/5/25 to 4/11/25

You must enter "pm" for times after 12:59 or the form will not calculate correctly!

	Date	Start Time	Stop Time	Work Hours	Other Hours	Duties Performed	Miles	Meals	Other Exp.
Sat	4/5								
Sun	4/6								
Mon	4/7	7:30 am 2:30 pm	1:45 pm 3:45 pm	7.50		Leadership Team Meeting, District Management, e-mails/mail, Time Sheets, Wahoo Creek			
Tues	4/8	7:45 am 5:15 pm	3:45 pm 6:15 pm	9.00		Wahoo Creek, Governor's Office - NBDC Award, Time Sheets,			
Wed	4/9	8:00 am 1:00 pm	12:15 pm 4:45 pm	8.00		FEMA - Wanahoo Update Meeting, District Mgt. Personnel, Wanahoo Budget, New Office Construction Update Meeting			
Thurs	4/10	7:45 am 1:15 pm	12:45 pm 3:45 pm	7.50		Wahoo Creek 319 Discussion, New Office site meeting, District Mgt, Budget review,			
Fri	4/11				8.00	Out - A.L.			
		Week #1 Totals		32	8		0	$0.00	$0.00

Supervisor	Manager	Assistant Manager	Treasurer
Date	Date	Date	Date
	4/23/25		

I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT

Signature of person filing form — Date: 4/23/25

Expenses

Mileage x 0.7	$ 0.00
Meals	$0.00
Other Exp.	$0.00
Total	**$ 0.00**

Week #2

Lower Platte North NRD Time Sheet

Name Eric Gottschalk

Period Covered 4/12/25 to 4/18/25

You must enter "pm" for times after 12:59 or the form will not calculate correctly!

	Date	Start Time	Stop Time	Work Hours	Other Hours	Duties Performed	Miles	Meals	Other Exp.
Sat	4/12								
Sun	4/13								
Mon	4/14	7:30 am	1:00 pm	12.50		Leadership Team meeting, Board meeting prep, Wahoo Creek, Board Meeting,			
		1:45 pm	3:45 pm						
		4:30 pm	9:30 pm						
Tues	4/15	8:00 am	12:45 pm	7.00		Staff Meeting, LiveWellGoFish building meeting, Board Meeting Follow-up, Personnel			
		1:30 pm	3:45 pm						
Wed	4/16	7:30 am	1:00 pm	8.50		District Management, Coalition Annual Meeting - Ed. Building, New Office Tour, Budget Reviews			
		1:30 pm	3:45 pm						
		5:15 pm	6:00 pm						
Thurs	4/17				8.00	Out - A.L.			
Fri	4/18				4.00	Out - 4 Admin.			
Week #2 Totals				28	12		0	$0.00	$0.00
Totals Week #1				32	8		0	$0.00	$0.00
Two Week Totals				**60**	**20**		**0**	**$0.00**	**$0.00**

Annual Leave & Sick Leave

	Previous Balance	Earned This Pay Period	Used This Pay Period	New Balance
Annual Leave	240.00	8.00	16.00	**232.00**
Sick Leave	748.00	4.00	0.00	**752.00**

#	Program Areas	Hours
11	Administration	25.50
14	District Management	32.50
15	Personnel	2.00
31	I&E Administration	
41	O&M Administration	
51	Projects Administration	
61	Water Administration	
71	Rural Water Administration	
52	Conservation Program	
Holiday		
1	Annual Leave	16.00
2	Sick Leave	
Other		4.00
	Total:	**80**

RESET FORM

This will delete ALL data on form, including name, AL/SL values and Program Areas labels.

Lower Platte North Natural Resources District
Accounts Receivable Aging Summary as of 3/31/25

Accounts Receivable acct 105000

Customer	Invoice/Purpose	Current	0-30 Days	31-60 Days	61 and Over	Totals
Bruno/David City RW Customers	Multiple	3872.89	0.00	0.00	0.00	**3,872.89**
Colon RW Customers	Multiple	6207.40	0.00	0.00	0.00	**6,207.40**
DEE 319 Funds	Bill Bos Payroll	0.00	0.00	0.00	925.79	**925.79**
	Shell Creek Septic - Schulz	0.00	0.00	0.00	0.00	**0.00**
	Shell Creek Rain Sensor - Gehring	0.00	0.00	0.00	100.00	**100.00**
	Shell Creek WS Plan - Sander - Seier	0.00	0.00	628.45	0.00	**628.45**
Department of Natural Resources	FYRA - Wahoo Creek WS Plan/EA & WSF	0.00	0.00	0.00	0.00	**0.00**
	Cost-Share Flow Meter - A&M Farms-Healy-Novak-Kohler-Oehlrich Farm-RDC Farms-Ba	0.00	0.00	0.00	16,800.00	**16,800.00**
	Cost-Share Flow Meter - Peterson - Big Dog's Properties - CMC Landholdings - MJM Far	0.00	0.00	2,400.00	600.00	**3,000.00**
	Cost-Share Flow Meter - Zoucha Farms - Zoucha - Rerucha - Svatora Farms - Lost Creek	0.00	1,200.00	3,600.00	0.00	**4,800.00**
	Cost-Share Flow Meter -Melliger	1,200.00	0.00	0.00	0.00	**1,200.00**
	Hydrological Study - MJM Farms - Woita	1,800.00	0.00	0.00	1,200.00	**3,000.00**
FEMA	428 Funds - Bobcat of Omaha/Titan Machinery/Total Trailers/Anderson Ford	0.00	38,174.40	22,551.62	317,995.92	**378,721.94**
	O&M - Ty's Outdoor Power & Platte Valley	0.00	0.00	0.00	2,303.98	**2,303.98**
	TelePole Prunner - Ty's Outdoor Power	0.00	0.00	0.00	659.69	**659.69**
	Elway Power Sports of Lincoln	0.00	0.00	0.00	17,334.28	**17,334.28**
	Platte Valley Equipment - 428 Funds - Mower	0.00	0.00	0.00	23,146.84	**23,146.84**
	UBT Visa - 428 Funds (captial outlay small items)	0.00	0.00	0.00	1,037.83	**1,037.83**
	428 Fema Funds - Anderson Ford Lincoln-Klute Truck Equip-Platte Valley Equip-Platte \	0.00	0.00	0.00	269,181.29	**269,181.29**
	Water Stilling Basin Inspect - Houston Eng	0.00	0.00	0.00	5,240.09	**5,240.09**
	428 Fema Funds - Bert Gurney - Scheele Kayton Const - IES Electric	32,319.00	32,319.00	8,598.15	11,314.42	**84,550.57**
	Flood Funds - ME Collins - Houston Engineering - ME Collins	98,945.70	23,347.69	0.00	74,883.77	**197,177.16**
Flow Meter Maintenance	Tri City Meters	0.00	0.00	0.00	90.00	**90.00**
Hazard Mitigation Federal	Hazard Mitigation Update - Jeo	12,780.38	8,615.63	16,162.13	8,958.38	**46,516.52**
JEDI	Olsson - Wahoo Creek WS & 7 Dam Sites Phase II	26,233.97	0.00	0.00	54,850.25	**81,084.22**
	Olsson - Wahoo Creek WS - 3 Dam Sites	14,708.19	0.00	0.00	6,511.68	**21,219.87**
	Olsson - Wahoo Creek Real Estate Services	15,680.28	0.00	0.00	8,809.34	**24,489.62**
	Bromm Lindahl - Legal	528.00	0.00	0.00	1,609.50	**2,137.50**
	Temp Construction Easement - Kaspar - Kubik	0.00	0.00	0.00	0.00	**0.00**
	Perm Const Easement - Smith-Osmera-Cejka-Ohnoutka-Pacula-Pacula-Holley-Vasa-Iian	0.00	0.00	0.00	0.00	**0.00**
	Thompson Construction - Wahoo Creek Construction	34,211.70	0.00	0.00	0.00	**34,211.70**
	Wahoo WS - Great Plains Appraisal	0.00	0.00	0.00	0.00	**0.00**
JWMAB	JWMAB - Dodge Co-Fremont-PMRNRD	0.00	0.00	0.00	5,098.75	**5,098.75**
	JWMAB Platte River Cameras - Dodge Co-Fremont-PMRNRD	0.00	0.00	3,996.00	0.00	**3,996.00**
Live Well Go Fish	Astro Buildings for Wanahoo	4,916.00	0.00	0.00	0.00	**4,916.00**
NDEE	Shell Creek 319 - Labenz-Dvorak	0.00	0.00	0.00	0.00	**0.00**
	Shell Creek 319 - Long-Wemhoff-Jedlicka - Olmer - Klug	0.00	0.00	0.00	0.00	**0.00**
NEMA	Water Stilling Basin Inspect - Houston Eng	0.00	0.00	0.00	873.35	**873.35**
	Flood Funds - ME Collins - Houston Engineering - ME Collins	16,490.95	3,891.28	0.00	12,480.63	**32,862.86**
NET	Bill Bos Payroll	2,109.94	1,507.10	2,303.71	0.00	**5,920.75**
	Well Pump Pipeline - Gehring	0.00	0.00	0.00	0.00	**0.00**
	Shell Creek WS Plan - Long	0.00	0.00	0.00	0.00	**0.00**
	Testing Supplies - Forestry Suppliers	0.00	0.00	0.00	0.00	**0.00**
	Shell Creek Grade Stabilizing - Runge - Barjenbruch	0.00	0.00	30,916.49	0.00	**30,916.49**
	Shell Creek Grassed Waterway - Marking	0.00	0.00	5,568.75	0.00	**5,568.75**
NRCS Federal	Cottonwood 21A - HDR Engineering	2,676.98	5,283.09	1,826.12	0.00	**9,786.19**
NRD - Emp Reimbursment	CCWCD - Bargen - Andersen	0.00	175.00	0.00	0.00	**175.00**
		274,681.38	**114,513.19**	**98,551.42**	**842,005.78**	**1,329,751.77**

Wanahoo Hay Bids 2025

Bid for Areas on Wanahoo

Name Bidder	Wildlife “A”	Wildlife “B”	Wildlife “C”	Czech.	Homestead
Meduna Family Farms	$ 41.00	$ 41.00	$ 41.00		
Dan Kadavy	$ 25.00	$ 25.00	$ 25.00	$ 45.00	$ 61.00
Ken Cejka			$ 68.50		
Chuck Andel					$ 67.00

High Bids for the areas are Underlined.

After recording return to:
Bromm, Lindahl, Freeman-Caddy & Lausterer
551 North Linden
P.O. Box 277
Wahoo, NE 68066

REVOCABLE EASEMENT AGREEMENT
(INGRESS/EGRESS)

THIS Revocable Easement Agreement (Ingress/Egress), hereinafter called Revocable Easement Agreement, is dated for reference purposes as of this ____ day of March, 2025, by the Lower Platte North Natural Resources District, a political subdivision of the State of Nebraska, hereinafter called "District", and Heller Farms, LLC, a Nebraska Limited Liability Company, whose principal place of business is 4224 N. Somers Avenue, Fremont, Nebraska 68025-7396, hereinafter called "User".

WHEREAS, District is the title holder and controlling political subdivision over the Rawhide Ditch 8 and recipient of a Construction, Storage and Flowage and Operation and Maintenance Easement as recorded the 11th day of February, 1987, in Dodge County Register of Deeds Misc Book 17, Page 533, which is recorded against a Tract of Land in Part of the NW1/2 of the SE1/4 of Section 32, T18N, R9E of the 6th P.M., Dodge County, Nebraska, hereinafter referred to as "Rawhide Ditch 8", and,

WHEREAS, User is the legal title holder to the West Half of the Southeast Quarter of Section 32, Township 18, Range 9 East of the 6th P.M., Dodge County, Nebraska, whose assessor parcel identification number is 270119189 ("User Property"), and,

WHEREAS, User asserts to District that it needs to traverse across Rawhide Ditch 8 in order to maintain and for its recreational purpose for the User Property, and,

WHEREAS, the User's access across the Rawhide Ditch 8 is hereinafter referred to as "Easement", and,

WHEREAS, the User does request and the District does hereby grant to the User a general ingress/egress easement over and across the Rawhide Ditch 8 for the sole exclusive purpose of gaining access to the northern portion of the User Property for small maintenance and recreational purposes, and,

WHEREAS, District and User do desire to set forth within this Revocable Easement Agreement terms and conditions pertaining to the User's access to the Easement and the maintenance thereof,

NOW, THEREFORE, FOR GOOD AND VALUABLE CONSIDERATION, THE RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, District and User do hereby agree as follows:

1. That the findings here and above made should be and are hereby incorporated herein by reference as if fully set forth at length herein.

1. That the District does hereby grant, convey and confirm unto the User, a non-exclusive revocable easement over and across the District Real Estate for ingress and egress to the User.

2. This Easement shall be revocable in nature by the District who shall be allowed to give User ten (10) days advanced written notice of its intention to revoke the Easement, for any reason, and to thereafter record with the Register of Deeds a revocation of the same. Thereafter the User shall discontinue all on-going uses of the Easement and shall remove all of its improvements and fixtures pertaining to said Easement. User acknowledges that revocation shall not constitute a public taking and does hereby waive and release all such claims on behalf of itself, its successors, and its assigns.

3. Maintenance and repair of the Rawhide Ditch 8 shall remain the District's responsibility provided, however, that if the User shall install some modifications then it shall first obtain written approval from the District and shall thereafter be solely responsible for any such modification and the maintenance of the same unless agreed mutually otherwise. It is understood by the Parties that the District has requested that improvements (whether immediate or long term) need to have concrete footings and must be kept down slope from the top for District mowing purposes.

4. No compensation is requested as part of this Agreement.

5. If the User shall damage Rawhide Ditch 8 through its ingress/egress use then it shall repair said damage at its sole cost and expense.

6. That User shall indemnify and hold District harmless against any claim for injury to any person or property which occurs (whether directly or indirectly), or is alleged to have occurred, during the course of User's use of said aforenoted Easement. This shall include any settlement, judgment, cost of defense, including legal fees and disbursements.

7. That this Revocable Easement Agreement shall be recorded in the office of the Register of Deeds of Dodge County, Nebraska, at User's expense. The Register of Deeds shall index this Revocable Easement Agreement against the West Half of the Southeast Quarter of Section 32, Township 18, Range 9, Dodge County, Nebraska.

8. That this Revocable Easement Agreement shall be binding upon the parties hereto, their tenants, invitees, heirs, personal representatives, successors and assigns, and shall not terminate except by written directive of the District.

9. That this Revocable Easement Agreement is subject to and shall be construed and enforced in accordance with the laws of the State of Nebraska. Time is of the essence of this Revocable Easement Agreement. No amendment of this Revocable Easement Agreement shall be effective unless reduced to writing and executed by the parties hereto. This Revocable Easement Agreement contains all of the understandings of the parties relating to the subject matter hereof.

IN WITNESS WHEREOF, the parties have executed this Revocable Easement Agreement as of the day and year first above written.

LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT, a Nebraska Political Subdivision,

By: _____
Eric Gottschalk, its Manager

STATE OF NEBRASKA) ss.
COUNTY OF SAUNDERS)

The foregoing Revocable Easement Agreement (Ingress/Egress) was acknowledged before me on this ____ day of March, 2025, by Eric Gottschalk, General Manager and Authorized Representative of the Lower Platte North Natural Resources District.

_____
Notary Public

HELLER FARMS, LLC, a Nebraska Limited Liability Company,

By: _____
Dave Heller, Authorized Representative

STATE OF NEBRASKA) ss.
COUNTY OF Dodge)

The foregoing Revocable Easement Agreement (Ingress/Egress) was acknowledged before me on this 16 day of ~~March~~ April, 2025, by Dave Heller, Authorized Representative of Heller Farms, LLC, a Nebraska Limited Liability Company.

GENERAL NOTARY - State of Nebraska
HEATHER M NEVAREZ
My Comm. Exp. Jan 29, 2029

_____
Notary Public

Environmental Education Opportunities

Hands-on sessions for students in wildlife, forestry, soil and more!

Visit lpnnrd.org/education or call the NRD at 443-4675 for availability.

LOWER PLATTE NORTH
Natural Resources District

Environmental Education Opportunities

Hands-on sessions for students in wildlife, forestry, water, soil and more!

Visit lpnnrd.org/education or call the NRD at 402-443-4675 for availability.

Rediscover the Outdoors
Kick back and relax for a weekend getaway at one of three recreation areas near you! Czechland Lake near Prague, Homestead Lake near Bruno, or Lake Wanahoo near Wahoo.
LOWER PLATTE NORTH
Natural Resources District

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LOWER PLATTE NORTH
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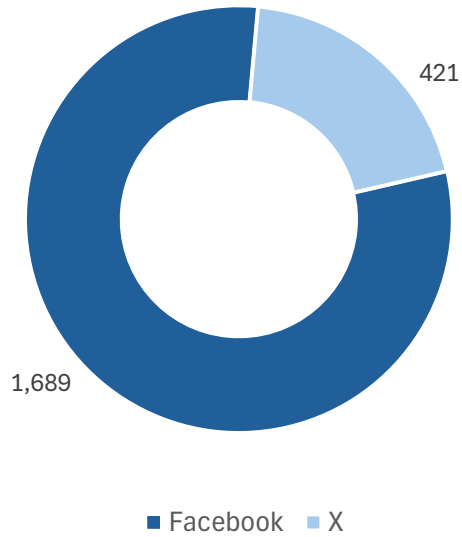
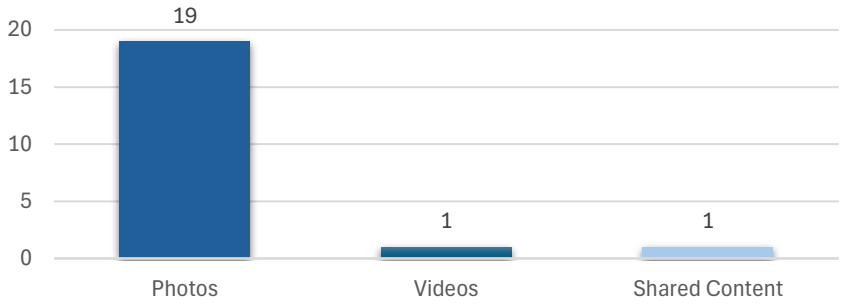
Conserving for future generations.

LOWER PLATTE NORTH Natural Resources District

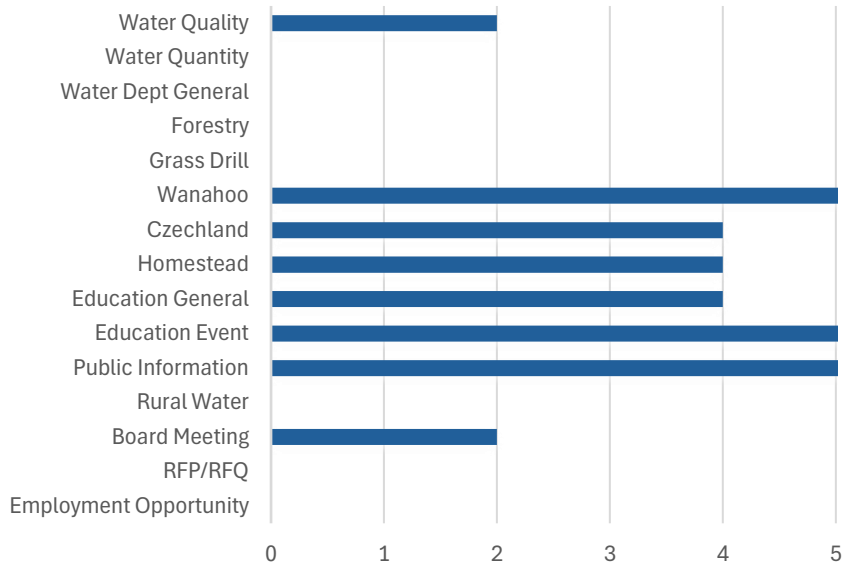
Social Media Followers



April Content



April Post Categories

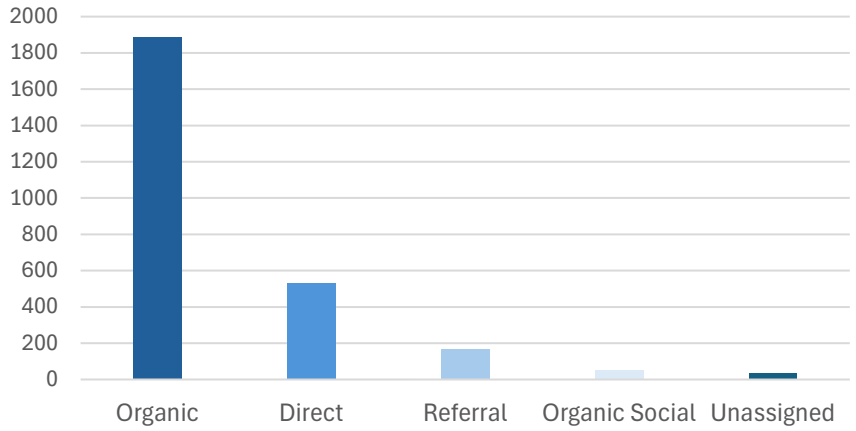


Facebook engagement ↓ 60%

X engagement ↓ 48%

LOWER PLATTE NORTH Natural Resources District

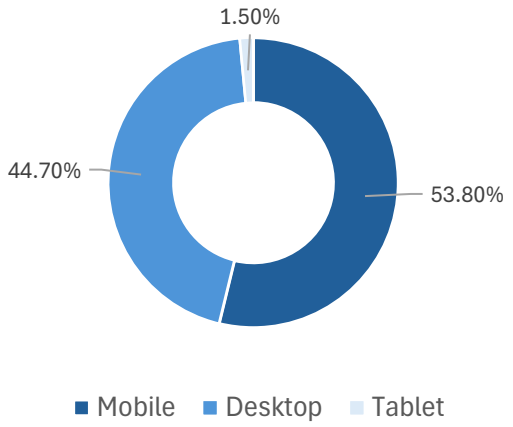
Traffic Channels



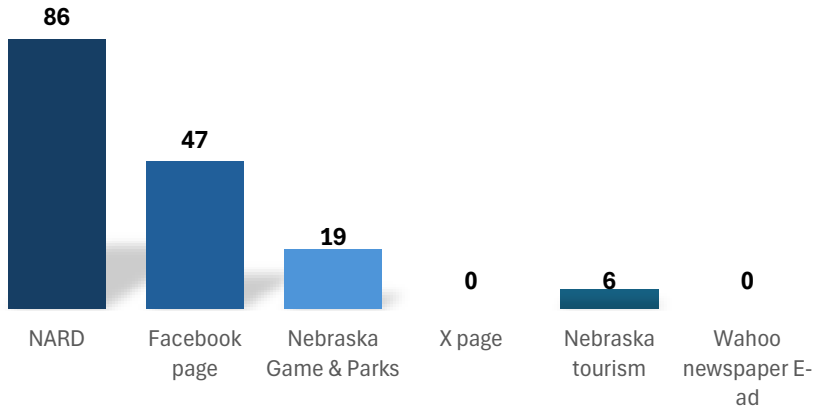
Users

7%

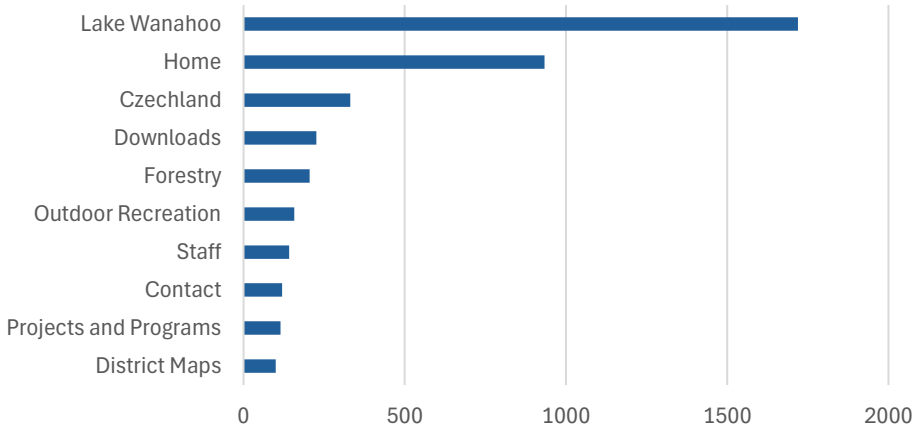
Devices



Traffic By Type

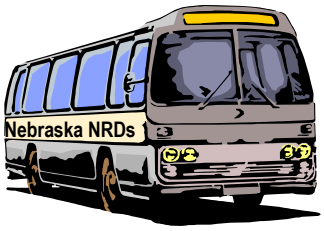


Website Top 10 Pages by Users



Nebraska's Natural Resources Districts
www.nrdnet.org
Protecting Lives • Protecting Property • Protecting the Future

8100 S. 15th St., Ste B
Lincoln, NE 68512
www.nrdnet.org
nard@nrdnet.org
402.471.7670



To: NRD Board of Directors, Staff and Conservation Partners
From: Nebraska Association of Resources Districts (NARD)
Re: NRD Basin Tour | June 9-10, 2025
Date: April 25, 2025

You're Invited, Please Register Now!

2025 NRD Basin Tour – Niobrara Basin
Hosted by NARD in Partnership with the Niobrara Basin NRDs
Based in Valentine, Nebraska | June 9–10, 2025

The Nebraska Association of Resources Districts (NARD), in collaboration with the Niobrara Basin NRDs, is pleased to invite you to the **2025 NRD Basin Tour**. Join us for an immersive two-day experience as we explore key projects and programs dedicated to protecting Nebraska's natural resources.

Tour Details:
Monday, June 9

- 11:15 a.m. – 11:45 a.m. (CDT): Lunch at the Niobrara Lodge patio (803 US-20, Valentine, NE)
- 12:00 p.m. (CDT): Bus departs the Niobrara Lodge
- Tour will showcase conservation efforts and innovative practices across the Middle Niobrara NRD
- Evening: Dinner at **Niobrara Valley Vineyards**, Nenzel

Tuesday, June 10

- 7:30 a.m. (CDT): Depart from hotel after breakfast for Spencer Dam
- Tour highlights initiatives across both Middle and Lower Niobrara NRDs
- Lunch included
- Return to Niobrara Lodge by 4:30 p.m. (CDT)

Tour Highlights Include:

- CSS Farms – Seed potato operation
- Drip irrigation & Ponderosa Pine trials
- Fort Niobrara & Cub Creek Reservoir
- Minor Ranch & Niobrara Valley Vineyards
- Lower Niobrara NRD facilities
- Watershed management initiatives & Spencer Dam

Registration Information:
To reserve your seat, please submit your completed registration form to the NARD office **by May 9th**. Space is limited and early registration is encouraged.

Registration Fee Includes:

- All meals, breaks and activities
- Motor coach transportation
- Lodging for Monday night *(NARD will arrange hotel accommodation)*

If you plan to arrive early and need a room for Sunday night, be sure to mark this on your registration form. All lodgings must be booked through NARD.

We look forward to seeing you in the Niobrara Basin this June!

Registration Form

Annual Basin Tour – Niobrara River Basin, June 9-10, 2025

Registration deadline is Friday, May 8. Cancellations received after May 19 are non-refundable.

Basin Tour registration fee will include the following:

- Monday, June 9: Lunch, conservation tour, snacks, beverages, activities, evening group dinner and hotel.
- Tuesday, June 10: Breakfast at the hotel, conservation tour, lunch, snacks, and beverages.

Registration options:

- Registration - with single room occupancy - $450 per person
- Registration - with double room occupancy - $390 per person
- Registration – with NO HOTEL accommodation – $325 per person. If you live in the area and don't need hotel accommodation, use this option to register for the tour.

For those arriving on Sunday for the NARD board meeting, or for the Basin Tour, you must reserve your Sunday night lodging with NARD. Use this form to add Sunday lodging. This is an extra fee not included with basin tour registration.

NRD: _____

Name: _____ Title: _____	**Extra Sunday night Stay Niobrara Lodge - $ 125** (not included in Basin Tour registration)	**Basin Tour Registration. Circle single or double occupancy** (for each person registering)
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double

List any special needs, including dietary restrictions: _____

Tour registration cost per person:

Extra Sunday night, June 8th lodging at Niobrara Lodge. Number of rooms needed - _____ x $ 125 = _____

Basin Tour Registration = Single room occupancy. Number of registrations - _____ x $ 450 = _____

Basin Tour Registration = Double room occupancy. Number of registrations - _____ x $ 390 = _____

Basin Tour Registration = NO HOTEL accommodation. Number of registrations - ____ x $ 325 = _____

***Total submitted* = _____**

Submit payment and registration to: **NARD, 8100 S. 15th St., Ste B, Lincoln, NE 68512.** **Register prior to May 8 (cancellations are non-refundable after May 19).**

APPLICATION FOR A PERMIT TO CONSTRUCT A WATER WELL
IN THE *LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT*

DNR & NRD USE ONLY

Permit No. _____ Date Approved/Denied _____ NRD Representative _____
Permit Type: New, Replacement or Late Date Received _____ Paid: Cash or Check
Date Post-inspected _____ Registration No. _____ Updated Form: June 2022

ALL APPLICANTS SEEKING A WATER WELL PERMIT MUST COMPLETE PAGES 1 AND 2, AND THE APPROPRIATE SECTION BASED ON THE PURPOSE OF THE WELL. (CLASS 1 – 4 WELL PERMIT)
WATER WELL PERMITS FOR IRRIGATED ACRES GREATER THAN 160 ACRES IN SIZE OR TOTAL ANNUAL WATER USE BETWEEN 150 AND 300 ACRE FEET PER YEAR MUST COMPLETE PAGES 1, 2, AND 3, AND THE APPROPRIATE SECTION BASED ON THE PURPOSE OF THE WELL. (CLASS 3 WELL PERMIT)
WATER WELL PERMITS FOR TOTAL ANNUAL WATER USE EQUAL TO OR GREATER THAN 300 ACRE FEET PER YEAR, REGARDLESS OF NUMBER OF IRRIGATION ACRES, MUST COMPLETE PAGES 1, 2, AND 4, AND THE APPROPRIATE SECTION BASED ON THE PURPOSE OF THE WELL. (CLASS 4 WELL PERMIT)

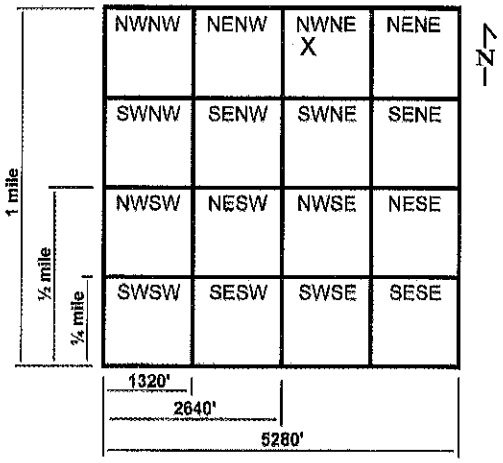
1. NAME AND ADDRESS OF **LAND OWNER**:
University of Nebraska Eastern Research, Extension and
Education Center
1071 County Road G, Ithica, NE 68033
Phone: (402) 624-8000

NAME AND ADDRESS OF **CONTACT**:
US Army Engineer District, Kansas City
Attn: CENWK-PM (Alissa Sutter)
601 E. 12th Street, Kansas City, MO 64106-2896
Phone: (816) 634-3148

2. **PURPOSE OF NEW WATER WELL (indicate one):**
__ Irrigation (Complete section A)
__ Livestock (Complete section C)
__ Industrial (Complete section E)
X Recovery or Remediation (Complete section G)
__ Other (specify) _____ (Complete section H)
__ Dewatering (Over 30 days, Complete section B)
__ Domestic (Irr. on one acre or larger, Complete section D)
__ Public Water Supply (Complete section F)

3. **IDENTIFY LOCATION OF PROPOSED WELL:**
A. Saunders County, NW ¼ of the NE ¼ of Section 28, Township 14 North, Range 9 East West. (circle one)

B. The box at the right represents one square mile, (section). Indicate with an "X", the proposed location of the well. Outline the proposed water use area. If the water is to be used outside the above written legal description, give legal description of water use area,
____ ¼ of the ____ ¼ of Section ____,
Township ____North, Range ____ East/West.



C. The well will be located 45 feet from the North/South section line, and will be 2,500 feet from the East/West section line. Or enter Lat. / Long.
Latitude Degree _____ Minute _____ Second _____
Longitude Degree _____ Minute _____ Second _____

4. **REPLACEMENT AND ABANDONED WELL INFORMATION:**
A. Is this a replacement well? __ Yes, X No If yes, fill out the rest of this section.
B. Registration number of well to be replaced: _____
C. Well to be replaced was last operated (month/year): _____
D. Replacement well is _____ feet from original well.
E. Decommissioning of Original well on (month/day/year): _____
F. If water use is for irrigation, list the number of acres watered by the original well: _____
G. If water use is for irrigation, will replacement well, water the same tract of land as the decommissioned well? __ Yes, __ No: If No, list the number of additional acres _____ and legal description ____ ¼ of the ____ ¼ of Section ____, Township ____ North, Range ____ East/West. (circle one)

- A replacement water well must deliver water to the same tract of land as the original water well, pump from a comparable aquifer, and yield approximately the same gallons per minute and total annual water use as the original water well.

5. SPECIFICATIONS OF INTENDED WELL AND PUMP:

A. Approximate date when construction will begin (month/day/year): 09/24/2024
B. Expected total well depth: 100 feet.
C. Well Casing Diameter: 12 inches.
D. Pump Column Diameter: 6 inches.
E. Estimated pumping capacity: 250 GPM.
F. Expected total annual water use in Acre Inches / Year _____ or Total Gallons / Year 131,400,000
G. The system is to be powered by X Electric __ Fuel
H. Will the well be used in a system with other wells? __ Yes, X No. If Yes, How many _____
List well registration number and legal description of each well in Section 6 below.
I. Name of Well Driller: Peterson Well Drilling, Inc. (Please attach test hole log, if available.)

6. List additional information requested in this Section or attached additional sheet.

The near term expected pumping rate of this well is 250 gpm The pumping rate is subject to change depending on hydraulics and contaminated plume status.

7. Addition information and requirements for Lower Platte North NRD review.

- Attach current tax assessor records including map, parcel number, and current land use such as irrigated acres.
- Attach aerial photo showing location of water source(s) and area water or reuse water is to be used.
- All new and replacement water wells must install a District approved flow meter and report water pumped annually to the LPNNRD by January 31st of the following year. See approved list in this packet.
- Water well permit conditions maybe required for approval by the Lower Platte North NRD for each individual well.

8. I certify that I am familiar with the information contained in this application, and it's restrictions, rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate.

Date 4-29-2025 Signature of Applicant [signature]
Signature of Well System Operator, if different than Applicant _____
NRD Certification Number of Landowner or Operator _____ (Required for irrigation, livestock, domestic (with irrigation on one acre or more of land), industrial, and public water supply wells.)

9. Lower Platte North NRD Use Only. Comments by District Representative.

File: WellPermit2008_050908.doc

APPLICATION FOR A PERMIT TO CONSTRUCT A WATER WELL
IN THE *LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT*

WATER WELL PERMIT FOR IRRGATED ACRES GREATER THAN 160 ACRES IN SIZE OR TOTAL ANNUAL WATER USE BETWEEN 150 AND 300 ACRE FEET PER YEAR, PROVIDE INFORMATION REQUESTED ON PAGES 1, 2, AND 3. (CLASS 3 WELL PERMIT)

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10. WATER SOURCE INFORMATION:

In a TWO-mile radius around the water source location, provide the following information to the LPNNRD in both paper copy and electronically in Excel Spreadsheet (Microsoft) or Access Database (Microsoft) format.

A. List of all registered wells in this area giving registration number, well identification number, legal description, latitude / longitude or UTM coordinates in NAD 83, elevation in feet above mean sea level, and well log for each well.

B. List of all test holes in the area that have been published by Conservation and Survey Division of the University of Nebraska.

C. List of all surface water rights in this area giving appropriation number, priority date, legal description, use, status, current total acres (if applicable), and grant amount.

---

11. WATER USE LOCATION INFORMATION:

In the location where the water will be used, provide the following information to the LPNNRD in both paper copy and electronically in Word (Microsoft) format.

A. Description of expanded water use including: latitude / longitude or UTM coordinates in NAD 83 of water use location and timeframe or schedule when water will be used.

B. Amount of water that will be reused or recycled at this new location.

C. Description of how water will be used at this new location, i.e. process water vs. cooling water, etc. and estimated total annual water use for each purpose.

APPLICATION FOR A PERMIT TO CONSTRUCT A WATER WELL
IN THE *LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT*

WATER WELL PERMIT FOR TOTAL ANNUAL WATER USE EQUAL TO OR GREATER THAN 300 ACRE FEET PER YEAR, REGARDLESS OF NUMBER OF IRRIGATED ACRES, PROVIDE INFORMATION REQUESTED ON PAGES 1, 2, AND 4. (CLASS 4 WELL PERMIT)

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12. WATER SOURCE INFORMATION:

In a FIVE-mile radius around the water source location, provide the following information to the LPNNRD in both paper copy and electronically in Excel Spreadsheet (Microsoft) or Access Database (Microsoft) format.

A. List of all registered wells in this area giving registration number, well identification number, legal description, elevation in feet above mean sea level, latitude / longitude or UTM coordinates in NAD 83, and well log for each well.

B. List of all test holes in the area that have been published by Conservation and Survey Division of the University of Nebraska.

C. List of all surface water rights in this area giving appropriation number, priority date, legal description, use, status, current total acres (if applicable), and grant amount.

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13. WATER USE LOCATION INFORMATION:

In the location where the water will be used, provide the following information to the LPNNRD in both paper copy and electronically in Word (Microsoft) format.

A. Description of expanded water use including: latitude / longitude or UTM coordinates in NAD 83 of water use location and timeframe or schedule when water will be used.

B. Amount of water that will be reused or recycled at this new location.

C. Description of how water will be used at this new location, i.e. process water vs. cooling water, etc. and estimated total annual water use for each purpose.

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14. AQUIFER PUMP TEST:

In the location of the proposed water source a District approved aquifer pump test is to be performed to obtain geologic data that will be used in the ensuing ground water modeling effort. Data from the pump test is to be reported to the LPNNRD in both paper copy and electronically in Excel Spreadsheet (Microsoft) or Access Database (Microsoft) format.

A. Description of pumping well should include legal description of well, latitude / longitude or UTM coordinates in NAD 83, elevation of well in feet above mean sea level, total amount of water pumped, gallons per minute during pump test, duration of pump test, well construction, well log, water discharge location and method.

B. Description of each monitoring well should include legal description of well, latitude / longitude or UTM coordinates in NAD 83, spacing in feet and direction from pumping well, elevation of well in feet above mean sea level, well log, and well construction.

C. Depth to bedrock, bedrock material, and name of geologic formation.

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15. GROUNDWATER MODEL:

In a FIVE-mile radius of the location of the proposed water source a ground water model using MODFLOW software, or similar software approved by LPNNRD, is to be done. Data from the ground water model is to be reported to the LPNNRD in both paper copy and electronically using the appropriate software.

A. Model should list boundary conditions used, grid size, include all high capacity wells in modeled area, streams and rivers in the modeled area, expected recharge rates, location and flow amounts, hydrologic conductivity and transmissivity values used.

B. At least one iteration, reviewed and approved by LPNNRD, should model steady state conditions over a five-year period with a no flow boundary, and little or no recharge to simulate drought conditions.

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PURPOSE OF WELL

IRRIGATION WELLS (SECTION A)

A. How many acres will be irrigated? _____ acres
B. Crops to be planted: _____ Crop rotation schedule _____
C. Type of irrigation system. __ Center Pivot, __ Gravity, __ Other (specify) _____
D. The irrigation system is to be powered by __ Electric __ Fuel
E. Expected total annual consumptive water use in Acre Inches / Year _____or
Total Gallons / Year _____
F. Will Fertilizer, Chemicals or Animal waste be applied through the system? __ Yes, __ No

DEWATERING WELLS OVER 30 DAYS (SECTION B)

A. Purpose of dewatering well, such as installation of building foundation, etc. _____
_____
B. Expected total number of days the dewatering well will be in use _____
C. Approximate dates (month/day/year) in operation: Start _____ End _____
D. Legal description of water discharge location: ____ ¼ of the ____ ¼ of Section ____, Township ____North, Range ____ East/West and name of river, stream or water body _____
E. Will discharge water be used for another purpose, such as livestock, irrigation, etc.? __ Yes, __ No
If Yes, list purpose, location and expected total amount of water use in acre-inches / year or total gallons / year.
_____
_____

LIVESTOCK WELLS (SECTION C)

A. Name of facility _____
B. Type of Livestock: ___ Feeder Cattle, ___ Dairy Cattle, ___ Swine over 55 lbs., ___ Swine under 55 lbs., ___ Sheep, ___ Poultry, ___ Horses
C. Average number of livestock per year _____ and average weight per animal _____ lbs.
D. Peak number of livestock _____ and time of year _____
E. Is facility approved by Nebraska Department of Environmental Quality? __ Yes, __ No. If Yes, list NDEQ certification IIS number _____ If No, complete the rest of this section.
F. Type of facility: ___ Open lot, ___ Covered Building
G. If facility is Open lot, list soil type _____
H. Estimated depth to ground water under feedlot _____ ft.
I. Describe manure collection system of feedlot _____
_____
J. Name and distance of nearest surface watercourse from feedlot _____
K. For each manure land application site, list legal description and size in acres, method of application, and distance from feedlot operation. _____
_____
_____

DOMESTIC WELLS WITH IRRIGATION ON ONE ACRE OR MORE (SECTION D)

A. Check all that apply:
   a. Water use: ___ Lawn and number of acres to be irrigated _____ acres.
   b. Water use: ___ Commercial garden and number of acres to be irrigated _____ acres.
   c. Water use: ___ Tree Farm and number of acres to be irrigated _____ acres.
   d. Water use: ___ Type of livestock _____ and number _____
B. Type of irrigation system. __ Sprinkler, __ Drip Tape, __ Other (specify) _____
C. If applicable, give Street address and town _____
_____

* One acre equals 43,560 square feet.

INDUSTRIAL AND COMMERCIAL WELLS (SECTION E)

A. Name of facility _____

B. Products produced by facility _____

C. In Section 6 or on a separate sheet of paper, list well registration number and legal description of current wells supplying water to this facility.

D. In Section 6 or on a separate sheet of paper, provide a short description how water is used within the facility and the expected annual amount of water for each use. For example: "The manufacturing plant will use 45% of total annual water use, or 1.45 million gallons per year, for electroplating of galvanized pipe and the remaining 55% of total annual water use, or 1.77 million gallons per year, will be used for non-contact cooling water throughout the plant".

E. Will any of the used water or waste water from this facility be re-used for another purpose? __ Yes, __ No.
If Yes, list purpose, location and expected total amount of water use in acre-inches / year or total gallons / year.

_____

_____

PUBLIC WATER SUPPLY WELLS (SECTION F)

A. On a separate sheet of paper, list the well registration numbers and legal description of current wells supplying water to this community.

B. Attach a list of the five largest industrial water users that your community supplies water to, and the total annual amount of water supplied to each of these industries for the last five years.

C. For these same industries list the total annual amount of water returned to the community as waste water for each of the last five years.

D. Will waste water be used for another purpose, such as livestock, irrigation, etc.? __ Yes, __ No
If Yes, list purpose, location and expected total amount of water use in acre-inches / year or total gallons / year.

_____

_____

E. Attach a list of the golf courses that the community supplies water to and list the location and number of acres for each one.

RECOVERY OR REMEDIATION WELLS (SECTION G)

A. Reason for recovery or remediation well, i.e. leaking underground storage tank. _____
Contaminated groundwater extraction

B. Contaminates of concern TCE

C. Treatment method of contaminates Air Stripper

D. Approximate dates (month/day/year) in operation: Start May 1, 2025 End May 1, 2055

E. Legal description of water discharge location: NW ¼ of the NE ¼ of Section 2, Township 13 North, Range 8 East/West and name of river, stream or water body Wahoo Creek

F. Will cleanup water be used for another purpose, such as livestock, irrigation, etc.? __ Yes, X No
If Yes, list purpose, location and expected total amount of water use in acre-inches / year or total gallons / year.

_____

_____

OTHER WELLS (SECTION H)

A. Purpose of water use _____

B. Will the well be used for one calendar year or less? __ Yes, __ No

a. If Yes, list approximate dates (month/day/year) the well will be in operation: Start _____ End _____

b. If No, list the approximate dates (months) or seasons of the calendar year that well is expected to be in peak or highest use. _____

C. Legal description of water discharge location: ____ ¼ of the ____ ¼ of Section ____, Township ____ North, Range ____ East/West and name of river, stream or water body _____

This form must be completed in full and accompanied by a non-refundable $50.00 filing fee (payable to the Lower Platte North Natural Resources District). In addition, for Class 3 well permits an added fee of $250.00 is required for District review. For Class 4 well permits an added fee of $500.00 is required for District review. Forward this application and filing fees to:

Lower Platte North Natural Resources District
P.O. Box 126
Wahoo, NE 68066
Phone: (402) 443-4675

Please take the time and fill out the information correctly. The District will return an incomplete or defective application, with 60 days being allowed for resubmission. The District shall issue all permits with conditions attached, or denied not later than 30 days after receipt of a complete and properly prepared application.

WATER WELL PERMIT RESTRICTIONS

1. A well permit is required prior to the construction of a water well. If construction of a water well is commenced prior to obtaining a permit, a late permit must be completed and accompanied by a $250.00 application fee. Construction or operation of a new water well without an approved water well permit shall result in the District issuing a 'cease and desist order' against further construction or use of that water well.
2. An irrigation well shall not be constructed within 1000 feet of any registered industrial or public water supply well or within 600 feet of a registered irrigation well; A public water supply well shall not be constructed within 1000 feet of any registered irrigation, industrial or other public water supplier's well; An industrial well shall not be constructed within 1000 feet of any registered irrigation, industrial or public water supply well pursuant to §46-609 and §46-651. These spacing restrictions shall not apply to water wells owned by the same person. Any person may apply to the Nebraska Department of Natural Resources for a special permit to drill a water well without regard to the spacing requirements pursuant to §46-653. The District may adopt stricter well spacing requirements based on different aquifer subareas. Check with the District office if you have any questions.
3. This permit does not register the well with the Department of Natural Resources. All wells are required to be registered by the well driller with the Nebraska Department of Natural Resources within 60 days after the well is completed.
4. A replacement water well is one, which replaces an abandoned water well that has been operated within the last three years, and is constructed to water the same tract of land as the abandoned water well that is being replaced. A replacement water well must be pumping from a comparable aquifer and yield approximately the same gallons per minute and total annual water uses as the original water well it is replacing. As of January 1, 1997, both new and replacement wells need a permit from the Lower Platte North Natural Resources District.
5. Consumptive water use in acre-inches is determined from the Department of Natural Resources (DNR) Net Corn Crop Irrigation Requirement map or a similar map produced by the University of Nebraska.
6. If the well is being replaced it must be properly abandoned according to state guidelines. A copy of these guidelines is available from the Lower Platte North NRD.
7. If the water well is not constructed within a one-year period from the date of approval, a new permit is needed.
8. Water wells may not be drilled within 50 feet of a stream bank without first obtaining a surface water right for that water withdrawal from the Department of Natural Resources pursuant to §46-637.
9. Any person who, on or after January 1, 1997, commences or causes construction of such a well for which the required permit has not been obtained, or who knowingly furnishes false information regarding such a permit, shall be guilty of a Class IV misdemeanor pursuant to §46-602.01 and §46-613.02.
10. Permits are not required for test holes or temporary dewatering wells (30 days or less). Permits are needed for water wells designed to pump 50 gallons per minute or less in Level 3 and Stay management areas.
11. Tax assessor records submitted with water well permit must include map, parcel number and an accurate account of current land use, such as irrigated acres.
12. With the well permit application, submit an aerial photograph with markings to show the location of the water source(s) and the location of where the water is to be used.
13. Any person, who knowingly furnishes false information regarding a water well permit, shall be subject to the imposition of penalties imposed through the controls adopted by the District pursuant to §46-746.
14. All new or replacement water wells must install a District approved flow meter and report water pumped annually in acre-inches per year or total gallons per year on LPNNRD approved forms by January 31st of each following year.
15. If multiple water sources are used, landowner must supply flow records from each water source in acre-inches per year or total gallons per year on LPNNRD approved forms by January 31st of each following year.
16. Water well permit applications require that the applicant or operator of irrigation, livestock, domestic (with irrigation on one acre or more of land), industrial, and public water supply wells by NRD certified.

**** Landowners must list new irrigated acres with the County Assessor, update the DNR well registration, and comply with any additional conditions within 90 days of LPNNRD approval of this water well permit. LPNNRD staff may perform a site visit to verify information provided in the well permit application. ****

Approved List of Propeller Flow Meters
Lower Platte North Natural Resources District (LPNNRD)
Effective: April 11, 2022

Approved List of Propeller Flow Meters and Required Conditions

LPNNRD requirements for all propeller flow meters:

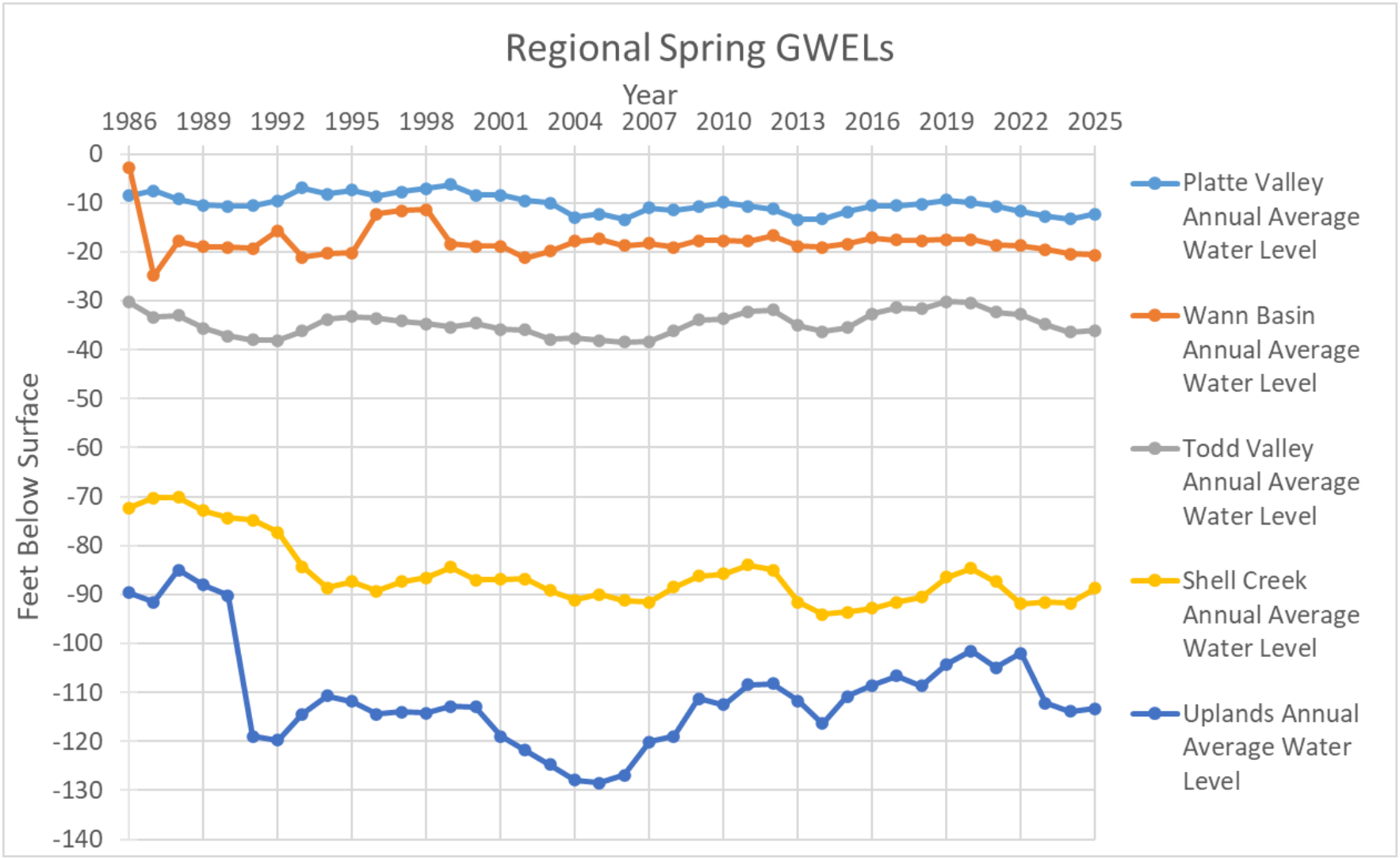
- Anti-reverse flow feature to prevent backflow.
- Follow manufactures installation recommendations taking into account in-pipe jetting or non-jetting flow conditions. (Correct installation of the flow meter is critical to getting an accurate reading. Most meters require a straight pipe before and after the flow meter that is at least equivalent to five times the pipe diameter in order to obtain an accurate flow measurement. Doing the installation correctly the first time saves money in the long run).
- Straightening vanes are required according to manufacturer's installation recommendations for in-pipe jetting or non-jetting flow conditions.
- Meter must be positioned to ensure water totally fills the pipe, such as a level pipe or positioned on a riser.
- Meter must be configured: to inside and outside diameter of the pipe, material of the pipe, meter used that will operate within minimum and maximum output flow rates of the well, horizontal or vertical installations, and unobstructed straight run distance upstream and downstream of meter and in most cases straightening vanes (or other flow straightener) will be necessary.
- Meter totalizes flow in acre inches and flow meter dial is in gallons per minute.
- A flow meter must be dedicated to each individual well. (Exceptions will be made if several wells are used to provide enough water to operate a single irrigation system such as a pivot or gated pipe. In these situations a flow meter placed at the central location where all water can be metered is acceptable).

Manufacturer	Model	Notes
McCrometer	McPropeller	All propeller models
Sparling	Propeller saddle meter	Model 312 propeller meter
Geyser	Saddle meter	All propeller models for Farmland Irrigation

LPNNRD prefers the following added features for all propeller flow meters:

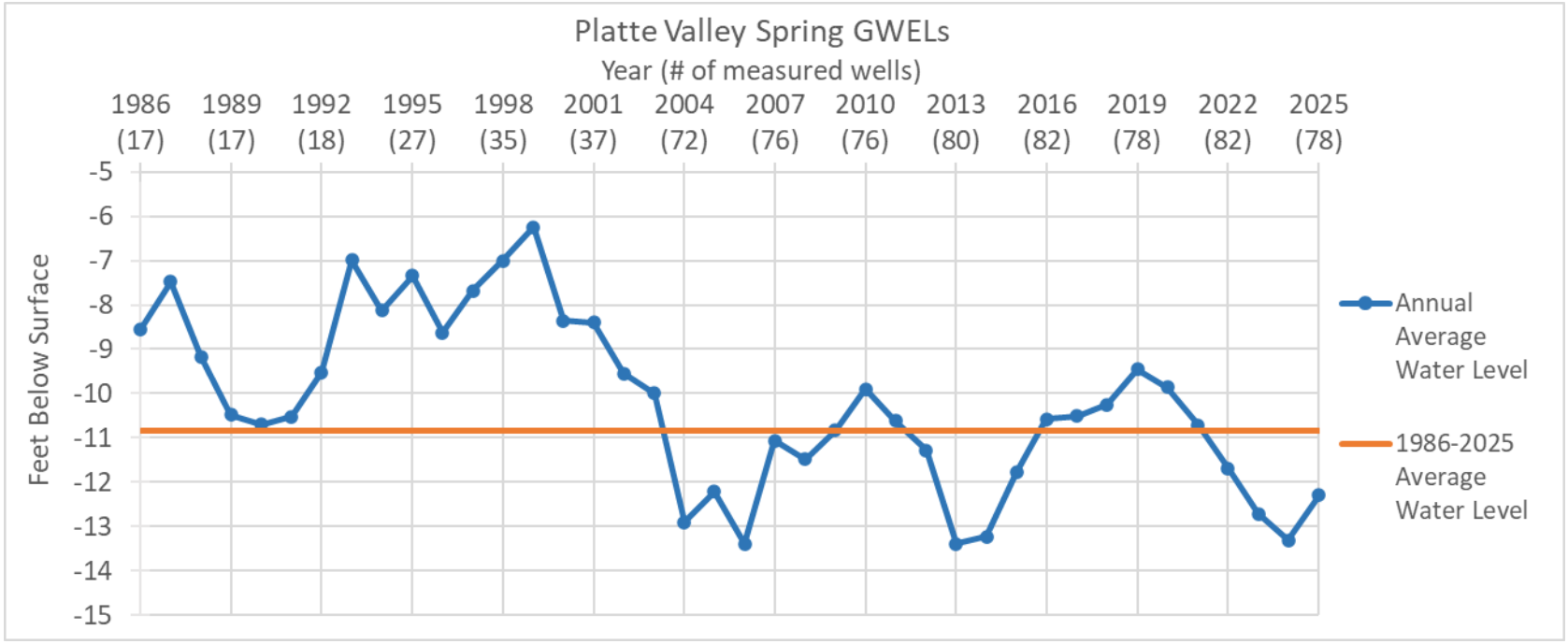
- Over-run bearing (or extra bearing) for smother operation and to extend life of the meter
- Canopy cover to protect meter

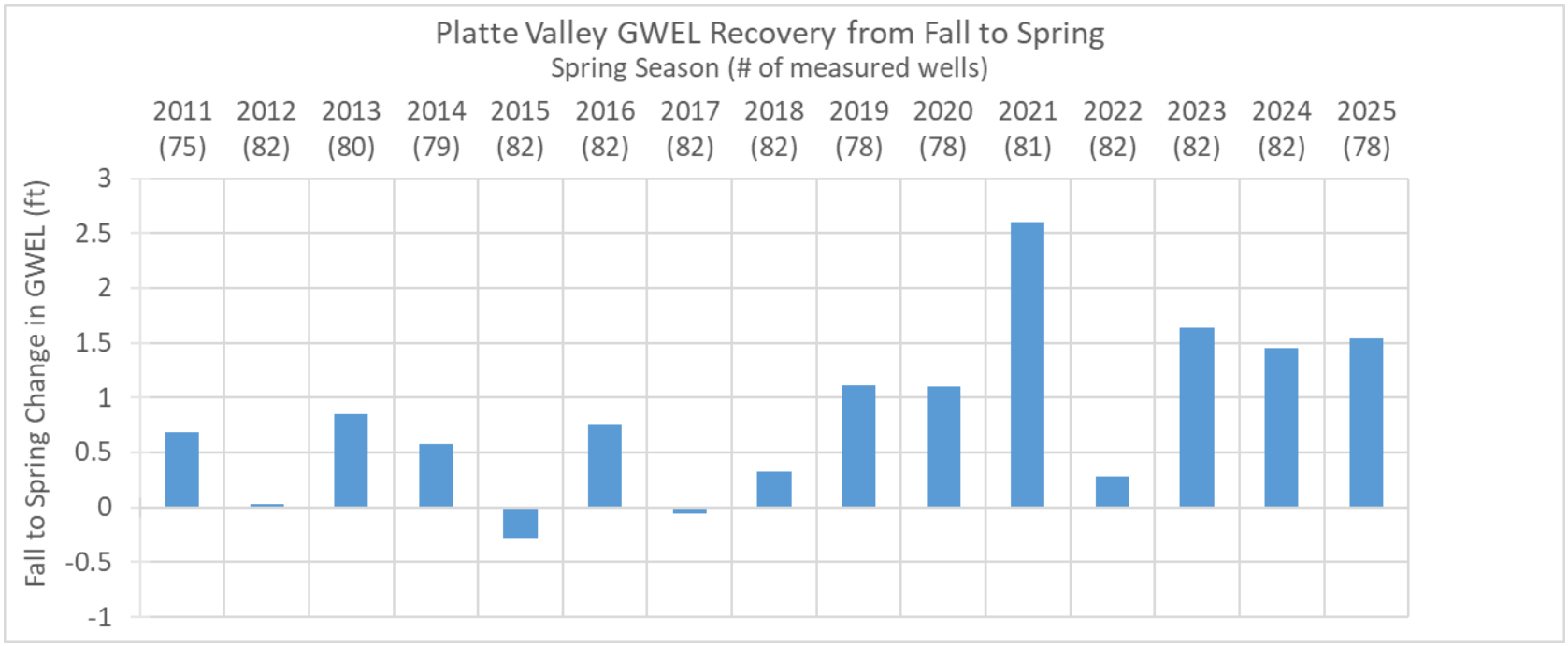
LPNNRD will inspect systems for proper installation of flow meters

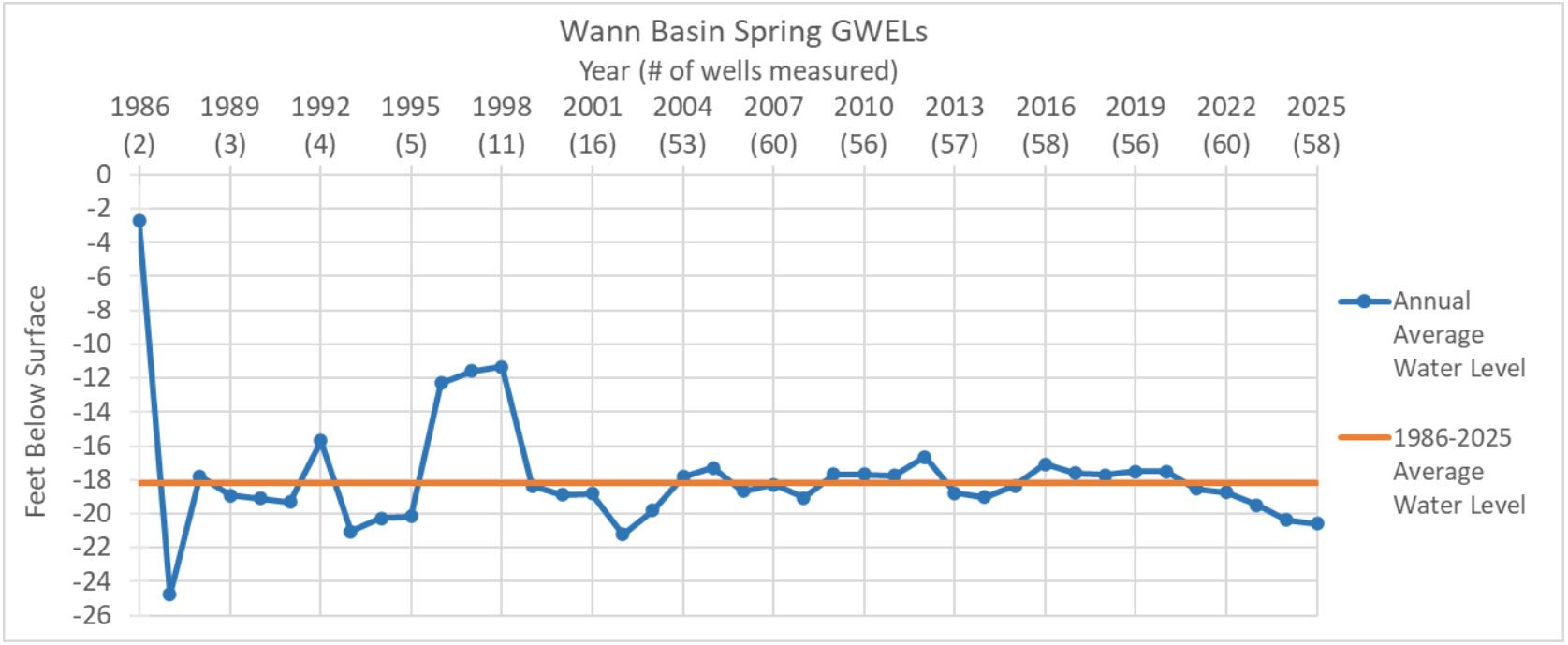

Regional Spring GWELs
Year
1986
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
2019
2022
2025
Feet Below Surface
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
Platte Valley Annual Average Water Level
Wann Basin Annual Average Water Level
Todd Valley Annual Average Water Level
Shell Creek Annual Average Water Level
Uplands Annual Average Water Level

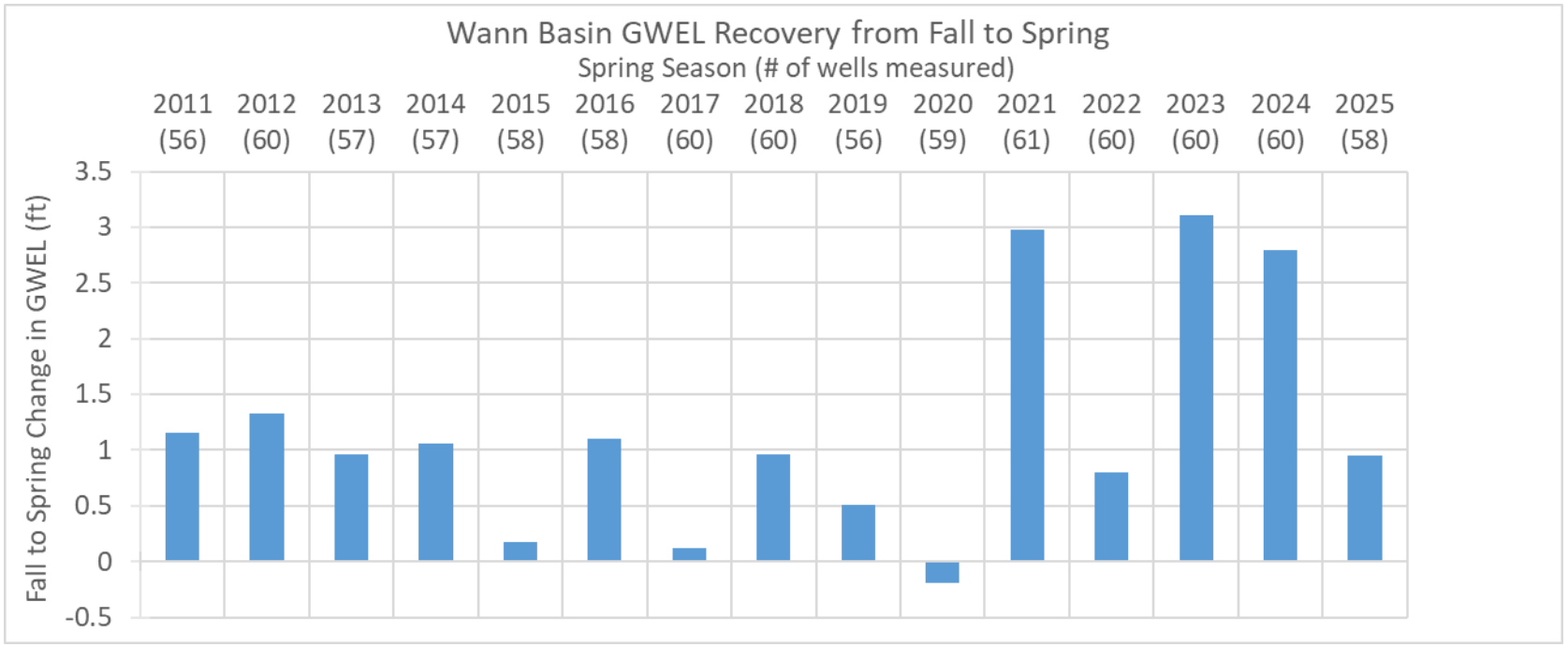
Groundwater Level Summary Comparison of Spring 2024 to Spring 2025						
Subarea	Number of Wells Measured	Median Change (Feet)	Mean Change (Feet)	Number of Wells Increased in Level	Number of Wells Unchanged (+ or - 0.3 ft)	Number of Wells Decreased in Level
Platte Valley	78	0.77	0.86	60	6	12
Todd Valley	23	0.20	0.30	10	6	7
Uplands	64	0.50	0.76	36	11	17
Shell Creek	46	0.34	0.60	24	18	4
				61.6%	19.4%	19.0%
		Spring 2023 to Spring 2024		11.4%	15.6%	73.0%

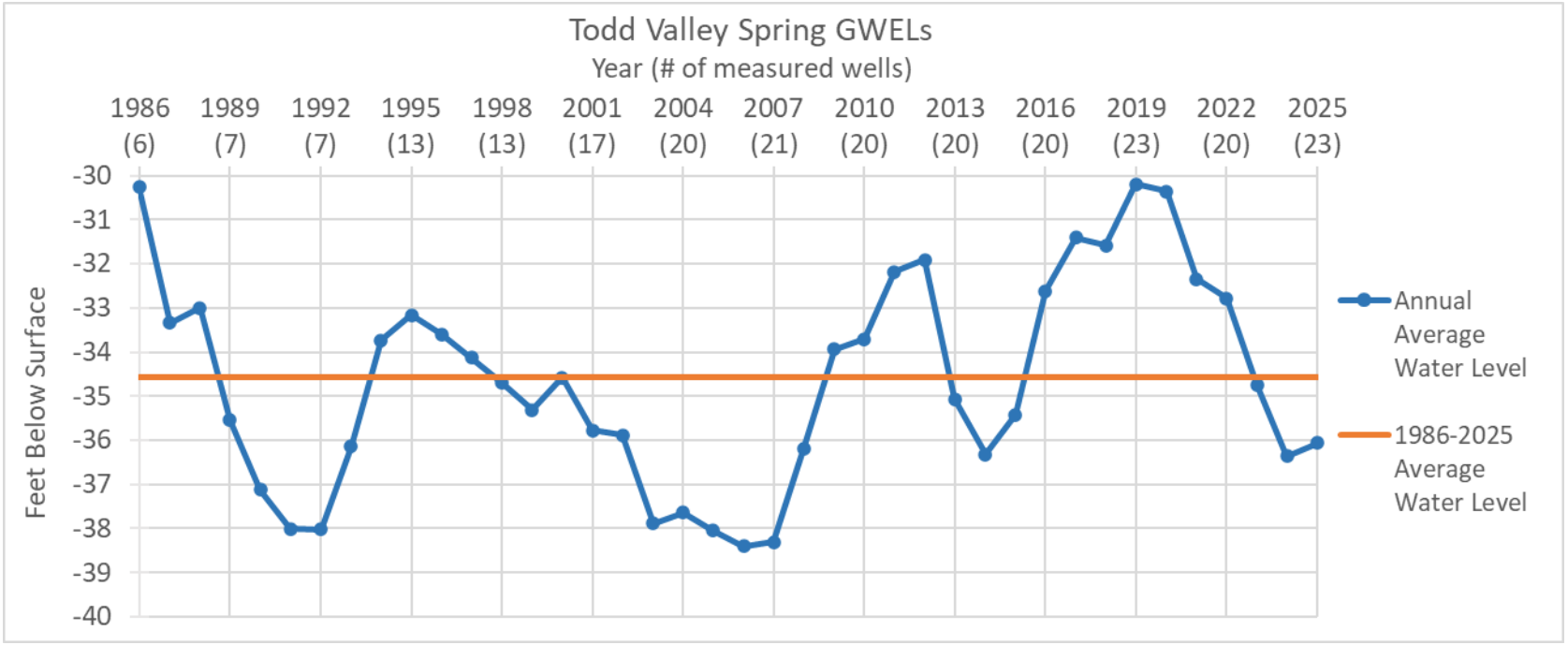
	Change 2024 Spring to 2025 Spring		Change 2024 Fall to 2025 Spring	
Platte V	1.02	rise	1.54	rise
Wann B	-0.20	fall	0.95	rise
Todd V	0.30	rise	0.06	rise
Shell C	3.04	rise	8.44	rise
Uplands	0.65	rise	10.41	rise
District	0.09	rise	3.62	rise

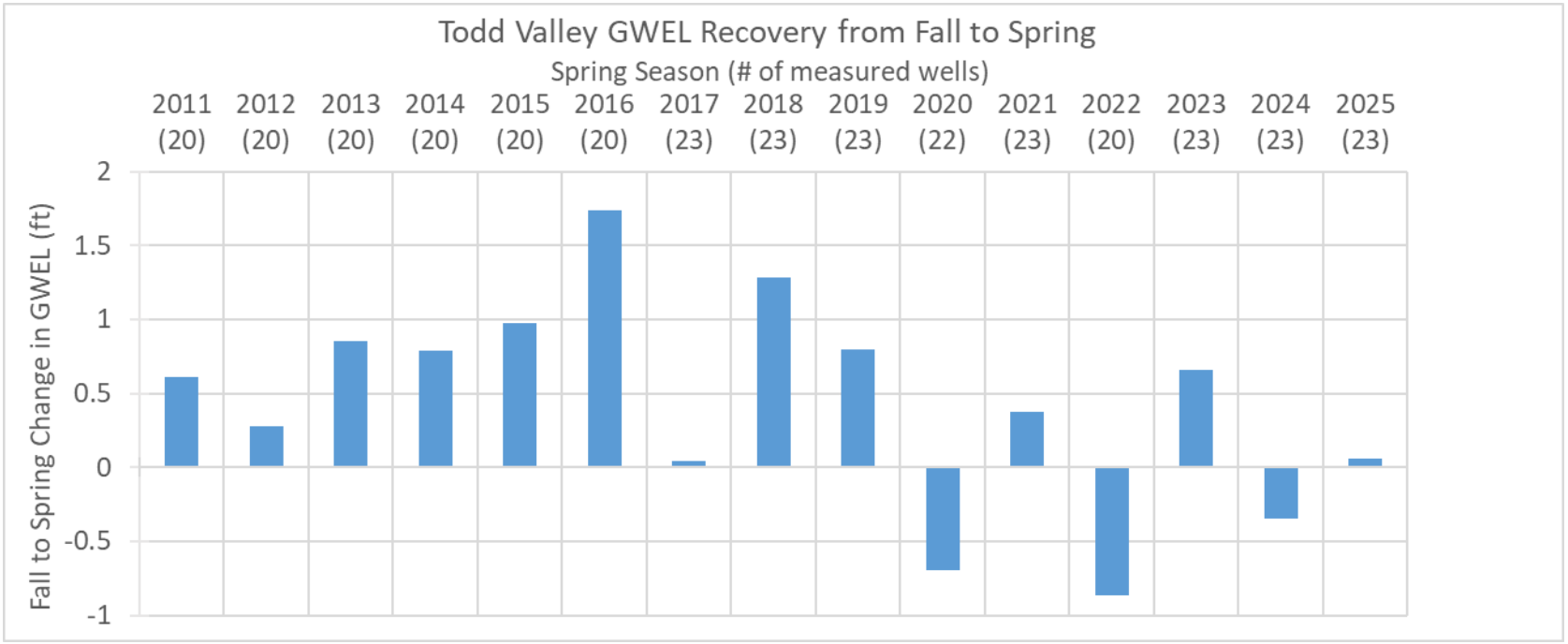

Platte Valley Spring GWELs
Year (# of measured wells)
1986 (17)
1989 (17)
1992 (18)
1995 (27)
1998 (35)
2001 (37)
2004 (72)
2007 (76)
2010 (76)
2013 (80)
2016 (82)
2019 (78)
2022 (82)
2025 (78)
Feet Below Surface
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
-15
Annual Average Water Level
1986-2025 Average Water Level

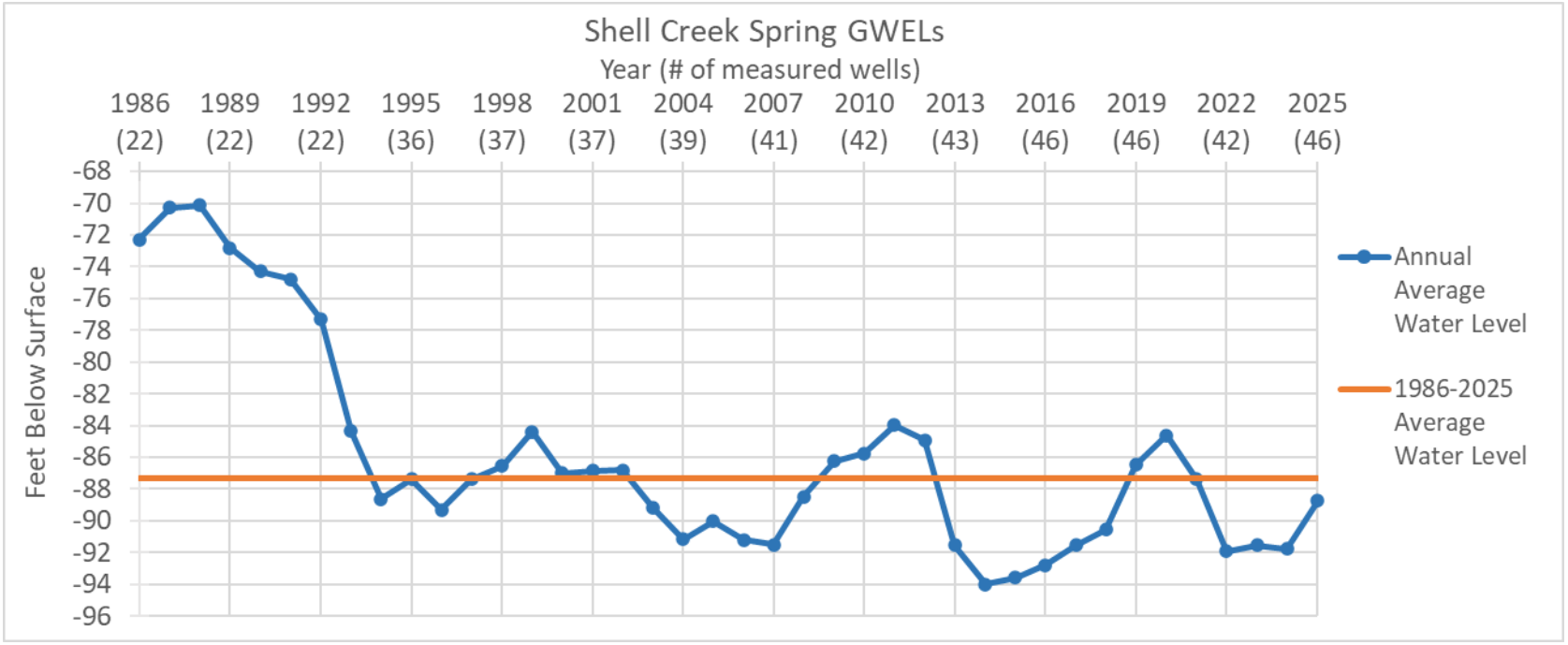

Platte Valley GWEL Recovery from Fall to Spring
Spring Season (# of measured wells)
2011 (75)
2012 (82)
2013 (80)
2014 (79)
2015 (82)
2016 (82)
2017 (82)
2018 (82)
2019 (78)
2020 (78)
2021 (81)
2022 (82)
2023 (82)
2024 (82)
2025 (78)
Fall to Spring Change in GWEL (ft)
3
2.5
2
1.5
1
0.5
0
-0.5
-1

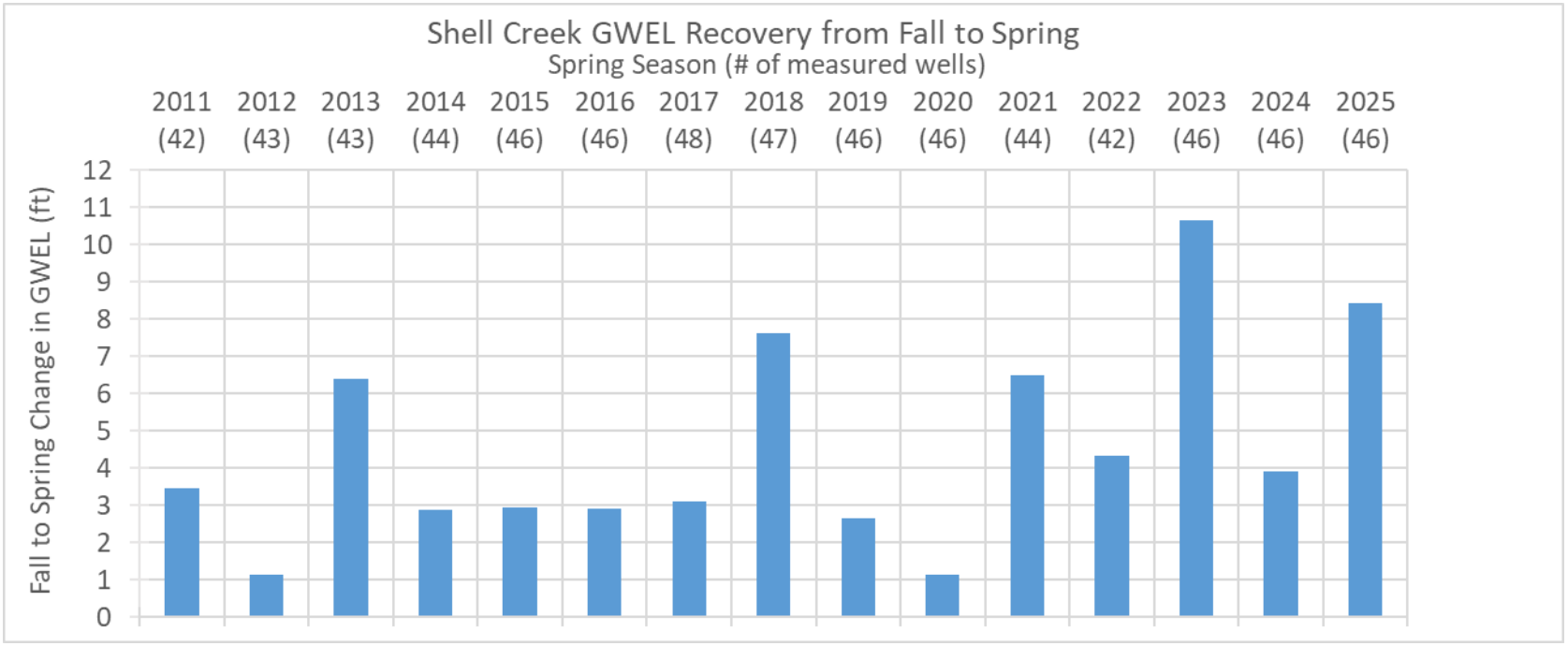

Wann Basin Spring GWELs
Year (# of wells measured)
1986 (2)
1989 (3)
1992 (4)
1995 (5)
1998 (11)
2001 (16)
2004 (53)
2007 (60)
2010 (56)
2013 (57)
2016 (58)
2019 (56)
2022 (60)
2025 (58)
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
Feet Below Surface
Annual Average Water Level
1986-2025 Average Water Level

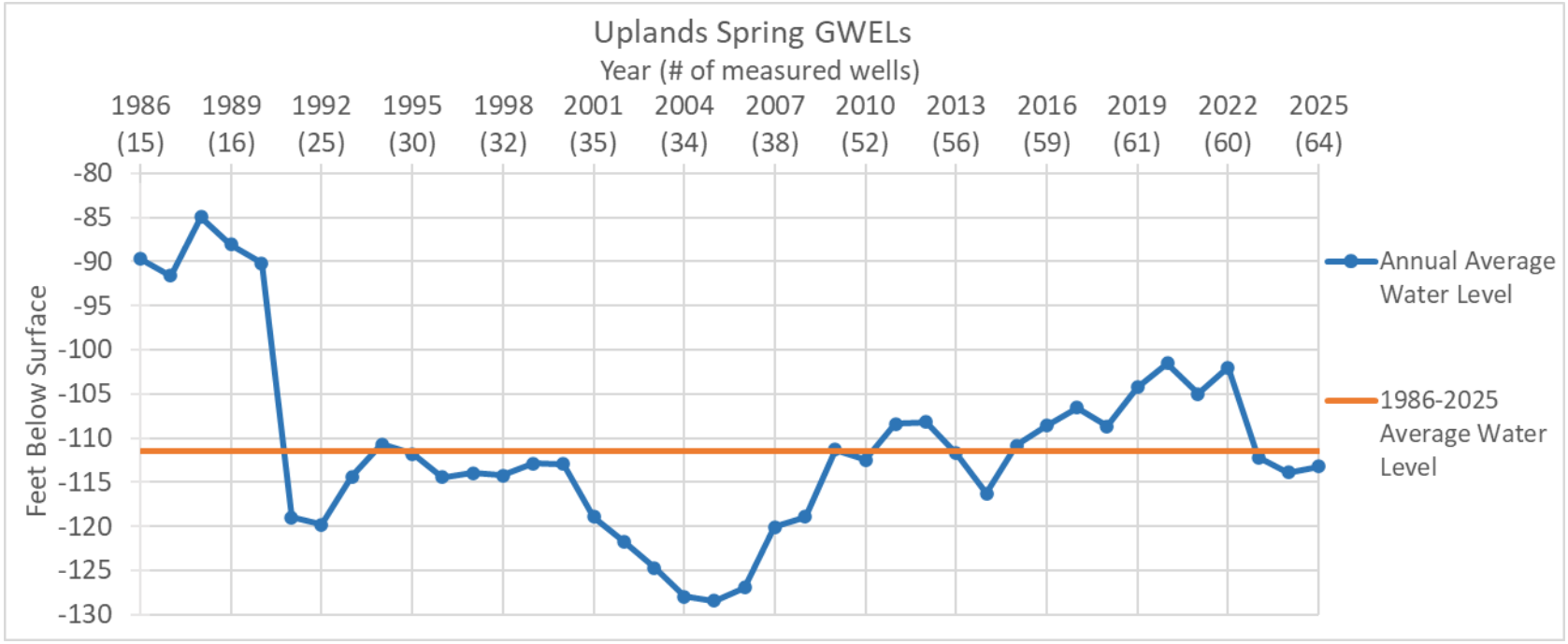

Wann Basin GWEL Recovery from Fall to Spring
Spring Season (# of wells measured)
2011 (56)
2012 (60)
2013 (57)
2014 (57)
2015 (58)
2016 (58)
2017 (60)
2018 (60)
2019 (56)
2020 (59)
2021 (61)
2022 (60)
2023 (60)
2024 (60)
2025 (58)
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
Fall to Spring Change in GWEL (ft)

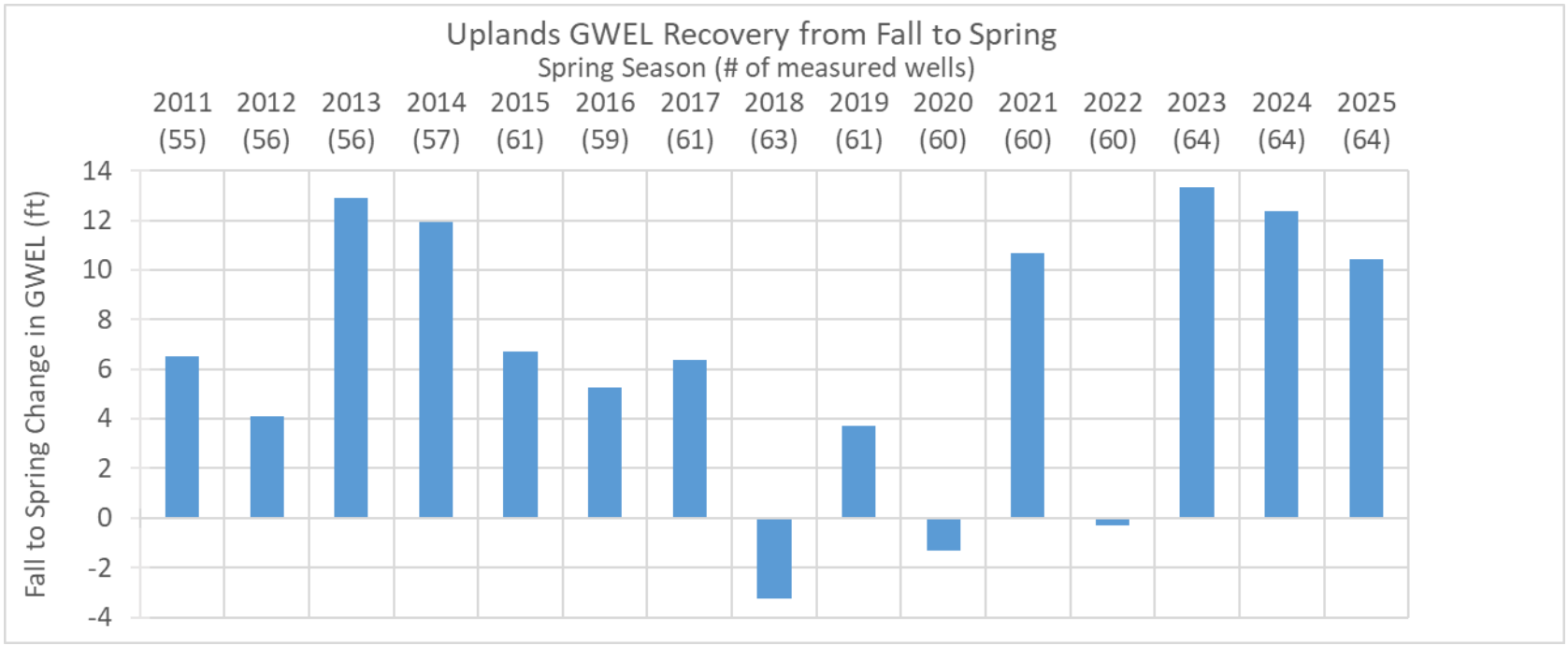

Todd Valley Spring GWELs
Year (# of measured wells)
1986 (6)
1989 (7)
1992 (7)
1995 (13)
1998 (13)
2001 (17)
2004 (20)
2007 (21)
2010 (20)
2013 (20)
2016 (20)
2019 (23)
2022 (20)
2025 (23)
Feet Below Surface
-30
-31
-32
-33
-34
-35
-36
-37
-38
-39
-40
Annual Average Water Level
1986-2025 Average Water Level

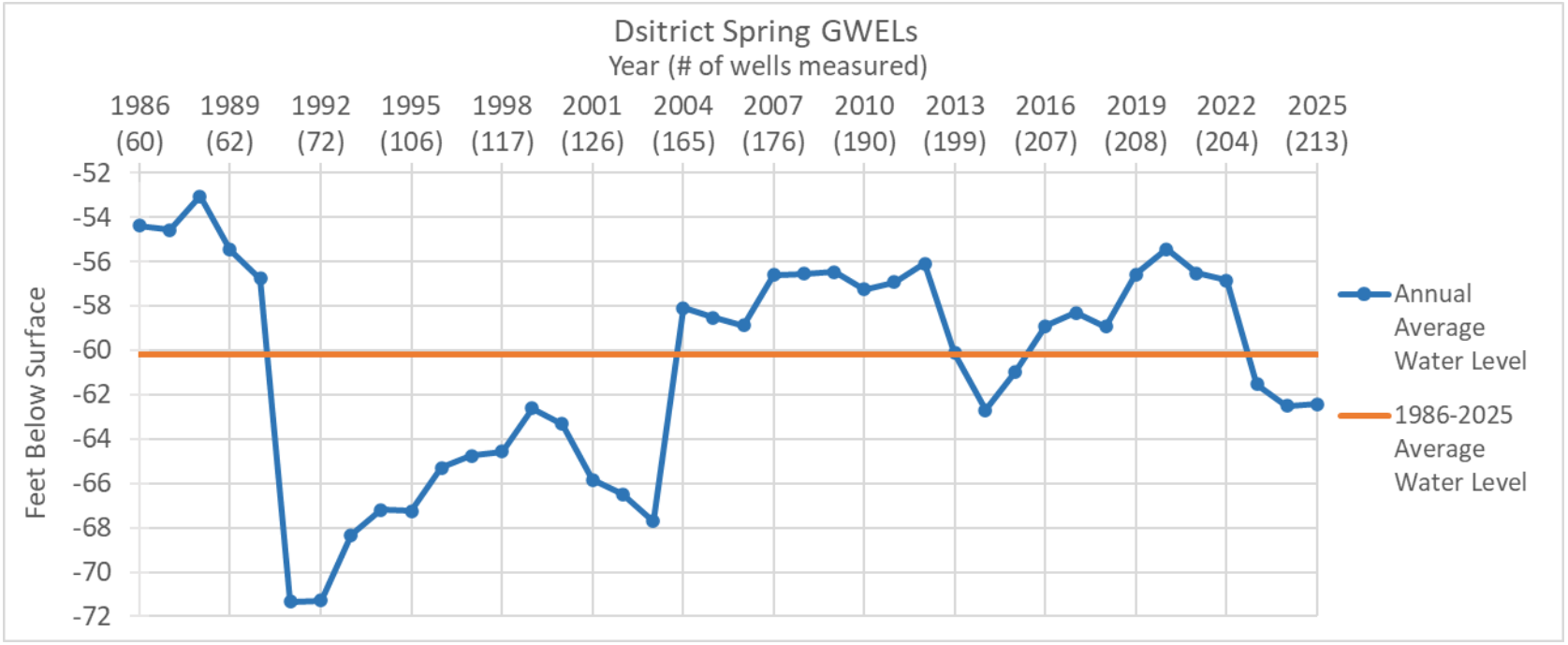

Todd Valley GWEL Recovery from Fall to Spring
Spring Season (# of measured wells)
2011 (20)
2012 (20)
2013 (20)
2014 (20)
2015 (20)
2016 (20)
2017 (23)
2018 (23)
2019 (23)
2020 (22)
2021 (23)
2022 (20)
2023 (23)
2024 (23)
2025 (23)
Fall to Spring Change in GWEL (ft)
2
1.5
1
0.5
0
-0.5
-1

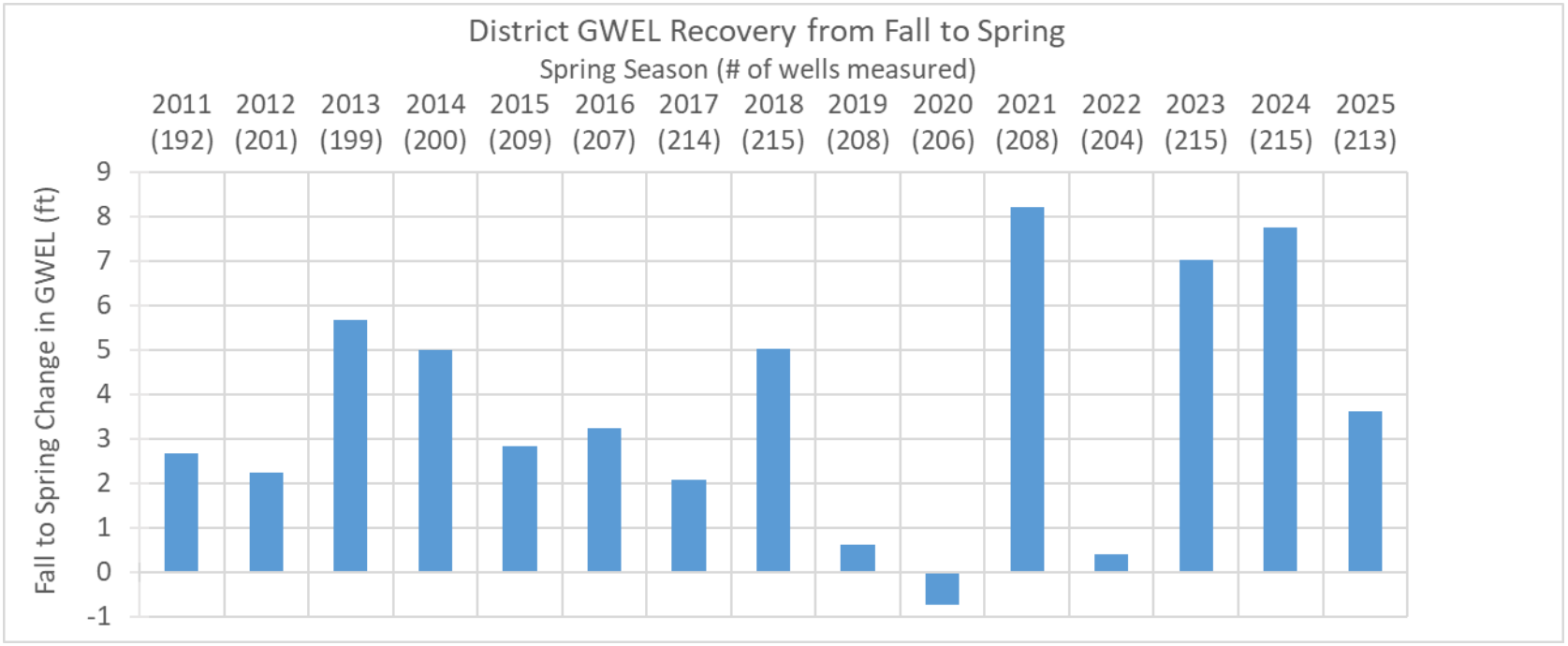

Shell Creek Spring GWELs
Year (# of measured wells)
1986 (22)
1989 (22)
1992 (22)
1995 (36)
1998 (37)
2001 (37)
2004 (39)
2007 (41)
2010 (42)
2013 (43)
2016 (46)
2019 (46)
2022 (42)
2025 (46)
Feet Below Surface
-68
-70
-72
-74
-76
-78
-80
-82
-84
-86
-88
-90
-92
-94
-96
Annual Average Water Level
1986-2025 Average Water Level


Shell Creek GWEL Recovery from Fall to Spring
Spring Season (# of measured wells)
2011 (42)
2012 (43)
2013 (43)
2014 (44)
2015 (46)
2016 (46)
2017 (48)
2018 (47)
2019 (46)
2020 (46)
2021 (44)
2022 (42)
2023 (46)
2024 (46)
2025 (46)
Fall to Spring Change in GWEL (ft)
12
11
10
9
8
7
6
5
4
3
2
1
0


Uplands Spring GWELs
Year (# of measured wells)
1986 (15)
1989 (16)
1992 (25)
1995 (30)
1998 (32)
2001 (35)
2004 (34)
2007 (38)
2010 (52)
2013 (56)
2016 (59)
2019 (61)
2022 (60)
2025 (64)
Feet Below Surface
-80
-85
-90
-95
-100
-105
-110
-115
-120
-125
-130
Annual Average Water Level
1986-2025 Average Water Level


Uplands GWEL Recovery from Fall to Spring
Spring Season (# of measured wells)
2011 (55)
2012 (56)
2013 (56)
2014 (57)
2015 (61)
2016 (59)
2017 (61)
2018 (63)
2019 (61)
2020 (60)
2021 (60)
2022 (60)
2023 (64)
2024 (64)
2025 (64)
Fall to Spring Change in GWEL (ft)
14
12
10
8
6
4
2
0
-2
-4


Dsitrict Spring GWELs
Year (# of wells measured)
1986 (60)
1989 (62)
1992 (72)
1995 (106)
1998 (117)
2001 (126)
2004 (165)
2007 (176)
2010 (190)
2013 (199)
2016 (207)
2019 (208)
2022 (204)
2025 (213)
Feet Below Surface
-52
-54
-56
-58
-60
-62
-64
-66
-68
-70
-72
Annual Average Water Level
1986-2025 Average Water Level


District GWEL Recovery from Fall to Spring
Spring Season (# of wells measured)
2011 (192)
2012 (201)
2013 (199)
2014 (200)
2015 (209)
2016 (207)
2017 (214)
2018 (215)
2019 (208)
2020 (206)
2021 (208)
2022 (204)
2023 (215)
2024 (215)
2025 (213)
Fall to Spring Change in GWEL (ft)
9
8
7
6
5
4
3
2
1
0
-1

CONNECTING WATER TO LIFE

Memorandum

To:	Daryl Andersen, LPNNRD
From:	Jonathan Mohr, LRE Water & Roscoe Sopiwnik, PG, LRE Water
Copy to:	Eric Gottschalk & Ryan Chapman, LPNNRD; Dave Hume, PG, LRE Water
Date:	April 30, 2025
Project:	Groundwater Management Plan Update
Subject:	Key Recommendations Summary and Budgeting Cost Estimate

The Groundwater Management Plan (GWMP) Update (current version 7.0) included several recommendations for the LPNNRD to enhance their methods of groundwater management. These recommendations were presented and discussed with staff and the Board of Directors during a retreat on February 7, 2025. Overall, the staff and Board expressed support for the proposed recommendations.

This document provides budget-level cost estimates for each recommendation outlined below. **Please note that these cost estimates are intended for budgeting purposes only. LRE Water can provide a detailed scope of work and refined cost estimates upon request.** LRE Water can also assist with grant applications to support the implementation of these key recommendations.

Recommendations:

1. Adoption of Groundwater Management Subareas
2. Expansion of the Observation Well Network
3. Updating the Variance Scoring Sheet
4. Quantity Trigger Adjustments
5. Clarification of Terminology
6. Re-evaluation of Special Quantity Subareas
7. Enhancement of Data Transparency and Communication
8. Reassessment of Water Quality Triggers

1. Adoption of Groundwater Management Subareas

During the GWMP update process, LRE Water refined the existing subareas and thoroughly discussed the boundaries with staff and the Board of Directors. The Board has given initial approval for the use of subareas. No additional work by LRE Water is expected aside from assisting with the incorporation of subareas into the rules and regulations. The final subareas have been provided to LPNNRD.

Preliminary Cost Range: Not Applicable

2. Expansion of the Observation Well Network

The LPNNRD has already begun expanding the observation well network by obtaining funding from NeDNR to purchase several pressure transducers with loggers for use in observation wells within Wellhead Protection (WHP) areas. Additionally, a grant application for the Water Sustainability Fund (WSF) was submitted in March 2025 to secure funding for 29 additional observation wells with loggers and telemetry near Public Water Supply systems.

Following the Hydrogeologic Assessment in 2024, LRE Water identified several data gaps outside WHP areas. To address these, LRE Water can conduct a detailed observation well siting assessment that includes:

1. **Defining Objectives**: Determine the purpose of observation wells, such as monitoring water levels, quality, or both. Collaborate with LPNNRD staff to identify priority areas.
2. **Site Selection**: Choose locations based on hydrogeologic conditions, proximity to high-capacity wells, and accessibility.
3. **Design Specifications**: Select appropriate depths, screen intervals, and types to ensure functionality and support decision-making.

This assumes there is no field work and no equipment cost have been included.

Preliminary Cost Range: $15,000 - $20,000

3. Updating the Variance Scoring Sheet

During the GWMP update process, LRE Water reviewed the variance scoring sheet and recommended significant modifications, including the creation of separate sheets for confined and unconfined aquifers. Additional criteria, such as the Resource Development Risk Map, updated ranges of new consumptive uses, well density, water level trends, and nitrate concentrations, were suggested.

LRE Water will develop two scoring sheets (confined and unconfined aquifer setting) and work with LPNNRD staff to test each sheet against past scoring sheet evaluations and Board recommendations for variance actions.

Preliminary Cost Range: $10,000 - $12,000

4. Rules and Regulation Update

Implementation of several of the recommendations would require an update to the rules and regulations. LRE Water will provide technical assistance and input to LPNNRD staff as the District updates their rules and regulations. This would include at least further review and recommendations for altering water quantity triggers, incorporating subareas, and making suggestions on clarification of key terminology.

The focus would be on quantity triggers. Although quantity triggers have been in place since 1987, they have yet to be used by LPNNRD to implement a Groundwater Management Area. Revising the quantity triggers methodology could likely be completed immediately before or during an official update of the rules and regulations.

Key tasks include:

1. **Clarification of terminology** - Revising rules and regulations to ensure terminology and definitions are clear and consistent. Examples include terms such as "Trigger Level," "Control Areas," "Subareas," and "Groundwater Management Areas."
2. **Quantity Triggers** – Working with staff and the Board to create an updated methodology to evaluate areas with declining water levels. Incorporate the new method.
3. **Subareas** - Incorporating language that describes the purpose and intent of the subareas.
4. **Document Formatting**: Provide support in updating and refining the format of the existing documents.

Preliminary Cost Range: $25,000 - $30,000

If the LPNNRD requests assistance with other aspects of the rules and regulation update, LRE Water will update the preliminary cost range.

5. Clarification of Terminology

Clarification of terminology is included as part of the rules and regulation update outlined above.

6. Reevaluation of Special Quantity Subarea Boundaries

The Special Quantity Subareas (SQS) established in 2016 aim to address aquifer level declines during peak irrigation periods that risk water shortages in shallower wells. Periodic boundary reevaluations are essential for monitoring and effective management. This study proposes a hydrogeologic reassessment of Butler/Saunders SQS #1 and Platte/Colfax SQS #2, leveraging existing data, Airborne Electromagnetic (AEM) surveys, and hydrogeologic insights. The proposed tasks include:

- Conducting a desktop review of water levels within and around the SQS areas, incorporating data from neighboring NRDs.
- Integrating Hydrogeologic Assessment the 3D AEM Framework data to characterize project-area hydrogeology.
- Obtain and review historic metered well pumping volumes.
- Developing a Geographic Information System (GIS) model to visualize historic groundwater changes, including an animated representation.
- Producing a detailed report with findings, data gaps, and recommendations for potential boundary modifications.

Preliminary Cost Range: $30,000 - $35,000

NOTE: The Lower Platte River Basin Sub-Regional Groundwater Model is under construction as of May 2025. If available, LRE Water can use this groundwater model to review potential changes in water levels given a variety of water management scenarios, such as pumping allocations. If groundwater modeling is desired, LRE Water can provide an update to this preliminary cost range.

7. Enhancement of Data Transparency and Communication

Improved real-time data collection and web-based visualization tools can enhance transparency and public communication. Recommendations include:

- Developing an online data visualization tool to display recent nitrate concentrations, water level trends, and related information.
- Sharing maps and data from the Hydrogeologic Assessment, GWMP, and rules and regulations.
- Establishing a system for public notifications through text messaging or email about upcoming events, meetings, and policy changes.

In April 2025, LRE Water significantly updated the Nitrate Risk Tool (Tool) to cover the Shell Creek Watershed down to the Schuyler/Richland GWMA. There are many expanded features of the new Tool that could be leveraged and expanded to the remainder of the District:

- Rapid display of additional well data such as status, depth, nitrate concentrations, and depth to water.
- Integration and public sharing of Hydrogeologic Assessment data like transmissivity and saturated sand thickness.
- Incorporation of LPNNRD's real-time water level data, spring/fall water levels, and other data sources.

Note: The Nitrate Risk Tool feature itself would not be expanded to the remainder of the District, only the additional basic features of the Tool.

Preliminary Cost Range: $40,000 - $45,000

8. Water Quality Trigger Update

There were many discussions related to changes to the current water quality trigger and questions on how to justify a change. LRE Water would not be involved in providing input related to potential changes to the water quality trigger update, unless requested.

Preliminary Cost Range: Not applicable

Goals and Objectives

Groundwater Management Goals and Objectives

The primary management target, defined below in the Vision Statement, is to maintain the 'groundwater reservoir life goal' – defined within the Rules and Regulations as the period of time which the District establishes as its goal for maintenance of the supply and quality of water in a groundwater reservoir. This goal can also be described as ensuring a safe yield for aquifers, which is the amount of water that can be sustainably withdrawn without causing long-term depletion or adverse effects on the aquifer and hydrologically connected water resources. The goals and objectives are intended to guide water resource management decision making.

LPNNRD Groundwater Management Vision Statement

Strive for the continuous management of the groundwater reservoir, in perpetuity, to ensure it meets the standards appropriate for its various uses, including domestic, livestock, public water supply, public health, irrigation, agriculture, wildlife, industrial, and other beneficial uses. Minimizing, as much as possible, the adverse impact of these uses on the quantity and quality of groundwater that supports lakes, wetlands, and streams.

By implementing the five goals and objectives shown below, the LPNNRD can ensure groundwater remains a reliable resource while protecting the ecosystems that depend on it. Goal categories include monitoring, pollution prevention, conservation, public education, and sustainable management plans and regulations.

Goal 1 – To continuously monitor and assess groundwater levels and quality to detect changes early.

- **Objective 1.1** - The effort to monitor and sample water quality will be continued and expanded as necessary focusing on wells with known construction data.
- **Objective 1.2** – Integrate scientific advances and research into plans and regulations.
- **Objective 1.3** – Repeat annual water quality sampling to help understand nonpoint source contamination.
- **Objective 1.4** – Collaborate with various partners to review and expand the water quality monitoring network.
- **Objective 1.5** – Maintain and steadily expand the spring/fall water energy level monitoring network.
- **Objective 1.6 –** Explore opportunities to obtain real-time water use and aquifer level data from dedicated observation wells.
- **Objective 1.7 –** Continue expansion of the dedicated monitoring well network, for both quantity and quality purposes, at critical locations in the District.
- **Objective 1.8** – Ensure pumping of groundwater does not directly degrade water quality.

Goal 2 – To reduce the potential for pollution to ensure a sustainable supply of high-quality, consumable, and safe groundwater for all users in the NRD.

- **Objective 2.1 –** Utilize available studies and tools to gain a stronger understanding of groundwater flow and contamination movement.
- **Objective 2.2** - Obtain and assess data that supports sustainable development decisions.
- **Objective 2.3** – Explore efforts for cost share programs that promote reduction of pollutants to the aquifer.
- **Objective 2.4** – Offer cost share for well decommissioning.
- **Objective 2.5** – Promote cutting-edge technologies to improve application efficiencies as nitrate-reducing tools.
- **Objective 2.6** – Proactively manage Phase Areas where vulnerable aquifers or excessive nitrate exist and recognize the importance of reducing nitrogen loading and leaching to aquifers that provide public water supplies.

Goal 3 – The LPNNRD will continue to encourage the use of highly-efficient water conservation management practices intended to maintain water levels.

- **Objective 3.1** – Utilize hydrogeologic and modeling data to assess the impacts of new uses and understand the response of water levels to drought or reduced precipitation trends.
- **Objective 3.2** – Promote efficient irrigation and farming practices to improve soil health, reduce erosion, and enhance water retention and recharge.
- **Objective 3.3** – Connect property owners to existing conservation programs that benefit water quality and quantity.
- **Objective 3.4 –** Create a strategy for managing water declines and supporting communities during severe droughts.
- **Objective 3.5** – Continue management of Control Areas where thin or limited aquifers exist and recognize the importance of conjunctive management of hydrologically connected areas.

Goal 4 – Continue to be a resource for outreach and education of youth and adults emphasizing the importance of protecting groundwater resources.

- **Objective 4.1** – Involve stakeholders in the review process to gather diverse perspectives and needs.
- **Objective 4.2** – Expand public education programs to raise awareness about the relationship of nitrates to public health, along with other water quality issues and encourage water conservation measures.
- **Objective 4.3** – Utilize hydrogeologic data and studies to provide an opportunity for one-on-one education.
- **Objective 4.4** – Participate in natural resources workshops, county fairs, camps, and classroom presentations.
- **Objective 4.5** – Demonstrate cutting-edge technologies for water and fertilizer management.
- **Objective 4.6 -** Provide information and education through news articles, social media, newsletters, brochures, and the website.
- **Objective 4.7 –** Create a web-based graphic user interface to allow users to obtain and view hydrogeologic data and other relevant maps and information.

Goal 5 – To develop and enforce Rules and Regulations and plans that balance usage with natural replenishment rates and reduce contamination.

- **Objective 5.1** – Regularly update the Groundwater Management Plan and Rules and Regulations to meet changing water uses, emerging contaminants, and integration of the latest policies.
- **Objective 5.2** – Align regulations with new state and federal policies to ensure compliance and leverage available resources.
- **Objective 5.3 –** Implement an adaptive management approach that allows for flexibility and adjustment based on monitoring results and changing conditions.
- **Objective 5.4** – Continue active participation in Lower Platte River Basin integrated and drought management plans and implementation.
- **Objective 5.5** – Encourage community participation in NDEE's Wellhead Protection Program.
- **Objective 5.6** – Utilize the hydrogeological based subareas to manage Control Areas, and as the basis for defining study areas for potential Phase Areas.
- **Objective 5.7** – Regularly review and update the Integrated Management Plan to balance water uses and ensure sustainable water management, including maintaining instream flows.
- **Objective 5.8 –** Support and conduct special studies, research, and data gathering activities.

CONNECTING WATER TO LIFE

April 10, 2025
Invoice No: 29746

Invoice Total: $2,906.75

Daryl Andersen
Lower Platte North NRD
511 Commercial Park Road
Wahoo, NE 68066-0126

Please Remit To:
LRE Water
1221 Auraria Pkwy
Denver, CO 80204
(303) 455-9589
billing@LREwater.com

Invoice Email: dandersen@lpnnrd.org
Project No.: 5036LPN03
Project Name: LPNNRD GW Management Plan

Professional Services through March 29, 2025

Task 06 Review Spring/Fall Wells

Professional Personnel

		Hours	Rate	Amount	
Libra, Jon		19.25	151.00	2,906.75	
	Totals	19.25		2,906.75	
	Total Labor				**$2,906.75**
			Total this Task		**$2,906.75**
			Total this Invoice		**$2,906.75**

AMENDMENT #6

TO THE COOPERATIVE AGREEMENT SIGNED June 24, 2015
between the

LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and

THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ON BEHALF OF THE UNIVERSITY OF NEBRASKA-LINCOLN THROUGH ITS CONSERVATION AND SURVEY DIVISION, SCHOOL OF NATURAL RESOURCES

THIS AMENDMENT is made and entered into this _____ day of ___May_____, 2025, to modify the original AGREEMENT signed on the 24th day of June, 2015 by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

THEREFORE, IT IS MUTUALLY AMENDED THAT:

(1) **PERIOD:** This AMENDMENT shall be in effect from July 1,2025 to June 30, 2028 unless terminated or amended by the terms of the AGREEMENT.

(2) **STATEMENT OF WORK**: Specific elements listed in the attached proposal, herein referred to as Attachment #1 are expanded to include such actions as: ground-based geophysical measurements, related assessment fieldwork and additional technical expertise.

(3) **PRINCIPAL INVESTIGATORS** Kathleen Cameron, Eastern Nebraska Water Resources Assessment (ENWRA) Coordinator/CSD Hydrogeologist shall be the principal investigator for the project (50%). Jesse Korus CSD Assistant Professor (30%), Matt Marxsen lead driller of CSD (10%), and Susan Lackey (10%) will be co-principal investigators for the project.

(4) All portions of the original AGREEMENT remain in effect.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By _____ Date _____

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By _____ Date _____

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By _____ Date _____

ATTACHMENT #1

Test-hole Drilling, Logging and Surveying Program for the Lower Platte North Natural Resources District

The Lower Platte North Natural Resources District (LPNNRD) has a complex assemblage of aquifers which supply most of the water used for irrigation and drinking. The LPNNRD has future plans to drill test-holes, record down-hole data, and collect geophysical and hydrogeologic measurements to establish baseline information about groundwater quality, quantity, and aquifer composition.

Conservation and Survey Division (CSD) scientists will perform preliminary hydrogeologic analyses to determine the most appropriate drilling and surveying sites. These will be reviewed with the LPNNRD staff that will be responsible for obtaining landowner permission for site access for test-hole drilling and geophysical/hydrogeologic measurements. CSD will drill the test-holes and conduct the geophysical/hydrogeologic measurements and surveys. The LPNNRD will provide staff on-site during fieldwork to interact with the public and assist the CSD as needed.

At the time of drilling, samples will be collected by CSD geologists to adequately represent the types of material encountered during the drilling operation. These samples will be described both in the field and in the laboratory to determine the lithologic composition and stratigraphic nomenclature of the test-hole. At the completion of drilling operation for each rotary test-hole, a geophysical log suite will be obtained using CSD's equipment and personnel. Measurements will include natural gamma, single-point resistance, spontaneous potential, 16- and 64-inch normal resistivity, lateral resistivity, fluid resistivity and fluid temperature. The geophysical log suite will aid in the interpretation of lithology and, in some instances, provide information on hydraulic properties of various units encountered within the test-hole. Some locations may be wire-line cored in lieu of rotary drilling depending on schedule, budget and depth of drilling.

At the time of ground based geophysical surveys and/or hydrogeologic related measurements (if applicable) CSD will collect, process and interpret the field data and provide information on the hydrogeologic properties of various units encountered.

Once the interpretation phase is complete, the drilled samples will be placed in CSD's test-hole repository and the geophysical/hydrogeologic data uploaded to the Nebraska GeoCloud maintained by the CSD. CSD scientists will utilize desktop information, the test-hole logs, and field measurements to design monitoring wells and define pumping and water level monitoring equipment or provide other hydrogeologic specifications (if applicable). An additional CSD contribution to the project will be conducting downhole geophysical logs for other hydrogeologic assessments (non-CSD drilling) planned in the LPNNRD in the next three years that align with CSD's ongoing objectives and schedule (if applicable).

Budget

Year	Budget Category	Estimated Quantity	Cost
One (FY26)	Equipment (Test-hole Drilling, Geophysical Logging and Well Designs)	~4 holes, up to 1,350 total feet	$11,600.00
	Labor (Drilling)		$3,500.00
	Expenses (Crew and Geologists' Travel)		$1,500.00
	Ground Geophysical surveys	One survey	$13,000
		Subtotal	**$29,600.00**

Year	Budget Category	Estimated Quantity	Cost
Two (FY27)	Equipment (Test-hole Drilling, Geophysical Logging and Well Designs)	~4 holes, up to 1,350 total feet	$11,600.00
	Labor (Drilling)		$3,500.00
	Expenses (Crew and Geologists' Travel)		$1,500.00
		Subtotal	**$16,600.00**

Year	Budget Category	Estimated Quantity	Cost
Three (FY28)	Equipment (Test-hole Drilling, Geophysical Logging and Well Designs)	~4 holes, up to 1,350 total feet	$11,600.00
	Labor (Drilling)		$3,500.00
	Expenses (Crew and Geologists' Travel)		$1,500.00
	Ground Geophysical surveys	One survey	$13,000
		Subtotal	**$29,600.00**

Note: CSD equipment, crew labor and personnel travel costs will be invoiced according to the actual quantities accomplished at current CSD rates. **Budget** assumes 9-12 test holes and up to two geophysical surveys for estimating purposes, **invoice amounts will not exceed $75,800**. LPNNRD is scheduled for a **$9,150.00 dues credit** from ENWRA in fiscal year (FY) 2026 or FY 2027 for hydrogeologic assessment activities.

Potential Site Locations tentatively planned for the LPNNRD:

Test hole/Log ID	Test hole/Log ID	high Ground (feet AMSL)	Low Ground (feet AMSL)	AQ1 Mid (feet AMSL)	AQ1 Thickness (feet)	AQ2 Mid (feet AMSL)	AQ2 Thickness (feet)	Dakota Top (feet AMSL)	Paleozoics Top (feet AMSL)	Total TH Depth (feet below ground)	# of Monitoring Wells	Total FT of 4in Wells	1995 WT
Abie	01-LPN-2025	1560	1405	1400	20	1150	80	1230	750	450	2	570	1425
Bellwood	02-LPN-2025	1490	1430	1400	60	1310	10-30	1120	620	210	3	400	1430
Cedar Bluffs	03-LPN-2025	1365	1250	1150	50	1025	30	1100	800	360	3	630	1250
David City	04-LPN-2025	1645	1510	1300	50	1160	50	1200	700	450	2	830	1450
Fremont		1360	1150	-	-	-	-	1165	860	-	-	-	1160-1210
Malmo	01-LPN-2026	1420	1230	1200	20	1050	25	1150	805	375	2	590	1250
Mead	02-LPN-2026	1300	1175	1100	100	980	50	1080	880	300	2	520	1250
Newman Grove	03-LPN-2026	1940	1650	1650	30	1450	70	950	427	400	2	780	1675
Prague	04-LPN-2026	1500	1338	1300	50	1215	80	1250	790	360	3	935	1325
Wahoo		1390	1160	1130	-	1130	-	1100	850	-	-	-	1160
Weston	01-LPN-2027	1380	1210	1225	20	1100	50	1150	790	320	2	435	1225
Yutan	02-LPN-2027	1315	1115	1140	20	1060	50	1060	900	340	3	560	1150
River Influence	03-LPN-2027	1400	1300	1300	50	1220	100	1220	600	220	3	280	1440_1290
River Influence	01-LPN-2028	1300	1190	1190	50	1165	100	1165	850	220	2	245	1290_1190
	Note: AMSL is above mean sea level, numbers reported in feet (* indicates CSD estimated)												

COOPERATIVE AGREEMENT
between the
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and
THE CONSERVATION AND SURVEY DIVISION,
SCHOOL OF NATURAL RESOURCES, UNIVERSITY OF NEBRASKA

THIS AGREEMENT, is entered into the 24th day of June, 2015, by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

The LPNNRD and the CSD, in accord with their ongoing program responsibilities, desire to participate in a CSD test hole drilling and monitoring well installation program to (1) Provide test hole drilling equipment, supplies and expertise for obtaining subsurface geologic and hydrogeologic information within the LPNNRD boundaries; (2) Provide bore-hole geophysical logging equipment, supplies and expertise for obtaining measurements of physical, chemical and electrical properties within test holes drilled at each site; (3) Provide well designs and administration services of the contract associated with the installation of monitoring wells (if applicable); and (4) Provide on-site training for LPNNRD staff during the well construction phase (if applicable).

THEREFORE, IT IS MUTUALLY AGREED THAT:

(1) **COOPERATION:** The LPNNRD and the CSD desire to cooperate and collaborate to accomplish the study objectives mutually agreed upon.

(2) **PERIOD:** This agreement shall begin upon approval by LPNNRD and will continue for a period of one year or as may be altered pursuant to the provisions of Section 9.

(3) **STATEMENT OF WORK:** Certain portions of the study require a significant level of technical expertise and interpretation from the CSD. These include specific elements as listed in the attached proposal, herein referred to as Attachment #1.

(4) **LPNNRD CONTRIBUTIONS:** As hereinafter limited, the LPNNRD shall contribute such of its funds, facilities, equipment, materials and personnel as it deems suitable and appropriate to accomplish the objectives of the study. The LPNNRD shall provide funds to the CSD to support costs directly related to test hole drilling activities, monitoring well installations (if applicable), and field completion report expenditures. The costs include approximately five test hole drilling locations, each up to approximately 700 feet deep, and will not exceed the amount of thirty-two thousand dollars ($32,000).

(5) **CSD CONTRIBUTION:** The CSD shall utilize funds provided by the LPNNRD and such of its own funds for facilities, equipment, materials and personnel as it deems suitable to conduct the investigation and analysis called for in this Agreement and to prepare final drafted products.

(6) **PRINCIPAL INVESTIVATORS:** Kathleen Cameron, Eastern Nebraska Water Resources Assessment (ENWRA) Coordinator/CSD Hydrogeologist, shall be the principal investigator for the project (50%). Susan Lackey and Dana Divine of CSD will be the

co-principal investigators for the project (25% each).

(7) **PUBLICATION**: Both parties shall have the right to announce and publish the results, facts, or conclusions of cooperative work under the terms of the Agreement, provided such announcement or publication shall expressly recognize the cooperation of the other party and provided such publication shall not indicate approval of the results, facts or conclusions by the other party. It is recognized that the CSD is obligated to maintain public access to data obtained in this study.

(8) **LIABILITY**: Each party agrees that it will be responsible for its own acts and the results thereof and shall not be responsible for the acts of the other parties and the results thereof. Each party therefore agrees that it will assume all risk and liability to itself, its agents or employees, for any injury to persons or property resulting in any manner from the conduct of its own operations, and the operations of its agents or employees, under this Agreement, and for any loss, cost, damage, or expense resulting at any time from any and all causes due to any act or acts, negligence, or the failure to exercise proper precaution of or by itself or its own agents or its own employees while occupying or visiting the premises under and pursuant to this Agreement.

(9) This Agreement may be modified and/or extended provided that such modifications and extensions are executed by authorized officials of the LPNNRD and the CSD.

(10) Attachment #1 is hereby incorporated in and made a part of this Agreement the same as if it had been specified herein verbatim.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By _____ Date 6-24-15
John R. Miyoshi

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By _____ Date 07/31/15
Robert Matthew Joeckel

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By _____ Date 8/3/15

Jeanne Wicks, Director
Office of Sponsored Programs

ATTACHMENT #1

Test Hole Drilling and Monitoring Well Installation Program for the Lower Platte North Natural Resources District

The Lower Platte North Natural Resources District (LPNNRD) has a complex assemblage of aquifers which supply most of the water used for irrigation and drinking. The LPNNRD has future plans to drill test holes, record down-hole data, and construct monitoring wells to establish baseline information about groundwater quality, quantity, and aquifer composition.

Conservation and Survey Division (CSD) scientists will perform preliminary hydrogeologic analyses to determine the most appropriate drilling sites. These will be reviewed with the LPNNRD staff that will be responsible for obtaining landowner permission for site access for test hole drilling and monitoring well installation (if applicable).

CSD will drill or will hire a licensed water well contractor to drill the test holes. At the time of drilling, samples will be collected to adequately represent the types of material encountered during the drilling operation. These samples will be described both in the field and in the laboratory to determine the lithologic composition and stratigraphic nomenclature of the test hole. Once the interpretation phase is complete, the samples will be placed in CSD's test hole repository future use and the information obtained will be entered into the statewide test hole database maintain by the CSD.

At the completion of drilling operation for each test hole, a geophysical log suite will be obtained using CSD's equipment and personnel. Measurements will include natural gamma, single-point resistance, spontaneous potential, 16- and 64-inch normal resistivity, lateral resistivity, fluid resistivity and fluid temperature. The geophysical log suite will aid in the interpretation of lithology and, in some instances, provide information on hydraulic properties of various units encountered within the test hole. CSD scientists will utilize the test hole logs to design the monitoring wells and define pumping and water level monitoring equipment specifications (if applicable).

An additional CSD responsibility to the project will be the preparation and administration of the test hole drilling and/or monitoring well installation contract. The process will include the preparation of a subcontractor contract to be released for bid and the subsequent administration of the contract to ensure that the specified work has been completed. CSD will also train LPNNRD staff to obtain accurate well construction data and to complete well completion logs for each monitoring well (as applicable).

Budget

Year	Budget Category	Estimated Quantity	Cost
One (2014-2015)	Test Hole Drilling & Sampling (approx. 3,000 feet of drilling – individual test hole depths not to exceed 700 feet)	5	$ 26,000
	Geophysical Logging	5	$ 4,000
	Report Development		$ 2,000
	Year One Annual Total		**$ 32,000**

Potential Site Locations by the Lower Platte North NRD
Test Holes and Monitoring Wells

Test Hole	Test Hole Priority	Also Monitoring Well and Priority	Subarea	Comments
Sec. 3, T17N, R7E, SE of NE / half mile line	High	Yes, high	North Bend	East of Fremont Cutoff Ditch / NBP#1
Sec. 22, T19N, R2E, NW	High-medium	No	Middle Shell Creek	Sec. 23 no registered wells, LENRD Sec. 14 one irrigation well in NW1/4, LENRD / MSC#1
Sec. 9, T18N, R2E	High if no log	Yes, Existing, old domestic well	Shell Creek Uplands	Clint Johannes site, old domestic well, well log?
Sec. 5, T18N, R2E NE of NW	High	No	Shell Creek Uplands	Prefer TH along north county road in the middle / SCU#2
Sec. 21, T16N, R6E NW	High	?	Prague	P#1
Sec. 33, T16N, R6E SE of SW	High	?	Prague	P#2
Sec. 21, T15N, R6E NE of NW	High	?	Prague	P#3
Sec. 8, T15N, R5E SE of NW UP-22	High	Existing stock well	Prague	UP-22 Galen Jambor well, no log, nearest well 0.65 miles east G-150701
Sec. 5, T16N, R5E NE of NW	High	?	Prague	P#5
Sec. 20, T16N, R5E NW of NE	High	?	Prague	P#6 (or P#7)
Sec. 32, T16N, R5E SE of SW	High	?	Prague	P#7 (or P#6)
Sec. 20, T15N, R5E NW of NW	High	?	Prague	P#8

AMENDMENT #1 TO COOPERATIVE AGREEMENT SIGNED June 24, 2015
between the
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and
THE CONSERVATION AND SURVEY DIVISION,
SCHOOL OF NATURAL RESOURCES, UNIVERSITY OF NEBRASKA

THIS AMENDMENT is made and entered into this 11th day of April, 2016, to modify the original AGREEMENT signed on the 24th day of June, 2015 by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

THEREFORE, IT IS MUTUALLY AMENDED THAT:

(1) **PERIOD:** This AMENDMENT shall be in effect from March 18, 2016 to June 30, 2017 unless terminated or amended by the terms of the AGREEMENT.

(2) **BUDGET:** Specific budget items as listed in the attached table, herein referred to as Budget.

Amendment No. 1 Well Installation Budget: **$44,600.00**

(3) All portions of the original AGREEMENT remain in effect.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By _____ Date 4-11-16

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By _____ Date 04/25/2016

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By _____ Date 5/13/16

Jeanne M. Wicks, Director
Office of Sponsored Programs

BUDGET

	Year	Budget Category	Estimated Quantity	Cost
One Deep Well at Prague Uplands (P-3 location)	FY 2016	One Deep Dakota Monitoring Well Installation (larger diameter hole to accommodate well install and additional reaming), Setting Surface Casing (60 feet), Well Development, Cover & Pad (up to approx. 500 feet)	1	$ 32;100
		P-3 Subtotal		**$ 32,100**
	Year	**Budget Category**	**Estimated Quantity**	**Cost**
Two Wells at North Bend (NB-1 location)	FY 2016	One Dakota Monitoring Well Installation (larger diameter hole to accommodate well install and additional reaming), Setting Surface Casing (20 feet), Well Development, Cover & Pad (up to approx. 300 feet)	1	$ 10,750
		One Shallow Monitoring Well Installation (up to 25 feet deep)	1	$ 1,750
		NB-1 Subtotal		**$12,500**
			TOTAL	**$44,600**

Notes: Estimated costs are not to exceed and actual billing amounts will be based on invoices received by the selected subcontractor for actual footages drilled. A Request For Proposal (RFP) is planned for release by CSD in spring 2016. CSD will coordinate e-logging NB-1 and designing screen intervals during the well installation work.

Additionally, ENWRA has budgeted funds to credit back each of the ENWRA NRDs, including the LPNNRD on this project, **$9,150** on the FY17 ENWRA dues for test hole work done along ENWRA Airborne Electromagnetic (AEM) Survey reconnaissance lines.

Potential Site Locations by the Lower Platte North NRD
Test Holes and Monitoring Wells

Test Hole	Test Hole Priority	Also Monitoring Well and Priority	Subarea	Comments
Sec. 3, T17N, R7E, SE of NE / half mile line	Completed	Yes, high	North Bend	East of Fremont Cutoff Ditch / NB#1
Sec. 22, T19N, R2E, NW	Completed	No	Middle Shell Creek	Sec. 23 no registered wells, LENRD Sec. 14 one irrigation well in NW1/4, LENRD / MSC#1
Sec. 9, T18N, R2E	High if no log	Yes, Existing, old domestic well	Shell Creek Uplands	Clint Johannes site, old domestic well, well log?
Sec. 5, T18N, R2E NE of NW	High	?	Shell Creek Uplands	Prefer TH along north county road in the middle / SCU#2
Sec. 21, T16N, R6E NW	Completed	?	Prague	P#1
Sec. 33, T16N, R6E SE of SW	High	?	Prague	P#2
Sec. 21, T15N, R6E NE of NW	Completed	?	Prague	P#3
Sec. 8, T15N, R5E SE of NW UP-22	High	Existing stock well	Prague	UP-22 Galen Jambor well, no log, nearest well 0.65 miles east G-150701 P#4
Sec. 5, T16N, R5E NE of NW	High	?	Prague	P#5
Sec. 20, T16N, R5E NW of NE	High	?	Prague	P#6
Sec. 32, T16N, R5E SE of SW	Completed	?	Prague	P#7
Sec. 20, T15N, R5E NW of NW	High	?	Prague	P#8

NOTE: Green highlights are potential locations for Options A through D

AMENDMENT #2 TO COOPERATIVE AGREEMENT SIGNED June 24, 2015
between the
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and
THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ON BEHALF OF THE UNIVERSITY OF NEBRASKA-LINCOLN THROUGH ITS CONSERVATION AND SURVEY DIVISION, SCHOOL OF NATURAL RESOURCES

THIS AMENDMENT is made and entered into this 9 day of October, 2017, to modify the original AGREEMENT signed on the 24th day of June, 2015 by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

THEREFORE, IT IS MUTUALLY AMENDED THAT:

(1) **PERIOD:** This AMENDMENT shall be in effect from September 7, 2017 to June 30, 2020 unless terminated or amended by the terms of the AGREEMENT.

(2) **BUDGET:** Specific budget items as listed in the attached table, herein referred to as Budget.

Amendment No. 2 Test Hole and Well Installation Budget (FY18): **$136,700.00**

(3) All portions of the original AGREEMENT remain in effect.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By _____ Chairman Date 10-9-17

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By _____ Date 11/07/17

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By Jeanne Wicks Digitally signed by Jeanne Wicks DN: cn=Jeanne Wicks, o=University of Nebraska-Lincoln, ou=OSP Director, email=jwicks2@unl.edu, c=US Date: 2017.11.01 10:31:52 -05'00' Date 11/1/2017

AMENDMENT #2 Budget

Year	Budget Category	Estimated Quantity	Cost
One (FY18) SQS 2	CSD test-hole logging (2 geologists travel, geophysical logging unit charges)	2 test holes & 1-3 monitoring wells	$5,670
	Test-hole drilling and well installation contractor bids (depends on bid letting results)		$131,030
	Subtotal		**$136,700**

Note: A Request For Proposal (RFP) is planned for release by CSD in January or February 2018 for May 2018 field services. Year one costs for two deep test-holes and one to three deep monitoring wells (depends on bid results and geological evaluations) will not exceed the amount of one hundred thirty six thousand, seven hundred dollars ($136,700).

Additionally, the Eastern Nebraska Water Resources Assessment (ENWRA) has budgeted ongoing funds to credit back each of the ENWRA NRDs, including the LPNNRD, for test-hole work done along Airborne Electromagnetic (AEM) Survey reconnaissance lines. LPNNRD was awarded $9,150 in a dues credit from ENWRA in fiscal year (FY) 2017 and is anticipated for another dues credit in fiscal year 2019 or 2020.

AMENDMENT #3 TO COOPERATIVE AGREEMENT SIGNED June 24, 2015
between the
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and
THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ON BEHALF OF THE UNIVERSITY OF NEBRASKA-LINCOLN THROUGH ITS CONSERVATION AND SURVEY DIVISION, SCHOOL OF NATURAL RESOURCES

THIS AMENDMENT is made and entered into this 9th day of July, 2018, to modify the original AGREEMENT signed on the 24th day of June, 2015 by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

THEREFORE, IT IS MUTUALLY AMENDED THAT:

(1) **STATEMENT OF WORK:** The LPNNRD has requested an additional Dakota drilling site. The goal of this exploration is to obtain and describe geologic samples and complete a borehole log of the test hole. If the appropriate material is penetrated by the test hole, a well will be designed and constructed to obtain water level and water quality samples from the Dakota aquifer. Aquifer monitoring equipment may also be included if funds are available. CSD will work with the LPNNRD staff to design a monitoring program for the Dakota aquifer within the District. (Refer to CSD Interim Progress Report dated June 27. 2018.)

(2) **BUDGET:** The estimated additional costs will not exceed fifty thousand dollars ($50,000). The NRD will be invoiced based on the actual costs.

(3) All portions of the original AGREEMENT remain in effect.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By _____ Chair Date 7-9-18

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By _____ Date 07/10/2018

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By Suzan G. Lund Date 8/6/2018

AMENDMENT #4 TO COOPERATIVE AGREEMENT SIGNED June 24, 2015
between the
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and
THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ON BEHALF OF THE UNIVERSITY OF NEBRASKA-LINCOLN THROUGH ITS CONSERVATION AND SURVEY DIVISION, SCHOOL OF NATURAL RESOURCES

THIS AMENDMENT is made and entered into this 8th day of June, 2020, to modify the original AGREEMENT signed on the 24th day of June, 2015 by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

THEREFORE, IT IS MUTUALLY AMENDED THAT:

(1) **PERIOD:** This AMENDMENT shall be in effect from May 30, 2018 to June 30, 2022 unless terminated or amended by the terms of the AGREEMENT.

(2) All portions of the original AGREEMENT remain in effect.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By Dene Ryszka Date 6-8-2020

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By R. M. Joeckel Date 06/10/2020

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By Suzan G. Lund Digitally signed by Suzan G. Lund Date: 2020.06.12 11:12:27 -05'00' Date 6/12/2020
Suzan Lund, Associate Director
Sponsored Programs

AMENDMENT #5 TO COOPERATIVE AGREEMENT SIGNED June 24, 2015
between the
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
and
THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ON BEHALF OF THE UNIVERSITY OF NEBRASKA-LINCOLN THROUGH ITS CONSERVATION AND SURVEY DIVISION, SCHOOL OF NATURAL RESOURCES

THIS AMENDMENT is made and entered into this 9 day of May, 2022, to modify the original AGREEMENT signed on the 24th day of June, 2015 by the Lower Platte North Natural Resources District (hereinafter referred to as the LPNNRD) and the Conservation and Survey Division, School of Natural Resources of the University of Nebraska-Lincoln (hereinafter referred to as the CSD).

THEREFORE, IT IS MUTUALLY AMENDED THAT:

(1) **PERIOD:** This AMENDMENT shall be in effect from May 30, 2018 to June 30, 2025 unless terminated or amended by the terms of the AGREEMENT.

(2) All portions of the original AGREEMENT remain in effect.

LOWER PLATTE NORTH
NATURAL RESOURCES DISTRICT

By Kelly T. Thompson Date 5/9/22

CONSERVATION & SURVEY DIVISION
OF THE UNIVERSITY OF NEBRASKA

By R. M. Joeckel Date 05/19/22 | 10:57 CDT

THE BOARD OF REGENTS OF THE
UNIVERSITY OF NEBRASKA

By _____ Date 05/19/22 | 10:25 CDT

CONNECTING WATER TO LIFE

April 9, 2025
Invoice No: 29731

Invoice Total: $920.00

Daryl Andersen
Lower Platte North NRD
511 Commercial Park Road
Wahoo, NE 68066-0126

Please Remit To:
LRE Water
1221 Auraria Pkwy
Denver, CO 80204
(303) 455-9589
billing@LREwater.com

Invoice Email: dandersen@lpnnrd.org
Project No.: 5036LPN04
Project Name: LPNNRD Nitrate Assessment Project

Professional Services through March 29, 2025

Task 01 Risk Tool Expansion

Professional Personnel

		Hours	Rate	Amount	
Carter, Will		4.25	216.47	920.00	
	Totals	4.25		920.00	
	Total Labor				**$920.00**
			Total this Task		**$920.00**
			Total this Invoice		**$920.00**

DI-1040

UNITED STATES DEPARTMENT OF THE INTERIOR
DOWN PAYMENT (BILL) REQUEST

Bill #: 90095843
Customer: 6000000136
Date: 04/10/2025
Due Date: 06/09/2025

Make Remittance Payable To: U.S. Geological Survey
Billing Contact: Amanda Flynn, Budget Analyst Phone: 402-328-4144, aflynn@usgs.gov

Remit Payment To: United States Geological Survey
P.O. Box 6200-27
Portland, OR 97228-6200

Payer: LOWER PLATTE NORTH NRD
P.O. BOX 126
WAHOO NE 68066

Additional forms of payment may be accepted. Please email GS-A-HQ_RMS@USGS.GOV or call 703-648-7683 for additional information.

To pay through Pay.gov go to https://www.pay.gov.

Checks must be made payable to U.S. Geological Survey. Please detach the top portion or include bill number on all remittances.

Amount of Payment: $_____

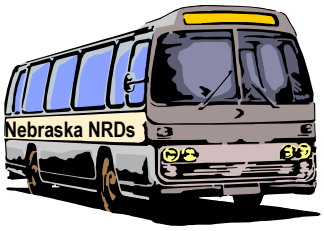
Date	Description	Qty	Unit Price		Amount
			Cost	Per	
04/10/2025	The streamgages at Shell Creek near Columbus and Wahoo Creek at Ashland, as agreed to in Joint Funding Agreement 25NRJFA00170 between the US Geological Survey and the Lower Platte North NRD JFA 25NRJFA00170 25NRJFA00170	1	8,426.00	1	8,426.00
				Amount Due this Bill:	8,426.00

Accounting Classification:
Sales Order: 143669
Sales Office: GENR
Customer: 6000000136
Accounting #: 11586894

TIN: *****2716

Nebraska's Natural Resources Districts
www.nrdnet.org
Protecting Lives • Protecting Property • Protecting the Future

8100 S. 15th St., Ste B
Lincoln, NE 68512
www.nrdnet.org
nard@nrdnet.org
402.471.7670



To: NRD Board of Directors, Staff and Conservation Partners
From: Nebraska Association of Resources Districts (NARD)
Re: NRD Basin Tour | June 9-10, 2025
Date: April 25, 2025

You're Invited, Please Register Now!

2025 NRD Basin Tour – Niobrara Basin
Hosted by NARD in Partnership with the Niobrara Basin NRDs
Based in Valentine, Nebraska | June 9–10, 2025

The Nebraska Association of Resources Districts (NARD), in collaboration with the Niobrara Basin NRDs, is pleased to invite you to the **2025 NRD Basin Tour**. Join us for an immersive two-day experience as we explore key projects and programs dedicated to protecting Nebraska's natural resources.

Tour Details:
Monday, June 9

- 11:15 a.m. – 11:45 a.m. (CDT): Lunch at the Niobrara Lodge patio (803 US-20, Valentine, NE)
- 12:00 p.m. (CDT): Bus departs the Niobrara Lodge
- Tour will showcase conservation efforts and innovative practices across the Middle Niobrara NRD
- Evening: Dinner at **Niobrara Valley Vineyards**, Nenzel

Tuesday, June 10

- 7:30 a.m. (CDT): Depart from hotel after breakfast for Spencer Dam
- Tour highlights initiatives across both Middle and Lower Niobrara NRDs
- Lunch included
- Return to Niobrara Lodge by 4:30 p.m. (CDT)

Tour Highlights Include:

- CSS Farms – Seed potato operation
- Drip irrigation & Ponderosa Pine trials
- Fort Niobrara & Cub Creek Reservoir
- Minor Ranch & Niobrara Valley Vineyards
- Lower Niobrara NRD facilities
- Watershed management initiatives & Spencer Dam

Registration Information:
To reserve your seat, please submit your completed registration form to the NARD office **by May 9th**. Space is limited and early registration is encouraged.

Registration Fee Includes:

- All meals, breaks and activities
- Motor coach transportation
- Lodging for Monday night *(NARD will arrange hotel accommodation)*

If you plan to arrive early and need a room for Sunday night, be sure to mark this on your registration form. All lodgings must be booked through NARD.

We look forward to seeing you in the Niobrara Basin this June!

Registration Form

Annual Basin Tour – Niobrara River Basin, June 9-10, 2025

Registration deadline is Friday, May 8. Cancellations received after May 19 are non-refundable.

Basin Tour registration fee will include the following:

- Monday, June 9: Lunch, conservation tour, snacks, beverages, activities, evening group dinner and hotel.
- Tuesday, June 10: Breakfast at the hotel, conservation tour, lunch, snacks, and beverages.

Registration options:

- Registration - with single room occupancy - $450 per person
- Registration - with double room occupancy - $390 per person
- Registration – with NO HOTEL accommodation – $325 per person. If you live in the area and don't need hotel accommodation, use this option to register for the tour.

For those arriving on Sunday for the NARD board meeting, or for the Basin Tour, you must reserve your Sunday night lodging with NARD. Use this form to add Sunday lodging. This is an extra fee not included with basin tour registration.

NRD: _____

Name: _____ Title: _____	**Extra Sunday night Stay Niobrara Lodge - $ 125** (not included in Basin Tour registration)	**Basin Tour Registration. Circle single or double occupancy** (for each person registering)
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double

List any special needs, including dietary restrictions: _____

Tour registration cost per person:

Extra Sunday night, June 8th lodging at Niobrara Lodge. Number of rooms needed - _____ x $ 125 = _____

Basin Tour Registration = Single room occupancy. Number of registrations - _____ x $ 450 = _____

Basin Tour Registration = Double room occupancy. Number of registrations - _____ x $ 390 = _____

Basin Tour Registration = NO HOTEL accommodation. Number of registrations - ____ x $ 325 = _____

***Total submitted* = _____**

Submit payment and registration to: **NARD, 8100 S. 15th St., Ste B, Lincoln, NE 68512.** **Register prior to May 8 (cancellations are non-refundable after May 19).**

DI-1040

UNITED STATES DEPARTMENT OF THE INTERIOR
DOWN PAYMENT (BILL) REQUEST

Bill #: 90095844
Customer: 6000000136
Date: 04/10/2025
Due Date: 06/09/2025

Make Remittance Payable To: U.S. Geological Survey
Billing Contact: Amanda Flynn, Budget Analyst Phone: 402-328-4144, aflynn@usgs.gov

Remit Payment To: United States Geological Survey
P.O. Box 6200-27
Portland, OR 97228-6200

Payer: LOWER PLATTE NORTH NRD
P.O. BOX 126
WAHOO NE 68066

Additional forms of payment may be accepted. Please email GS-A-HQ_RMS@USGS.GOV or call 703-648-7683 for additional information.

To pay through Pay.gov go to https://www.pay.gov.

Checks must be made payable to U.S. Geological Survey. Please detach the top portion or include bill number on all remittances.

Amount of Payment: $_____

Date	Description	Qty	Unit Price		Amount
			Cost	Per	
04/10/2025	The operation of stage-only streamgages and gage cameras as agreed to in Joint Funding Agreement 25NRJFA00010 between the US Geological Survey and the Lower Platte North Natural Resources District. JFA 25NRJFA00010 25NRJFA00010	1	5,328.00	1	5,328.00
				Amount Due this Bill:	5,328.00

Accounting Classification:
Sales Order: 144602
Sales Office: GENR
Customer: 6000000136
Accounting #: 11586895

TIN: *****2716

PMRNRD
Dodge
City of Fremont

DRAFT

August 2024

Watershed Plan - Environmental Assessment

Rawhide Creek Watershed

Colfax and Dodge Counties, Nebraska

PREPARED BY

United States Department of Agriculture - Natural Resources Conservation Service

IN COOPERATION WITH

Dodge County, Nebraska

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DRAFT

WATERSHED PLAN & ENVIRONMENTAL ASSESSMENT
For
Rawhide Creek Watershed
Colfax and Dodge Counties, Nebraska

AUTHORITY

This watershed work plan has been prepared under the authority of the Watershed Protection and Flood Prevention Act of 1954 (Public Law 83-566, as amended). The construction of this Project is authorized under Public Law 83-566, as amended, and in accordance with Section 102(2) of the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 U.S.C. 4321 et seq.).

ABSTRACT

The purpose of the proposed action is to provide flood prevention (flood damage reduction) to the City of Fremont, in addition to agricultural and rural lands within the watershed. The recommended Plan consists of constructing a detention cell in combination with a road raise and improvements of existing berms. In combination these structures will divert and temporarily store floodwaters to enhance flood damage reduction. Incidental benefits of the Plan are reduced channel erosion and possible reductions in future flood insurance requirements. Total project costs are $37,829,000 of which $27,896,000 (74 percent) will be paid by Public Law 566 funds and $9,933,000 (26 percent) will be paid by the Sponsor. This document is intended to fulfill requirements of the National Environmental Policy Act and to be considered for authorization of Public Law 566 funding.

Prepared by:	U.S. Dept. of Agriculture, Natural Resources Conservation Service
Responsible Agency:	U.S. Dept. of Agriculture, Natural Resources Conservation Service
Sponsor:	Dodge County, Nebraska
Cooperating Agency:	United States Army Corps of Engineers

ADDITIONAL INFORMATION

Comments and inquiries must be received by TBD. Submit comments and inquiries to:

Melissa Baier
Assistant State Conservationist – Water Resources & Easements
Natural Resources Conservation Service
1121 Lincoln Mall, Room 360
Lincoln, NE 68508

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident. Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at How to File a Program Discrimination Complaint (https://www.usda.gov/oascr/how-to-file-a-program-discrimination-complaint) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Rawhide Creek Watershed Agreement

For Rawhide Creek Watershed

between the
Dodge County Board of Supervisors
(Referred to herein as Sponsor)
and the
Natural Resources Conservation Service,
United States Department of Agriculture
(Referred to herein as NRCS)

Whereas, application has heretofore been made to the Secretary of Agriculture by the Sponsor for assistance in preparing a plan for works of improvement for the Rawhide Creek Watershed, State of Nebraska, under the authority of the Watershed Protection and Flood Prevention Act, as amended (16 U.S.C. 1001 to 1008, 1010, and 1012); and

Whereas, the responsibility for administration of the Watershed Protection and Flood Prevention Act, as amended, has been assigned by the Secretary of Agriculture to NRCS; and

Whereas, there has been developed through the cooperative efforts of the Sponsor and NRCS a watershed project plan and environmental assessment for works of improvement for the Rawhide Creek Watershed, State of Nebraska, hereinafter referred to as the watershed project plan, which plan is annexed to and made a part of this agreement;

Now, therefore, in view of the foregoing considerations, the Secretary of Agriculture, through NRCS, and the Sponsor, hereby agree on this watershed project plan and that the works of improvement for this project will be installed, operated, and maintained in accordance with the terms, conditions, and stipulations provided for in this plan and including the following:

1. Term. The term of this agreement (105 years) is for the combined installation period (5 years) and evaluated life of the project (100 years) and does not commit NRCS to assistance of any kind beyond the end of the evaluated life.

2. Costs. The costs shown in this plan are preliminary estimates. Final costs are to be borne by the parties hereto will be the actual costs incurred in the installation of works of improvement.

3. Real Property. The Sponsor will acquire such real property as will be needed in connection with the works of improvement. The amounts and percentages of the real property acquisition costs to be borne by the Sponsor and NRCS are as shown in the cost-share table in section 5 hereof.

The sponsors agree that all land acquired for measures, other than land treatment practices, with financial or credit assistance under this agreement will not be sold or otherwise disposed of for the evaluated life of the project except to a public agency which will continue to maintain and operate the development in accordance with the Operation and Maintenance Agreement.

4. Uniform Relocation Assistance and Real Property Acquisition Policies Act. The Sponsor hereby agrees to comply with all of the policies and procedures of the Uniform Relocation

Assistance and Real Property Acquisition Policies Act (42 U.S.C. Section 4601 et seq. as further implemented through regulations in 49 CFR Part 24 and 7 CFR Part 21) when acquiring real property interests for this federally assisted project. If the sponsor is legally unable to comply with the real property acquisition requirements, it agrees that, before any Federal financial assistance is furnished, it will provide a statement to that effect, supported by an opinion of the chief legal officer of the state containing a full discussion of the facts and law involved. This statement may be accepted as constituting compliance.

5. Cost-share for Watershed Project Plans. The following table shows cost-share percentages and amounts for watershed project plan implementation.

Project Costs	NRCS %	NRCS $	Sponsor %	Sponsor $	Total $
Cost-Sharable Items					
Construction of detention cell and berm improvements[1]	96%	$21,856,300	4%	$987,900	$22,844,200
Subtotal: Cost-Sharable Costs	**96%**	**$21,856,300**	**4%**	**$987,900**	**$22,844,200**
Non-Cost-Sharable Items					
NRCS Engineering	100%	$5,939,700	0%	$0	$5,939,700
Project Administration	N/A	$100,000	N/A	$571,200	$671,200
Permits	0%	$0	100%	$913,900	$913,900
Real Property Acquisition Cost[2]	0%	$0	100%	$7,460,000	$7,460,000
Subtotal: Non-Cost-Share Costs	**N/A**	**$6,039,700**	**N/A**	**$8,945,100**	**$14,984,800**
Total	**74%**	**$27,896,000**	**26%**	**$9,933,000**	**$37,829,000**

[1]*Includes mitigation*

[2]*Includes cost of legal fees and land appraisals. Also includes construction costs that are defined as "real property rights" in Title 390-National Watershed Program Manual, Part 506, subpart E, Section 506.50(K)(12).*

6. Land Treatment Agreements. The sponsors will obtain agreements from owners of not less than 50 percent of the land above each multiple-purpose and floodwater-retarding structure. These agreements must provide that the owners will carry out farm or ranch conservation plans on their land. The sponsors will ensure that 50 percent of the land upstream of any retention reservoir site is adequately protected before construction of the dam. The sponsors will provide assistance to landowners and operators to ensure the installation of the land treatment measures shown in the watershed project plan. The sponsors will encourage landowners and operators to continue to operate and maintain the land treatment measures after the long-term contracts expire, for the protection and improvement of the watershed.

7. Floodplain Management. Before construction of any project for flood prevention, the Sponsor must agree to participate in and comply with applicable Federal floodplain management and flood insurance programs. The Sponsor is required to have development controls in place below low and significant hazard dams prior to NRCS or the Sponsor entering into a construction contract.

8. Water and Mineral Rights. The Sponsor will acquire or provide assurance that landowners or resource users have acquired such water, mineral, or other natural resources rights pursuant to State law as may be needed in the installation and operation of the works of improvement.

9. Permits. The sponsors will obtain and bear the cost for all necessary Federal, State, and local permits required by law, ordinance, or regulation for installation of the works of improvement.

10. NRCS Assistance. This agreement is not a fund-obligating document. Financial and other assistance to be furnished by NRCS in carrying out the plan is contingent upon the fulfillment of applicable laws and regulations and the availability of appropriations for this purpose.

11. Additional agreements. A separate agreement will be entered into between NRCS and the sponsors before either party initiates work involving funds of the other party. Such agreements will set forth in detail the financial and working arrangements and other conditions that are applicable to the specific works of improvement.

12. Amendments. This plan may be amended or revised only by mutual agreement of the parties hereto, except that NRCS may deauthorize or terminate funding at any time it determines that the sponsors have failed to comply with the conditions of this agreement or when the program funding or authority expires. In this case, NRCS must promptly notify the sponsors in writing of the determination and the reasons for the deauthorization of project funding, together with the effective date. Payments made to the sponsors or recoveries by NRCS must be in accordance with the legal rights and liabilities of the parties when project funding has been deauthorized. An amendment to incorporate changes affecting a specific measure may be made by mutual agreement between NRCS and the sponsors having specific responsibilities for the measure involved.

13. Prohibitions. No member of or delegate to Congress, or resident commissioner, may be admitted to any share or part of this plan or to any benefit that may arise therefrom; but this provision may not be construed to extend to this agreement if made with a corporation for its general benefit.

14. Operation and Maintenance (O&M). The Sponsor will be responsible for the operation, maintenance, and any needed replacement of the works of improvement by actually performing the work or arranging for such work, in accordance with an O&M agreement. An O&M agreement will be entered into before Federal funds are obligated and will continue for the project life (100 years). Although the Sponsor's responsibility to the Federal Government for O&M ends when the O&M agreement expires upon completion of the evaluated life of measures covered by the agreement, the sponsors acknowledge that continued liabilities and responsibilities associated with works of improvement may exist beyond the evaluated life.

15. Emergency Action Plan. Prior to construction, the Sponsor must prepare an emergency action plan (EAP) for each dam or similar structure where failure may cause loss of life or as required by state and local regulations. The EAP must meet the minimum content specified in NRCS Title 180, National Operation and Maintenance Manual (NOMM), Part 500, Subpart F, Section 500.52, and meet applicable State agency dam safety requirements. The NRCS will determine that an EAP is prepared prior to the execution of fund obligating documents for construction of the structure. EAPs must be reviewed and updated by the sponsors annually.

16. Nondiscrimination Provisions. In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental

status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at https://www.usda.gov/oascr/filing-program-discrimination-complaint-usda-customer and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender. By signing this agreement, the recipient assures the Department of Agriculture that the program or activities provided for under this agreement will be conducted in compliance with all applicable Federal civil rights laws, rules, regulations, and policies.

17. Certification Regarding Drug-Free Workplace Requirements (7 CFR Part 3021). By signing this Watershed Agreement, the Sponsor is providing the certification set out below. If it is later determined that the Sponsor knowingly rendered a false certification, or otherwise violated the requirements of the Drug-Free Workplace Act, the NRCS, in addition to any other remedies available to the Federal Government, may take action authorized under the Drug-Free Workplace Act.

Controlled substance means a controlled substance in schedules I through V of the Controlled Substances Act (21 U.S.C. Section 812) and as further defined by regulation (21 CFR Sections 1308.11 through 1308.15);

Conviction means a finding of guilt (including a plea of *nolo contendere*) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes;

Criminal drug statute means a Federal or non-Federal criminal statute involving the manufacturing, distribution, dispensing, use, or possession of any controlled substance;

Employee means the employee of a grantee directly engaged in the performance of work under a grant, including (i) all direct charge employees, (ii) all indirect charge employees unless their impact or involvement is insignificant to the performance of the grant, and (iii) temporary personnel and consultants who are directly engaged in the performance of work under the grant and who are on the grantee's payroll. This definition does not include workers not on the payroll of the grantee (e.g., volunteers, even if used to meet a matching requirement, consultants or independent contractors not on the grantees' payroll, or employees of subrecipients or subcontractors in covered workplaces).

Certification
A. The sponsors certify that they will or will continue to provide a drug-free workplace by—

(1) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition.
(2) Establishing an ongoing drug-free awareness program to inform employees about—
    (a) The danger of drug abuse in the workplace.
    (b) The grantee's policy of maintaining a drug-free workplace.
    (c) Any available drug counseling, rehabilitation, and employee assistance programs.
    (d) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.
(3) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (1).
(4) Notifying the employee in the statement required by paragraph (1) that, as a condition of employment under the grant, the employee must—
    (a) Abide by the terms of the statement; and
    (b) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than 5 calendar days after such conviction.
(5) Notifying the NRCS in writing, within 10 calendar days after receiving notice under paragraph (4)(b) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice must include the identification numbers of each affected grant.
(6) Taking one of the following actions, within 30 calendar days of receiving notice under paragraph (4)(b), with respect to any employee who is so convicted—
    (a) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
    (b) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency.
(7) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (1), (2), (3), (4), (5), and (6).

B. The sponsors may provide a list of the sites for the performance of work done in connection with a specific project or other agreement.

C. Agencies will keep the original of all disclosure reports in the official files of the agency.

18. Certification Regarding Lobbying (7 CFR Part 3018) (for projects > $100,000)
A. The sponsors certify to the best of their knowledge and belief, that—

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the sponsors, to any person for influencing or attempting to influence an officer or employee of an agency, Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering

into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned must complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The sponsors must require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients must certify and disclose accordingly.

B. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. Section 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

19. Certification Regarding Debarment, Suspension, and Other Responsibility Matters—Primary Covered Transactions (7 CFR Part 3017).

A. The sponsors certify to the best of their knowledge and belief, that they and their principals—

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(2) Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph A(2) of this certification; and

(4) Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

B. Where the primary sponsors are unable to certify to any of the statements in this certification, such prospective participant must attach an explanation to this agreement.

20. Clean Air and Water Certification

A. The project sponsoring organization signatory to this agreement certifies as follows:

(1) Any facility to be utilized in the performance of this proposed agreement is not listed on the Environmental Protection Agency List of Violating Facilities.

(2) To promptly notify the NRCS-State administrative officer prior to the signing of this agreement by NRCS, of the receipt of any communication from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that any facility which is proposed for use under this agreement is under consideration to be listed on the Environmental Protection Agency List of Violating Facilities.

(3) To include substantially this certification, including this subparagraph, in every nonexempt subagreement.

B. The project sponsoring organization signatory to this agreement certifies as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act as amended (42 U.S.C. Section 7414) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. Section 1318), respectively, relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, issued there under before the signing of this agreement by NRCS.

(2) That no portion of the work required by this agreement will be performed in facilities listed on the EPA List of Violating Facilities on the date when this agreement was signed by NRCS unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use their best efforts to comply with clean air standards and clean water standards at the facilities in which the agreement is being performed.

(4) To insert the substance of the provisions of this clause in any nonexempt subagreement.

C. The terms used in this clause have the following meanings:

(1) The term “Air Act” means the Clean Air Act, as amended (42 U.S.C. Section 7401 et seq.).

(2) The term “Water Act” means Federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et seq.).

(3) The term “clean air standards” means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 of the Air Act (42 U.S.C. Section 7414) or an approved implementation procedure under section 112 of the Air Act (42 U.S.C. Section 7412)

(4) The term “clean water standards” means any enforceable limitation, control, condition, prohibition, standards, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. Section 1342), or by a local government to assure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. Section 1317)

(5) The term “facility” means any building, plan, installation, structure, mine, vessel, or other floating craft, location or site of operations, owned, leased, or supervised by a

sponsor, to be utilized in the performance of an agreement or subagreement. Where a location or site of operations contains or includes more than one building, plan, installation, or structure, the entire location will be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

21. Assurances and Compliance.
As a condition of the grant or cooperative agreement, the sponsor assures and certifies that it is in compliance with and will comply in the course of the agreement with all applicable laws, regulations, Executive orders and other generally applicable requirements, including those set out below which are hereby incorporated in this agreement by reference, and such other statutory provisions as a specifically set forth herein.

State, Local, and Indian Tribal Governments: OMB Circular Nos. A-87, A-102, A-129, and A-133; and 7 CFR Parts 3015, 3016, 3017, 3018, 3021, and 3052.

Nonprofit Organizations, Hospitals, Institutions of Higher Learning: OMB Circular Nos. A-110, A-122, A-129, and A-133; and 7 CFR Parts 3015, 3017, 3018, 3019, 3021 and 3052.

22. Examination of Records.
The sponsors must give the NRCS or the Comptroller General, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to this agreement, and retain all records related to this agreement for a period of three years after completion of the terms of this agreement in accordance with the applicable OMB Circular.

23. Signatures

The signing of this plan was authorized by a resolution by the Dodge County governing body and adopted at an official meeting held on _____(Date).

By: Dodge County
Board of Supervisors

_____
Bob Missel
Chairman

Date: _____

_____ _____
Address Zip Code

_____ _____
Secretary Address Zip Code

Date:_____

Natural Resources Conservation Service
United States Department of Agriculture

Approved By:

_____
Robert Lawson
State Conservationist
1121 Lincoln Mall, Room 360
Lincoln, NE 68508

Date:_____

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SUMMARY (OMB FACT SHEET)

Summary of Watershed Plan – Environmental Assessment

For
Rawhide Creek Watershed
Colfax and Dodge Counties, Nebraska
Dodge County Board of Supervisors
3rd CONGRESSIONAL DISTRICT

Authorization: Public Law 83-566 Stat. 666 as amended (16 U.SC. Section 1001 et. Seq.) 1954

Sponsor: Dodge County Board of Supervisors

Proposed Action: The proposed action is the construction of a detention cell in combination with berm improvements and the raising of Cutoff Ditch Rd to provide flood reduction benefits within the Rawhide Creek Watershed.

Purpose and Need for Action: The purpose of the proposed action is to provide flood prevention (flood damage reduction) within and near the City of Fremont. The project is needed as areas in the watershed are regularly subject to overland and flash flooding, including extensive flooding in 2019.

Description of the Preferred Alternative/Plan: The preferred alternative includes three interdependent measures in combination; one mile of berm improvements along the Brush Creek Dam outfall, the raising of Cutoff Ditch Road for 2.3 miles, and excavation of a 282-acre detention cell. Together these measures work to reduce flooding in the Fremont region.

Resource Information

Table S-1: Rawhide Creek Watershed Information

Eight-Digit Hydrologic Unit Number(s)	10220003, 10200202, 10200201
Longitude and Latitude	-96.67866, 41.479337
Rawhide Creek Watershed (acres)	142,528
– Cropland	111,172
– Grassland	7,366
– Forest	1,744
– Developed	14,605
– Miscellaneous	7,641
Land Ownership	Private: 97% State-Local: 3% Federal: 0%
Prime Farmland and Farmland of Statewide Importance (acres)	Prime Farmland: 39,895.6 Prime Farmland if Drained: 43,930.0 Farmland of Statewide Importance: 3,137.4

Climate:

The Rawhide Creek Watershed is characterized by hot, humid summers and cold winters. Precipitation is distributed throughout the year and amounts to approximately 31 inches annually. Based on data from the National Centers for Environmental Information, temperatures in the watershed range from an average high of 86.7°F in July to an average low of 12.8°F in January.

Topography:

The Rawhide Creek Watershed lies primarily in the flat valley separating the Platte and Elkhorn Rivers. The elevation within the watershed ranges from 1,588.9 feet in the west to 1,134.2 feet in the east. The watershed primarily drains in an easterly direction towards the Elkhorn River, with some small tributaries draining south to the Platte River.

Table S-2: Population and Demographics for Colfax and Dodge Counties, Nebraska

Total population	47,738
Percent minority	26.9%
Percent of population below poverty level	9.3%
Percent of children below poverty level	8.9%
Number of Farms	1,150
Average size (acres)	478
Number of Minority Farmers	21

Data sources: US Census Bureau, 2022, and Census of Agriculture, 2022.

Table S-3: Alternatives Considered

Alternative	Meets Purpose and Need	Included in Final Array of Alternatives
No Action – Represents the future conditions if there is no Federal investment and no projects are implemented.	n/a	Yes
Diversion Channel – Excavate one or more channels to divert Floodwater out of Rawhide Creek.	Yes	No[1]
Channel Widening – Enlarge the existing channel of Rawhide Creek to improve conveyance of floodwater.	Yes	No[1]
Levee/Berm – Construct one or more levees to contain or redirect floodwater.	Yes	Yes
Detention Cell – Excavate one or more basins to detain floodwater before it reaches Fremont.	Yes	Yes
Stream Restoration / Wetland Storage – Clear debris from Rawhide Creek and tributaries and construct a series of wetlands along the stream corridor to provide off-channel storage.	Yes	No[1]
Single Dam – Construct one large dam upstream of Fremont to capture and store floodwater.	No[2]	No
Multiple Dams – Construct several small dams upstream of Fremont to capture and store floodwater.	No[2]	No
Interior Drainage / Storm Sewer System – Enlarge existing and construct additional new storm sewers in and around Fremont.	Yes	No[1]
Conservation Measures Upstream – Convert upstream cropland to grass and native prairie to reduce runoff and improve infiltration.	No[2]	No
Flood Proofing Buildings – Flood proof buildings in the 100-year floodplain to prevent reoccurring damages.	No[2]	No
Property Acquisitions – Purchase structures in the 100-year floodplain and demolish or relocate them to prevent reoccurring damages.	No[2]	No
Floodplain Regulation / Zoning – Introduce land use regulations to prevent development within flood inundation areas.	No[2]	No

[1] *Not reasonable.*

[2] *Alternative is not effective in reducing flooding.*

Mitigation: Installation of the preferred alternative would include the following mitigation and conservation measures:

- Historic Properties and Cultural Resources: National Historic Preservation Act Section 106 consultation and field inventories determined that no historic properties were present within the area of potential effect. No historic properties affected. No mitigation required.
- Wetlands: Mitigation required due to 7.494 acres of impacted wetlands. Mitigation would be completed onsite within the detention cell footprint at an anticipated ratio of 3:1 by creating new wetlands of the appropriate classification. The Sponsor (permittee) is responsible for mitigation.
- Streams: Mitigation required due to 0.095 acres of impacted streams. Mitigation would be completed onsite within the detention cell footprint along existing stream reaches. Mitigation actions would improve the functionality of the existing stream channels through actions such as establishment of riparian vegetation, improvements to in-stream habitat and cover, floodplain reconnection, channel shaping and/or increase of sinuosity, and improvement of riparian buffers. The Sponsor (permittee) is responsible for mitigation.
- Threatened and Endangered Species: Conservation measures include construction timing, biological surveys, and approved seeding plans. These measures are implemented to prevent adverse impacts on protected species, including the northern long eared bat, whooping crane, migratory birds, and eagles.

Project Costs: Table S-4 summarizes the distribution of project costs between the Sponsor and NRCS for the preferred alternative.

Table S-4: Distribution of Total Project Costs

	NRCS $	NRCS %	Sponsor $	Sponsor %	Total $
Construction[1]	$21,856,300	96%	$987,900	4%	**$22,844,200**
Engineering	$5,939,700	100%	$0	0%	**$5,939,700**
Real Property Rights[2]	$0	0%	$7,460,000	100%	**$7,460,000**
Permitting	$0	0%	$913,900	100%	**$913,900**
Project Administration	$100,000	8%	$571,200	92%	**$671,200**
Total	**$27,896,000**	**74%**	**$9,933,000**	**26%**	**$37,829,000**

Note: Totals may not sum due to rounding.
[1] includes mitigation.
[2] includes cost of legal fees and land appraisals. Also includes construction costs that are defined as real property rights in Title 390-National Watershed Program Manual, Part 506, subpart E, Section 506.50(K)(12).

Project Benefits: Table S-5 summarizes monetary project benefits and the benefit cost ratio of the project. Flood reduction benefits include avoided losses of property, income, and crop damages.

Table S-5: Comparison of Benefits and Costs

Works of Improvement	Reduced Building-Related Damages[1]	Reduced Crop Damages [1]	Reduced Business Income & Wage Losses[1]	Increased Wetland Habitat[1]	Total Annualized Benefits	Average Annual Cost	Benefit Cost Ratio
Detention Cell with Berm	$339,400	$2,800	$860,000	$113,600	$1,315,800	$1,146,600	1.1
Total	$339,400	$2,800	$860,000	$113,600	$1,315,800	$1,146,600	1.1

1) Agriculture-related
Notes: Totals may not sum due to rounding. Prepared: 2024.
Price base: 2024 dollars amortized over 103 years (starting two years after construction begins) at a discount rate of 2.75 percent.

Direct Beneficiaries: These consist of both onsite and offsite populations benefiting from the preferred alternative. Onsite beneficiaries include the approximately 27,000 residents of the City of Fremont who will directly benefit from reduced volume and velocity of floodwater entering the City. Offsite beneficiaries include people who use roads that are protected from flooding by the project. Based on Nebraska Department of Transportation figures available for Highways 30, 77, and 275, this could include as many as 45,000 vehicles per day as these are major commuting corridors between regional communities.

Project Schedule: Construction is anticipated to be completed in 2029, assuming federal funding is available (Table S-6).

Table S-6: Project Funding Schedule

Year	PL 83-566 Funds	Other Funds	Total
2025	$5,959,700	$8,488,140	**$14,447,840**
2026	$5,484,075	$361,215	**$5,845,290**
2027	$5,484,075	$361,215	**$5,845,290**
2028	$5,484,075	$361,215	**$5,845,290**
2029	$5,484,075	$361,215	**$5,845,290**
Total	**$27,896,000**	**$9,933,000**	**$37,829,000**

Period of Analysis: The period of analysis is estimated to be 105 years (project life plus length of time to construct preferred alternative).

Project Life: The project was designed to have a lifespan of 100 years.

Environmental Effects and Impacts: Table S-7 summarizes resource concerns where impacts were identified due to the preferred alternative.

Table S-7: Summary of Resources of Concern and Impacts of the Preferred Alternative

Environmental Concern	Detention Cell with Berm Improvements Alternative
Soil Resources	
Land Use	Construction of the alternative would remove approximately 300 acres of cropland from production. This is a minor impact on the watershed scale, and the predominately agricultural nature of land use in the area would not be affected.
Prime and Unique Farmland	Construction of the alternative would permanently convert approximately 122 acres of USDA designated prime farmland. Per consultation required by the Farmland Protection Policy Act, no further consideration for protection or evaluation is necessary.
Water Resources	
Waters of the United States & Clean Water Act	Construction of the alternative would permanently impact 7.494 acres of wetlands and 0.095 acres of intermittent stream due to construction activities. It is anticipated that this would be permitted under Clean Water Act Section 404 using an Individual Permit and would require mitigation via wetland creation and stream channel improvements.
Surface Water Quantity	The alternative would provide reduced peak flows and temporary detention of floodwater during storm events. There would be no change to surface water quantity under non-flooding conditions. There would be no depletion to flows in the Platte River system.
Surface Water Quality	The alternative would have no adverse effect on surface water quality. The alternative would provide a minor beneficial effect by capturing pollutants during flooding events, leading to improved downstream water quality.
Groundwater Quantity	The alternative would provide limited opportunities for groundwater recharge following flooding events. Under normal conditions the alternative would have no impact on existing groundwater quantity.
Groundwater Quality	The alternative would result in minor beneficial indirect improvements to groundwater quality. Construction of the alternative would remove cropland from production, reducing pollutant loading to groundwater from agricultural chemicals.
Wetlands	Construction would result in a minor adverse impact to wetlands. Mitigation would establish new wetland areas in the detention cell bottom. The project complies with the Food Security Act and Executive Order 11990.

Regional Water Management Plans	The alternative would be consistent with the goals of regional water management plans. There would be no depletion of flows to the Platte River, which satisfies the Lower Platte River Basin Coalition Basin Water Management Plan, and there would be no new consumptive uses of water, which satisfies the LPNNRD Voluntary Integrated Management Plan.
Floodplain Management	Alternative would reduce the overall flooding area and depth up to and including the 100-year recurrence interval, reducing the flood hazard and floodplain areas. Potential revisions to the regulatory floodplain would need to be coordinated with FEMA.
Plant and Animal Resources	
Fish and Wildlife (Including Coordination Requirements)	The alternative would remove approximately 300 acres of cultivated cropland from production and convert it to perennial vegetation and wetland habitat, improving the overall habitat availability in the watershed. Overland flooding would be reduced, protecting many common terrestrial species that inhabit the watershed. Reduced erosive forces would reduce damages to aquatic and riparian habitat within and surrounding Rawhide Creek. Additionally, this alternative complies with the Endangered Species Act, Fish and Wildlife Coordination Act, and Nongame and Endangered Species Act.
Threatened and Endangered Species	Conservation measures would be utilized to avoid and/or minimize any potential adverse impact to any identified Threatened and Endangered Species. Measures may include construction timing, biological surveys, and approved seeding plans.
Invasive Species	A variety of invasive species have the potential to be introduced or spread through any construction activities. The alternative would minimize potential adverse effects due to invasive species through the use of best management practices during construction such as using approved native seed mixes for vegetation establishment.
Migratory Birds and Eagles	The alternative would minimize potential adverse effects to migratory birds and eagles due to the utilization of best management practices during construction such as timing to avoid construction during the migration season. The project complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.
Ecologically Critical Areas	The alternative would have no impact on ecologically critical areas. Construction of the alternative would not alter the Lower Platte River Biologically Unique Landscape and does

	not overlap with any Wetlands Reserve Program easement sites.
Fish and Wildlife Habitat	
Forest Resources	Construction of the alternative would remove individual trees but would not impact any woodland areas. Potential flooding damage to downstream woodland areas would be reduced.
Riparian Areas	Construction of the alternative would expand riparian habitat in the watershed due to land use changes and grading within the detention cell.
Human Resources	
Flood Damages	The alternative would have a beneficial effect due to reduced flooding damage to structures and agricultural lands.
Costs	The alternative would have a beneficial effect due to reduced flood-associated costs. The gross benefit is estimated at $1,315,800 annually.
Historic Properties & Cultural Resources	Field investigations did not identify any historic properties within the area of potential effect. In consultation with the Nebraska State Historic Preservation Office and other consulting parties, NRCS has determined that no historic properties would be affected by this alternative.
Environmental Justice, Civil Rights, and Social Issues	The alternative would create a beneficial effect by reducing flooding damage in Fremont, which is home to populations of concern for environmental justice related issues.
Local and Regional Economy	The alternative would improve the local and regional economy by reducing the frequency and severity of flooding damage.
Public Health and Safety	The alternative would improve public health and safety by reducing the frequency and severity of flooding damage experienced by residents of the watershed.
Recreation	The alternative would improve access to recreation sites by reducing flood-related issues such as road closures.
Scenic Areas, Natural Areas, and Parklands	The alternative would result in approximately 325 acres of greenspace being established in the bottom of the detention cell, increasing the overall extent of natural areas present in the watershed.
National Parks, Monuments, and Historical Sites	The alternative would have no impact on the Mormon Pioneer or California National Historic Trails. The trails are not located within the ARA. There are no surviving trail ruts or recorded archaeological sites associated with the trails within the watershed. The National Park Service was consulted.
Ecosystem Services	
Regulating	The alternative would enhance regulating services by providing regulation of flood damages in the watershed.

Provisioning	The alternative would enhance provisioning services by providing flood protection to approximately 1,500 acres of cropland downstream of the project site. Additionally, construction of this alternative would result in the net creation of approximately 15 acres of new wetland habitat.
Cultural	The alternative would enhance cultural services by improving public health and safety in the City of Fremont.

Major Conclusions: Implementation of this Plan would result in no outstanding negative impacts to the environment following mitigation actions. The preferred alternative has the greatest benefit to cost ratio, would provide flood damage reduction within the watershed, and achieves the federal objectives and meets the guiding principles.

Areas of Controversy and Issues to be Resolved: The planning process included public meetings, coordination with interested agencies and groups, and printed public information to raise issues, resolve conflicts, and recommend the most desirable plan features. No significant unresolved controversy remains.

Evidence of Unusual Congressional or Local Interest: There was no evidence of unusual Congressional or local interest in this project.

Is this report in compliance with executive orders, public laws, and other statutes governing the formulation of water resource projects? Yes ☒ No ☐

CHAPTER 1. PURPOSE AND NEED FOR ACTION

1.01 PURPOSE AND NEED STATEMENT

The project's authorized purpose is to provide flood prevention (flood damage reduction) in the Rawhide Creek Watershed. The project is needed due to the long history of flooding damage that has occurred throughout the watershed, impacting communities as well as agricultural areas. The watershed is regularly subject to flooding and has records of damage dating back more than a century.

The Natural Resources Conservation Service (NRCS) National Watershed Program Manual defines the purpose of flood prevention (or flood damage reduction) as measures installed to prevent or reduce damage caused by floodwater. Flood damage reduction is further defined as the control and disposal of surface water caused by abnormally high direct precipitation, stream overflow, or floods aggravated or caused by wind or tidal effects.

Flood damage reduction and mitigation measures reduce or prevent floodwater damages by reducing runoff, erosion, and sediment; modifying the susceptibility of improvements in the floodplain to damage; removing damageable property from the floodplain; or reducing the frequency, depth, or velocity of flooding. Measures may also include actions that prevent encroachment into the floodplain. Additionally, flood damage reduction measures have the potential to reduce or eliminate the requirement for flood insurance to some residents of the watershed.

1.02 PROJECT OVERVIEW

BACKGROUND

In July 2020, the Dodge County Board of Supervisors requested funding from the NRCS Watershed and Flood Prevention Operations (WFPO) program. The Dodge County Board of Supervisors is a county government entity that meets all the requirements to be a project sponsor as defined in Section 2 of PL 83-566. The NRCS and Dodge County established an agreement and started the planning process to evaluate options, or alternatives, to reduce flood damages in the Rawhide Creek Watershed. The Lower Platte North Natural Resources District (LPNNRD) has acted as a joint local partner with Dodge County throughout the planning process.

This Watershed Plan and Environmental Assessment (Plan-EA) was prepared under the authority of WFPO (Public Law 83-566, Stat. 666 as amended) and in accordance with the National Environmental Policy Act (NEPA) (40 CFR parts 1500-1508) and following the guidelines of NRCS Title 390 - *National Watershed Program Manual* and *Principles, Requirements, and Guidance for Water and Land Related Resources Implementation Studies* (PR&G) of the Water Resources Development Act of 2007 (PL 100-114). This is a new watershed plan that does not supplement any existing PL 83-566 watershed plan.

PLANNING AREA

The watershed study area consists of portions of three HUC8 watersheds (10220003, 10200202, and 10200201), which includes 142,528 acres located across portions of Dodge and Colfax Counties in eastern Nebraska (Figure 1). The watershed contains all or portions of five communities. The watershed is rural and dependent upon an agricultural economy.

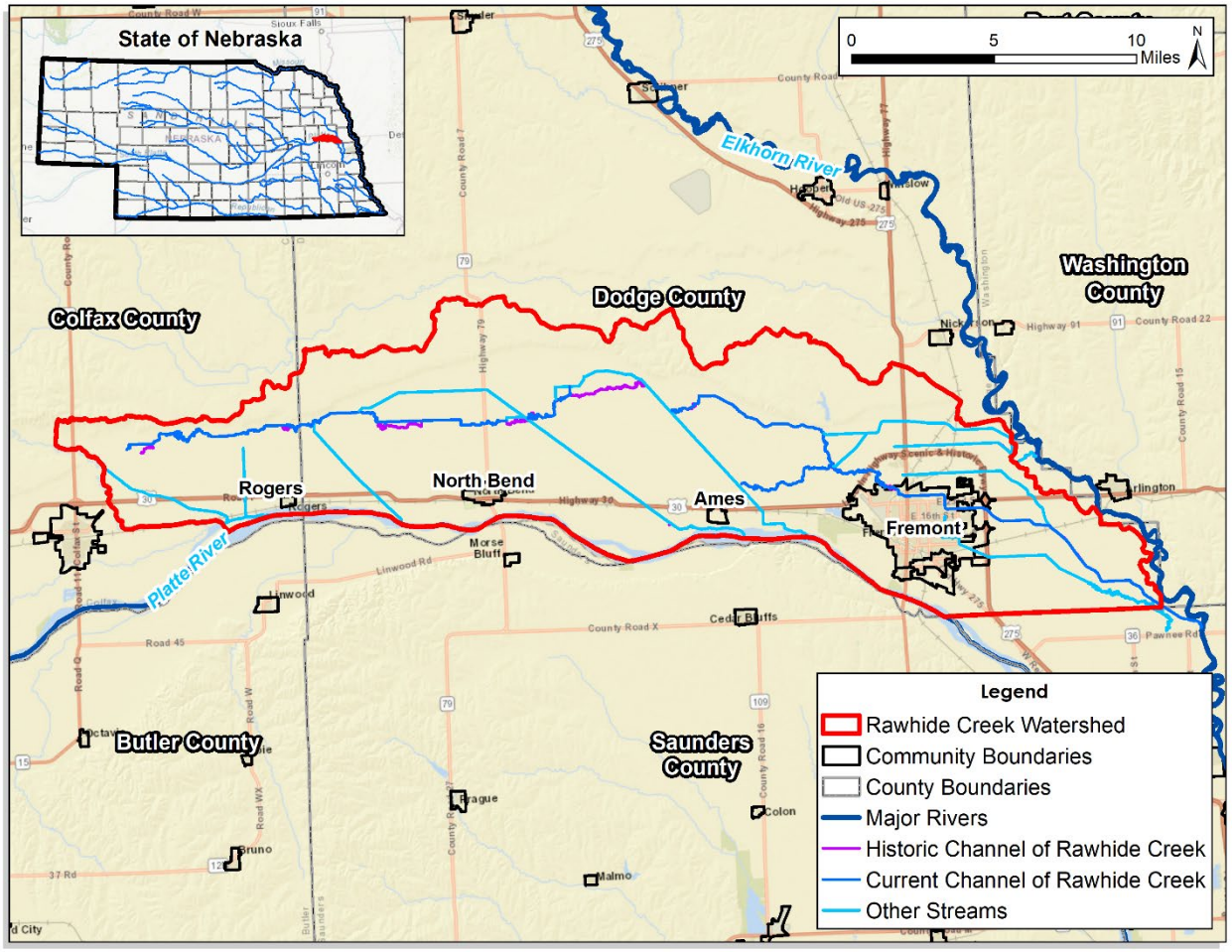

Figure 1: Rawhide Creek Watershed Location

Climate and Ecoregion

The climate of the Rawhide Creek Watershed is considered “Humid Continental” on the Köppen-Geiger Climate Classification System (Kottek et al., 2006). This climate is characterized by large seasonal temperature differences with hot, humid summers, and cold winters. Precipitation is distributed throughout the year and amounts to approximately 31 inches annually on average.

The watershed drains primarily in an eastern direction towards the Elkhorn River, with some off-shoots draining south to the Platte River. Elevations vary from a high of 1,588.9 feet in the west to a low of 1,134.2 feet in the east. The United States Environmental Protection Agency (USEPA) created ecoregions to identify geographic areas where ecosystems and environmental resources are generally similar. The Rawhide Creek Watershed falls primarily into the Western Corn Belt Plains ecoregion (Figure 2). This region consists of cropland and livestock forage that was previously covered by tallgrass prairie.

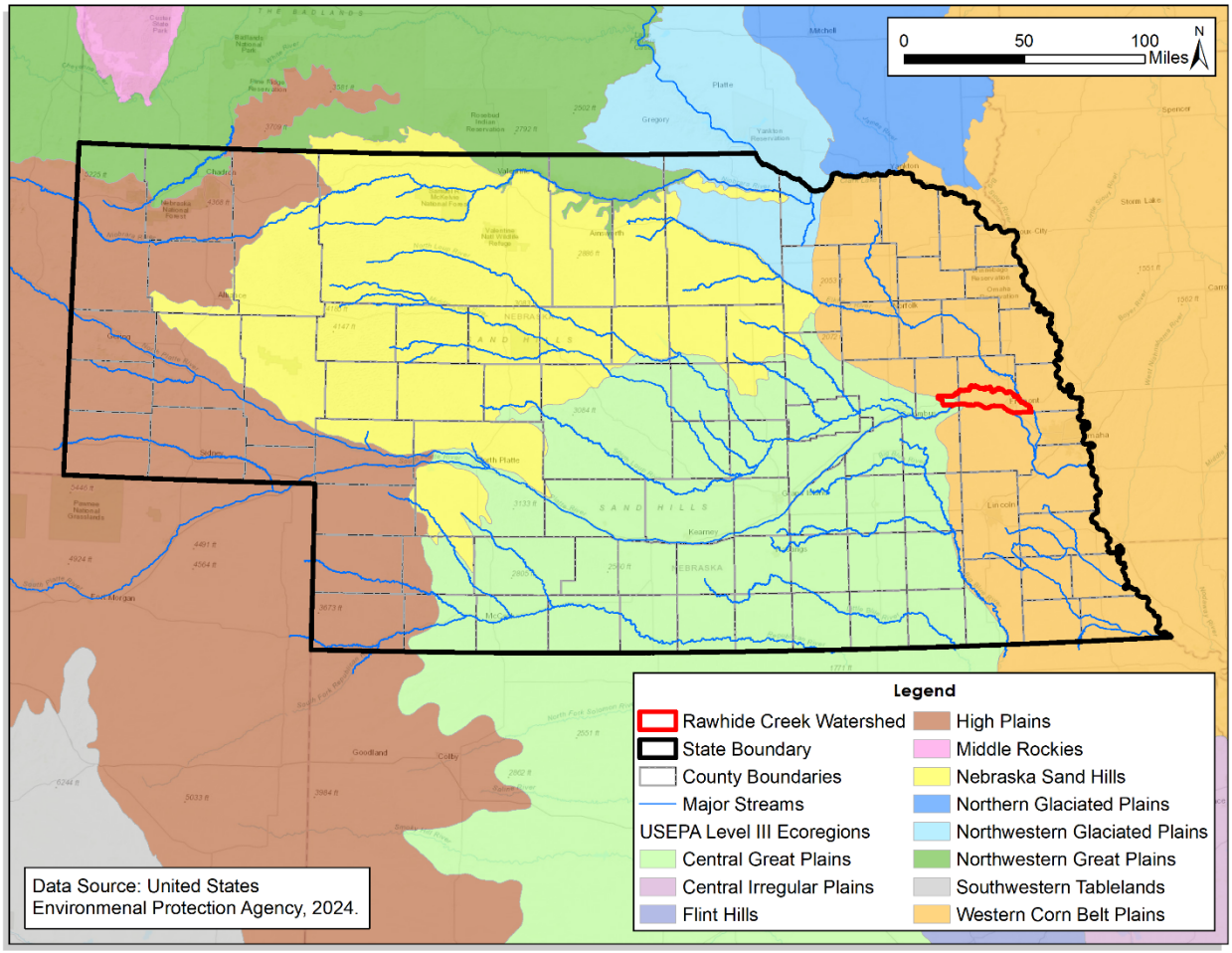

Figure 2: Ecoregions in the State of Nebraska

Geology

The Rawhide Creek Watershed primarily exists above bedrock composed of the Dakota Group. The Dakota Group bedrock includes poorly consolidated silts, clays, sands, and sandstone (UNL-CSD, n.d.). Glaciers covered this region from about two million to 10,000 years ago, influencing the soils and topography of the watershed today leaving behind deposits of glacial till (Wayne,

2011). Surficial geology in the watershed is dominated by Platte River alluvium composed of fine to coarse sand with local areas of silt or clay (UNL-CSD, 2022).

PLANNING PROCESS

This Watershed Plan and Environmental Assessment (Plan-EA) for the Rawhide Creek Watershed is focused on establishing a strategy to address flooding issues in the City of Fremont, reducing flooding impacts to agriculture, and protecting roads, bridges, utilities, and property.

To ensure an objective alternatives analysis process, several sets of screening criteria were developed while existing resource concerns were identified (see Chapter 2). Then, using agency and public input gained through the scoping process, these screening criteria were further refined. The screening criteria ultimately were used to identify alternatives and evaluate them (see Chapter 4). These screening criteria are organized as: problems, opportunities, objectives, and constraints. The following sections identify and discuss each.

RELATED PROJECTS AND STUDIES

There have been a variety of previous flood reduction efforts within the watershed. The series of ditches currently existing in the watershed were planned and completed in the 1920s by the now defunct Elkhorn River Drainage District. The ditches control a drainage area of over 25,000 acres east of Fremont.

In 1976 a diversion study of Rawhide Creek was conducted by Hoskins-Western-Sonderegger under the sponsorship of LPNNRD with Dodge County and the City of Fremont acting as local partners. This study concluded that there was no good route to divert Rawhide Creek to the Platte River. However, the study proposed constructing a dam on Trouble Creek and constructing a diversion from Rawhide Creek to the Elkhorn River (Hoskins-Western-Sonderegger, 1976). These suggestions were implemented beginning in 1977 with construction reaching into the early 1990s. ~~This~~ consisted of construction of the Trouble Creek Dam north of Fremont, widening seven miles of existing ditches, and excavating three miles of Rawhide Creek diversion channels. Trouble Creek Dam was completed in 1984 and has been maintained by LPNNRD since. The dam is currently functional and in good working order. The entire Hoskins-Western-Sonderegger project was completed in 1994 and dedicated as the Merlyn England Flood Control Project, which is operated and maintained by LPNNRD. No actions or changes to Trouble Creek Dam or the other components of the Merlyn England Flood Control Project are anticipated in the foreseeable future which would affect the implementation of a new flood control project.

In the early 2000s, the LPNNRD worked with cooperating landowners to repair a breached berm and remove sediment along a 2.5-mile segment of Rawhide Creek that flows into Ditch 8. This helped the existing Merlyn England detention and diversion project work as designed by preventing water from leaving the channel and flooding farmland to the south and overloading the west branch of Rawhide Creek and the associated cutoff ditch.

In 2004 the United States Army Corps of Engineers (USACE) conducted a flood hazard mitigation plan for the city of North Bend. A variety of structural and nonstructural actions were analyzed, including nonstructural flood mitigation, acquisition and removal of flood-prone buildings, flood proofing, flood warning systems, flood preparedness planning, flood awareness education, floodplain regulation, flood insurance, and participation in the community rating system. The recommended actions following analysis were acquisition of flood-prone buildings, flood proofing of existing buildings in the floodplain, implementation of a flood warning system, flood preparedness planning, flood awareness education, floodplain regulations, participation in the National Flood Insurance Program, and completion of future flood mitigation studies (USACE, 2004). To date, none of the recommended actions have been implemented by North Bend due to costs and lack of public interest.

While some previous studies came to fruition as fully constructed projects, opportunities for improvement still exist within the watershed. New opportunities, along with updates to previously implemented actions, will be analyzed in this plan. The current project represents a new watershed plan.

1.03 PROBLEMS AND OPPORTUNITIES

FLOOD DAMAGES

The damage caused by flooding is a considerable concern within the Rawhide Creek Watershed. The area is threatened by regional heavy rainfall events, snowmelt, ice jams, and overflows from neighboring watersheds. Flooding damages have been recorded in the region since the 19th century. On March 31, 1881, the *Fremont Herald* published an account of the extent of flooding in Fremont, stating:

> "Military Avenue was a solid sheet of water from one end to the other clear through the city. Sixth Street was a foot under water at Broad Street. Third Street ran a stream the whole length of it, and the west end of Fourth was fairly afloat. In fact, from Military Avenue south to the river, it was a wild waste of water, and to the bluffs north was almost as dreary a prospect. North of town, the Rawhide flooded, and to the northeast, so did the Elkhorn, so that the water was reported to be eight miles across."

The watershed contains a series of drainage ditches constructed in the early 1900s, and a system of levees and embankments. In June 1990, flooding caused an estimated $27,000,000 in damage, primarily to buildings in Fremont (Fremont Tribune, 1990). In March 2019, a bomb cyclone dropped heavy precipitation on frozen, saturated ground. Rapid snowmelt caused by the precipitation caused an extreme amount of runoff throughout the region. The undersized and inadequate systems currently in place were exposed as overland flows combined with flows from the Platte and Elkhorn Rivers, resulting in breaches and overtopping. Flooding experienced by the communities within the watershed was catastrophic, resulting in approximately $34,000,000 in damages, primarily to buildings in Fremont. Outside of the watershed's communities, most land

is used for agriculture. During flood events, cropland and pasture are impacted by inundation, sediment depositions, scour, and erosion. Additionally, damage to roads and bridges can impede access to emergency services and interrupt farm to market access.

To quantify flood damage, the project team utilized hydrologic and hydraulic models of flooding events of different recurrence intervals. During a 10-year flood, it was found that approximately 176 buildings in the City of Fremont were inundated and the flooding extents covered approximately 6,173 acres in the Fremont region. During a 100-year flood it was found that approximately 454 buildings in the City of Fremont were inundated and the flooding extents covered approximately 12,234 acres in the Fremont region. Additional information concerning the flood modeling is available in Appendix D.

PROJECT OPPORTUNITIES

At the initiation of this study Dodge County was determined to fully understand the flood risk throughout the entire Rawhide Creek Watershed through a comprehensive analysis. This analysis relied on the scoping process; input from communities, agencies, and the public; and used available hydrologic modeling and study data. This preliminary analysis also allowed the project team to screen areas for a reasonable probability to meet WFPO program requirements. Those regions that were most feasible were carried forward for additional alternative identification and evaluation. Opportunities are defined as the desirable, future conditions that may be achieved through the implementation of project alternatives.

A variety of opportunities exist to reduce flood risk within the watershed, which may also offer other incidental benefits:

- Reduction in future flood damages.
- Reduce the need for flood insurance for some residents.
- Improved water quality.
- Reduced runoff and erosion.
- Improved soil health.
- Improved or increased wildlife and aquatic habitat areas.
- Reduced damage to, or increased protection of, cultural resources.

1.04 OBJECTIVES AND CONSTRAINTS

FEDERAL OBJECTIVE AND GUIDING PRINCIPLES

The Federal Objective is to maximize sustainable economic development, avoid the unwise use of flood-prone areas, protect and restore natural systems, and mitigate any unavoidable impacts. With the Federal Law passage of the 2007 Water Resources Development Act, Congress directed the federal government to update and consolidate its past guidance to ensure investments meet

the Federal Objective. The original Principles and Guidelines (P&G) was replaced by Principles, Requirements and Guidelines (PR&G) as of April 2019. The PR&G allow for:

"… maximizing public benefits (of all types) relative to costs, the use of quantified and unquantified information in the tradeoff analysis, flexibility in decision making to promote localized solutions, ability to rely on the best available science and objectivity, and advance transparency for Federal investments in water resources."

The PR&G further state:

"Federal investments in water resources as a whole should strive to maximize public benefits, with appropriate consideration of costs. Public benefits encompass environmental, economic, and social goals; include monetary and non-monetary effects; and allow for the consideration of both quantified and unquantified measures."

The PR&G also requires benefits and costs to be evaluated in an ecosystem service framework that includes economic, social, and environmental values. The framework classifies ecosystem services into four broad categories: provisioning, regulating, cultural, and supporting services. The primary services impacted by flood mitigation projects are regulating and cultural services. Projects designed to provide additional irrigation water may primarily impact provisioning services. Supporting services, such as nutrient cycling, form the foundation of most regulating and provisioning services.

PROJECT OBJECTIVES

Objectives are statements that describe the desired results by solving the problems and taking advantage of the opportunities over the period of analysis. In addition to the Federal Objectives listed above, the following objectives were identified:

1. Reduce flood damage in the City of Fremont, and to agricultural lands, and reduce threats to life, health, and safety due to flooding.
2. Reduce flood damage to infrastructure (roads, bridges, utilities), and improve access to emergency services during flooding events.

PROJECT CONSTRAINTS

Constraints are factors that would make it more difficult to plan and implement a potential project. They are things that must be avoided or cannot be changed while meeting the objectives. The following constraints were identified:

1. Avoid increasing flooding, or transferring flood risk, to properties downstream of Fremont.
2. Avoid causing depletions of instream flows in the Platte River

CHAPTER 2. SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This chapter contains a summary of issues and resources identified through the project scoping process. Issues that were considered but were found not to require detailed discussion in the plan are also identified in this chapter and eliminated from further discussion within the Plan-EA. Issues and resources that were not eliminated are further discussed in Chapter 3 and Chapter 5.

The NRCS, Dodge County (Sponsoring Local Organization [SLO]), citizens and property owners of the Rawhide Creek Watershed, and other project partners discussed resource concerns during scoping meetings. These meetings are held as part of the overall scoping process, which helps to identify what resources or issues need to be analyzed during the project. The Plan-EA was shaped by the information gathered during these meetings, in addition to mandated scoping items. This chapter provides a summary of the resource concerns identified through input from scoping meetings, as well as concerns that were deemed irrelevant to this Plan-EA. Input from partner agencies and the public was utilized to determine the most significant resource concerns, which are summarized below in Table 8. Additional information on scoping meetings is available in Chapter 6. The following meetings were held:

- November 18, 2021 – Agency Scoping Meeting
- November 18, 2021 – Public Scoping Meeting
- April 4, 2022 – Public Meeting
- September 6, 2023 – Public Meeting

Table 8: Summary of Scoping for the Rawhide Creek Watershed

Resource Concern	Relevant?	Reasoning
Soil Resources		
Land Use	Yes	Land use may be altered by alternatives.
Prime & Unique Farmland	Yes	Prime and unique farmland exists in the watershed, some of which may be impacted by flooding or potential alternatives. Plan will comply with the Farmland Protection Policy Act.
Water Resources		
Waters of the United States & Clean Water Act (CWA)	Yes	Aquatic resources (streams, wetlands, etc.) are known to be in the watershed. Waters of the United States and wetlands are likely to be impacted in the project area either by flooding or potential alternatives. Screening will be done for Section 404 of the CWA.
Surface Water Quantity	Yes	Potential alternatives may alter alignments or change flows in some streams. Additionally, potential depletions to flows in the Platte River will be investigated.

Surface Water Quality	Yes	Impaired waterbodies exist in the watershed (NDEE, 2022). Alternatives and flooding may impact these.
Groundwater Quantity	Yes	Groundwater is the primary source of drinking water in this region. Alternatives or flooding may impact groundwater quantity.
Groundwater Quality	Yes	Groundwater is the primary source of drinking water in this region. Alternatives or flooding may impact groundwater quality.
Wetlands	Yes	Wetlands are known to exist the watershed. Alternatives analysis will address NRCS policy, Executive Order 11990, and provisions of Section 404 of the CWA.
Regional Water Management Plans	Yes	The watershed is included in multiple regional water management plans. These plans may influence the alternatives considered.
Floodplain Management	Yes	Developed and agricultural areas of the watershed are in the floodplain (FEMA, 2019). Alternatives may affect the extents of the floodplain.
Coastal Zone Management Areas	No	The watershed is not located near any coastal management areas, and Nebraska does not participate in the National Coastal Zone Management Program (NOAA, 2025).
Wild & Scenic Rivers	No	No Wild & Scenic Rivers (NWSR, 2020) or Nationwide Rivers Inventory listed segments (NPS, 2023) exist in or near the watershed.
Sole Source Aquifers	No	No sole source aquifers exist in the watershed (USEPA, 2023).
Air Resources		
Air Quality	No	Colfax and Dodge Counties are currently meeting all national ambient air quality standards (USEPA, 2024a). No alternatives would alter this.
Clean Air Act	No	Colfax and Dodge Counties are currently meeting all national ambient air quality standards (USEPA, 2024a). No alternatives would alter this.
Plant and Animal Resources		
Fish and Wildlife (including coordination requirements)	Yes	Project will comply with the Endangered Species Act, Fish and Wildlife Coordination Act, and Nongame and Endangered Species Act.
Threatened & Endangered (T&E) Species	Yes	The watershed is within the range of multiple known T&E species. Alternatives will be investigated to determine potential impacts to T&E species.
Invasive Species	Yes	A variety of invasive species exist in the watershed and could potentially be introduced or spread by flooding or construction of alternatives.

Migratory Birds/Bald & Golden Eagles	Yes	Migratory birds and eagles exist in the watershed and could potentially be impacted by flooding or construction of alternatives.
Ecologically Critical Areas	Yes	The watershed contains a portion of the Lower Platte River Biologically Unique Landscape (BUL), and several NRCS Wetland Reserve Program sites.
Fish and Wildlife Habitat		
Forest Resources	Yes	Woodlands exist in the watershed and could potentially be impacted by flooding or construction of alternatives.
Essential Fish Habitat	No	No designated essential fish habitat is within the watershed (NOAA, 2020)
Riparian Areas	Yes	Riparian areas are known to exist in the watershed and could potentially be impacted by flooding or construction of alternatives.
Coral Reefs	No	There are no coral reefs in the watershed
Human Resources		
Flood Damages	Yes	Flood damages are the primary concern within the watershed
Costs	Yes	Costs are a required criterion of PR&G.
Historic Properties and Cultural Resources	Yes	Buildings and archaeological sites that are eligible for the National Register of Historic Places, TCPs, and areas of cultural significance may be affected by flooding or alternative implementation.
Environmental Justice, Civil Rights, and Social Issues	Yes	Flooding may contribute to environmental, civil, and social issues. Impacts to minority or low-income residents of the watershed due to flooding or alternatives will be investigated.
Local & Regional Economy	Yes	Flooding may inhibit economic growth. Impacts of alternative implementation will be investigated.
Potable Water Supply	No	No lack of potable water in the watershed. Alternatives would not impact the potable water supply.
Public Health & Safety	Yes	Flooding poses a threat to public health and safety. Changes to this due to alternative implementation will be investigated.
Recreation	Yes	Flooding or alternative implementation may impact recreation opportunities.
Scenic Areas, Natural Areas, & Parklands	Yes	Watershed contains the Fremont Lakes State Recreation Area.
National Parks, Monuments, and Historical Sites	Yes	Watershed contains portions of the Mormon Pioneer and California National Historic Trails.
Scientific Resources	No	No known scientific features exist within the watershed. There are no local or regionally significant geological structural features,

		paleontological deposits, or caves in the watershed. Reference map is included in Appendix C.
Hazardous Materials	No	There are no known hazardous material sites within the watershed (USEPA, 2024b).
Ecosystem Services		
Provisioning Services	Yes	The project area is agricultural, and food production activities may be affected by flooding and the proposed action.
Regulating Services	Yes	Flooding and the proposed action may have an impact on regulating services.
Cultural Services	Yes	Improved public safety would benefit cultural services.
Supporting Services	No	Supporting services contribute to the other services and are not quantified by this study.

CHAPTER 3. AFFECTED ENVIRONMENT

3.01 INTRODUCTION

This chapter contains a synopsis of the relevant resource concerns identified through project scoping and shown in Chapter 2. Resource concerns are discussed at the geographic level most appropriate for their quantification, which may include the watershed, county, city, benefit area, Affected Resource Area (ARA), or Area of Potential Effect (APE) level. An evaluation of how each is impacted by proposed project alternatives is provided in Chapter 5.

The ARA is the geographic area within which an undertaking may directly impact environmental resources. The APE is the geographic area where a project may directly or indirectly change the use or character of historic properties. The benefit area is the geographic area in which flooding would be reduced by the project. Maps of the ARA, APE, and benefit area can be found in Appendix C. Care was taken to properly define the ARA to ensure any possible lateral effects to wetlands due to drainage could be evaluated. These distances were established based on soils, alternative designs, and procedures from the NRCS National Engineering Handbook (NEH Part 650, Chapter 14, Appendix G).

3.02 L RESOURCES

AND USE

All land use types produce runoff; however, some are greater contributors than others. Farmland has higher runoff rates due to the limited perennial vegetation. Developed and urban regions can produce a disproportionate amount of runoff compared to their size due to the lack of natural vegetation and large areas of impervious materials. Natural areas of grassland and forest have lower rates of runoff due to increased infiltration rates. Land use within the watershed (Figure 3) is dominated by agriculture, with row crops covering 78% (111,172 acres) of the watershed and pastureland another 5% (7,366 acres) in 2023 (USDA, 2023). Within the ARA, row crops account for 90% of the area, and pastureland another 2%. The City of Fremont represents the largest developed / urban area in the watershed. Fremont has a population of approximately 27,600, and covers an area of nearly 7,000 acres, which includes residential areas as well as a wide variety of industrial areas specializing in agricultural equipment production, food and meat processing, transportation, building supplies, and other general manufacturing.

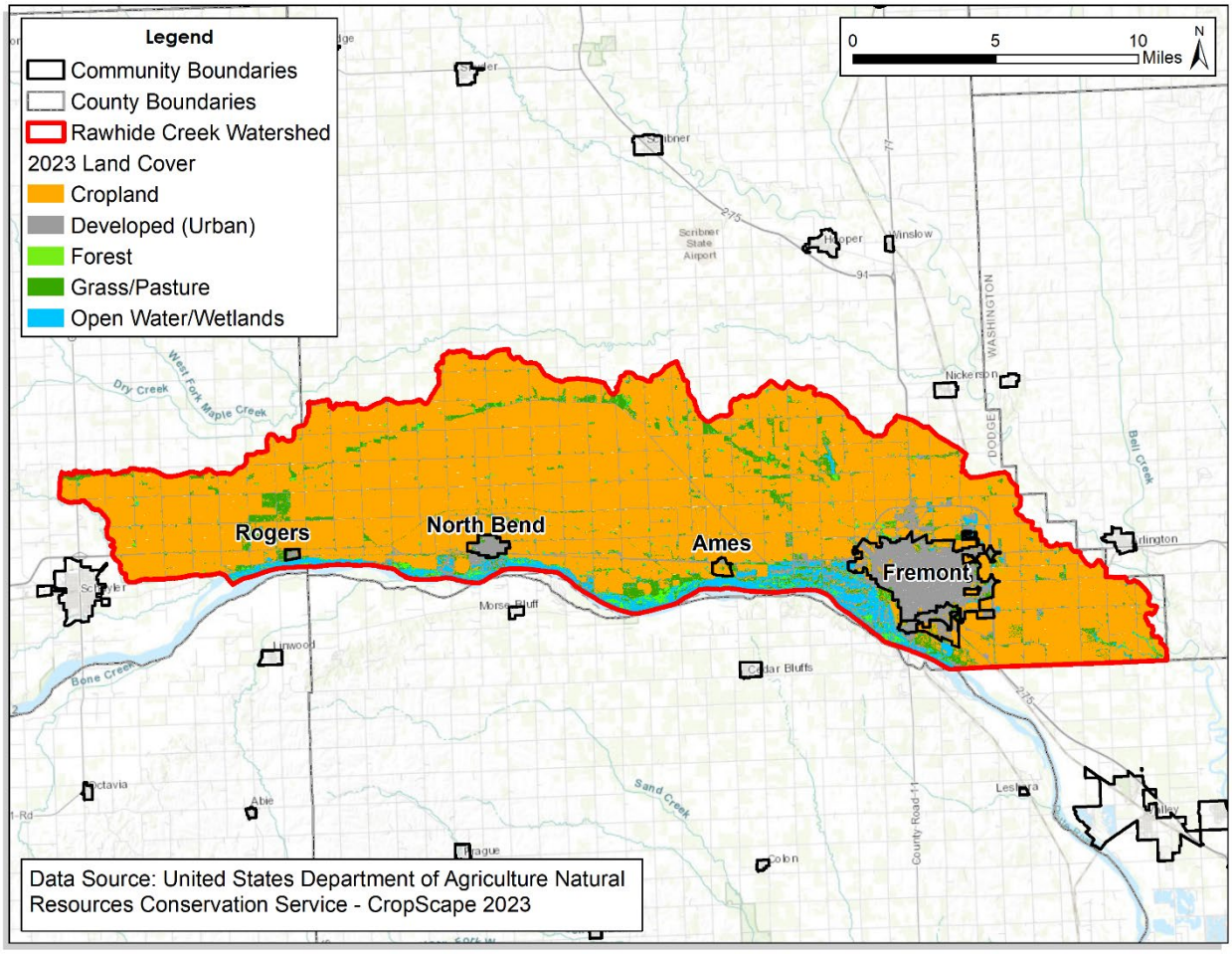

Figure 3: Land Use in the Rawhide Creek Watershed

PRIME AND UNIQUE FARMLAND

The Farmland Protection Policy Act (FPPA) was passed by Congress as part of the Agriculture and Food Act of 1981. The FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purposes of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance (NRCS, 2012).

- **Prime farmland** is land that has the best combination of physical and chemical characteristics for producing agricultural crops and livestock with minimum uses of fuel, chemicals, labor, and tolerable rates of soil erosion.

- **Unique farmland** is non-prime farmland that is used for production of specific high-value crops such as citrus, tree nuts, olives, etc.
- **Farmland that is of statewide or local importance** is used to produce food, feed, fiber, forage, or oilseed crops, as determined by the appropriate State or unit of local government agency, with the approval of the Secretary of Agriculture (NRCS, 2012).

Note that not all areas that have been classified as prime or unique farmland are necessarily actively in use as cropland at any given time.

In the Rawhide Creek Watershed, there are approximately 39,896 acres of prime farmland, 43,930 acres which would become prime farmland if drained, and an additional 3,137 acres of farmland of statewide importance. Prime farmland makes up approximately 28% of the watershed, prime farmland if drained 31%, and farmland of statewide importance 2%. These areas are described in detail in . The ARA contains 220 acres of prime farmland, and 568 acres which would be prime farmland if drained. Additional information concerning the conversion of prime and unique farmland is included in Chapter 5.

3.03 WATER RESOURCES

WATERS OF THE UNITED STATES & CLEAN WATER ACT

The United States Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharge of pollutants into the waters of the United States and regulated the quality standards for surface waters. The discharge of dredged or fill material into waters of the United States, including wetlands, is regulated through Section 404 of the CWA. In Nebraska, any discharge of dredged or fill material requires authorization from the Secretary of the Army, acting through the USACE. Section 402 of the CWA regulates sewer discharges and stormwater discharges from developments, construction sites, or other areas of soil disturbance. In Nebraska, the NDEE is responsible for administering Section 402 through the National Pollutant Discharge Elimination System (NPDES). Detailed information concerning wetlands and other aquatic resources impacted by this project will be presented in Chapter 5, with supporting information provided in Appendix E. A copy of the wetland delineation report is available upon request. The USACE is a cooperating agency for this NEPA document and will use the analysis to assist in project review for meeting requirements for Section 404 of the CWA.

SURFACE WATER QUANTITY

According to the United States Geological Survey (USGS) there are approximately 341 cumulative miles of streams in the watershed. Perennial streams account for 20 miles and include portions of Rawhide Creek, and several small unnamed tributaries. The remainder of streams in the watershed flow intermittently, or are classified as canals or ditches (USGS, 2018). However, through modern remote sensing data and in-field verification, it has been determined that the

USGS reported stream statistics in the Rawhide Creek Watershed are no longer accurate. The construction of various ditches and re-alignment of streams throughout the 20th century has changed the hydrologic characteristics of the watershed. The streams and canals/ditches shown in Figure 4 show the best available information and reflect existing stream channels to the greatest possible extent. Based on this information there are approximately 65 miles of intermittent streams, 29 miles of ditches / canals, and 18 miles of perennial streams in the Rawhide Creek Watershed. The ARA contains 2.4 miles of intermittent streams, 3.1 miles of ditches / canals, and no perennial streams.

According to the USGS there are 243 waterbodies in the watershed. Of these waterbodies, 47% have a pool area of less than one acre,13% range between one and two acres, 23% range between two and ten acres, and 17% exceed ten acres (USGS, 2018). The ARA does not contain any waterbodies. Potential differences between the waterbodies reported by the USGS and current existing conditions in the watershed have not been investigated.

As Rawhide Creek is an indirect tributary of the Platte River, potential depletion of flows in the Platte River system must be investigated to comply with water management goals and habitat requirements for threatened and endangered species that rely on the Platte River. Altering the hydrology within the Rawhide Creek Watershed could impact the hydrology of the Platte River. NGPC considers any depletion of flows to be significant; however, USFWS, NGPC, and NRCS agree that actions which result in annual cumulative depletions of 25 acre-feet or less in Nebraska have no adverse effect on flows in the Platte River and to associated federally or state listed species and designated critical habitat. This is discussed further in Chapter 5.

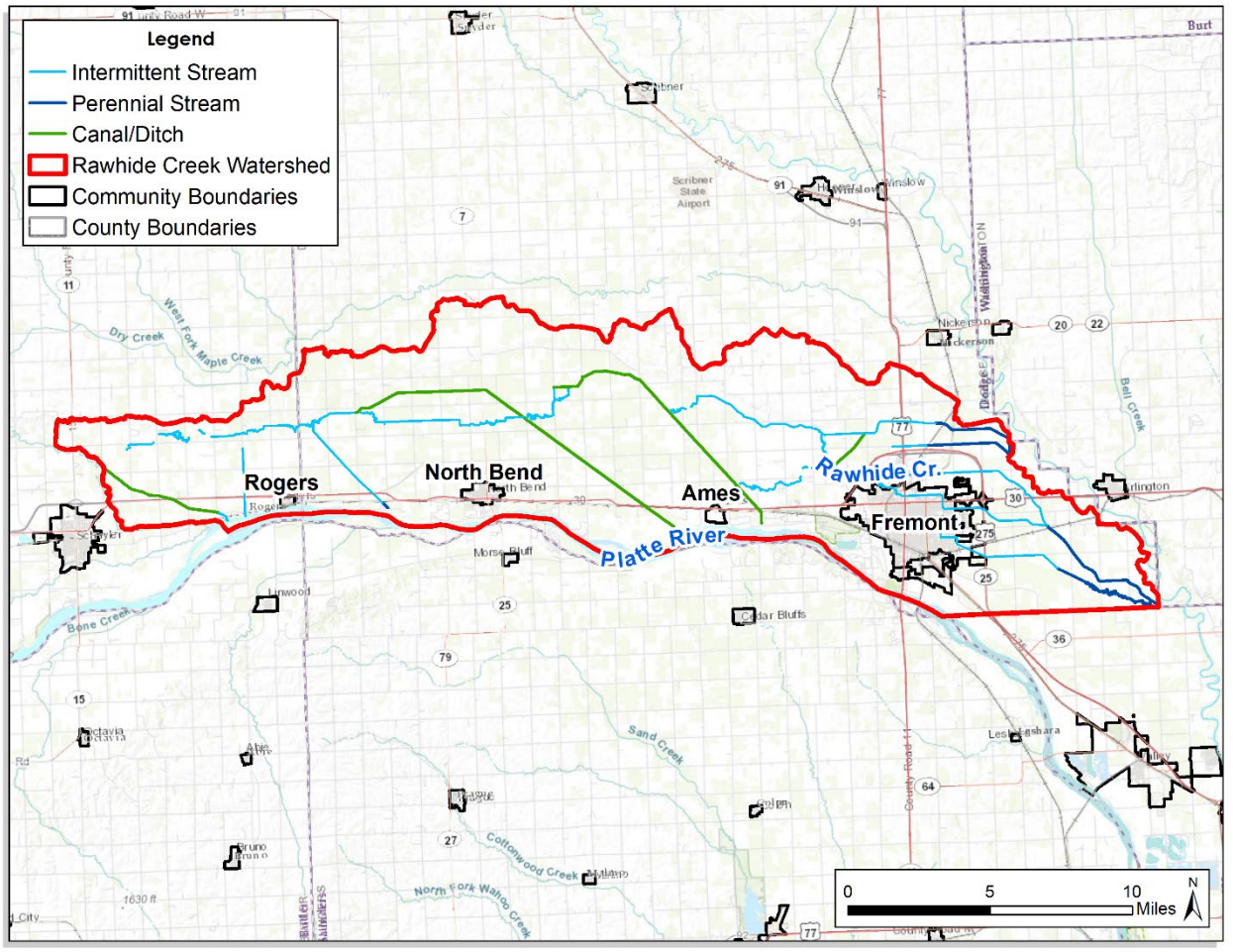

Figure 4: Streams in the Rawhide Creek Watershed

SURFACE WATER QUALITY

The United States Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharge of pollutants into the waters of the United States and regulates the quality standards for surface waters. These standards are the basis of water quality enforcement in Nebraska. Due to the nature of the project and the requirements set out by the CWA, alternatives will likely require this project to obtain a 404 permit.

The Nebraska Department of Environment and Energy (NDEE) (formerly the Nebraska Department of Environmental Quality [NDEQ]) is responsible for implementing the CWA Section 319 Program for the State of Nebraska. This program focuses on the control of nonpoint sources of water pollution for waterbodies, based on meeting water quality standards laid out in Sections 401 and 404 of the CWA, and Nebraska Administrative Code Title 117, which provides numerical water quality standards for all surface waters within Nebraska. NDEE assigns one or more beneficial uses to all designated surface waters within or bordering the State. These beneficial

uses are based on the location and characteristics of each stream or lake. Water quality criteria are assigned to each waterbody based on their beneficial use and vary by pollutant. When a waterbody fails to meet its assigned beneficial use, it can be considered impaired and placed on the 303(d) List of Impaired Waters. The Rawhide Creek Watershed contains 15 impaired waterbodies, all of which carry impairments to aquatic life due to elevated contaminant concentrations. There are no impaired waterbodies in the ARA.

- Fremont Lake No 1 – Mercury, chlorophyll, nitrogen, phosphorus
- Fremont Lake No 2 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 3 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 4 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 5 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 7 and 8 – Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 9 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 10 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 11 - Mercury
- Fremont Lake No 12 -- Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 15 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 16 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 17 - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 18E - Chlorophyll, nitrogen, phosphorus
- Fremont Lake No 20 – Mercury, chlorophyll, nitrogen, phosphorus

GROUNDWATER QUANTITY

There is no shortage of groundwater in the Rawhide Creek Watershed, and the water table has experienced little change over time. Between predevelopment and the spring of 2019, the water table experienced minor fluctuations of +/- five feet in small portions of the watershed (UNL-CSD, 2020). The ARAs fall into an area that has seen no change to the water table. Predevelopment is generally identified as the early 1950s, prior to the widespread use of irrigation wells in Nebraska.

GROUNDWATER QUALITY

Groundwater is the sole source of drinking water for approximately 88% of Nebraska residents (NDEE, 2023). In the Rawhide Creek Watershed, 100% of public and private drinking water supply is sourced from groundwater. In Nebraska, the primary pollutant of concern that impacts groundwater quality is nitrate-nitrogen (nitrate). Nitrate leaching into groundwater is common in agricultural areas where it is widely found in fertilizers and is frequently sampled for.

The Nebraska Quality-Assessed Agrichemical Contaminant (NQAAC) database is maintained by NDEE and contains groundwater sample results collected by multiple state and local agencies from thousands of wells throughout the state. Based on information available through the NQAAC

database, wells in Dodge County have a median nitrate concentration of 1.83 mg/L and wells within the ARA have a median nitrate concentration of 0.1 mg/L (NDEE, 2024). This is well below the United States Environmental Protection Agency's maximum contaminant level of 10 mg/L of nitrate allowable in drinking water.

WETLANDS

The United States Fish and Wildlife Service (USFWS) has established the National Wetlands Inventory (NWI) to provide an estimate of all wetlands in the United States. The watershed contains over 6,000 acres of NWI wetlands, which accounts for approximately 4% of the watershed's total area.

A wetland delineation conducted in accordance with USACE's 1986 Wetland Delineation Manual and regional supplement to the manual was conducted within the ARA. Copies of the wetland delineation report are available in Appendix E. The results of the wetland delineation are summarized in Table 9.

Table 9: Summary of Wetland Delineation Results

Wetland ID	Type (Cowardin | Nebraska Subclass)	Area (ac)
Wetland A	PEMA/C | Riverine Channel	0.864
Wetland B	PEMA/C | Riverine Channel	0.226
Wetland C	PEMA/C | Riverine Channel	0.684
Wetland D	PEMA/C | Riverine Channel	0.041
Wetland E	PEMA/C | Riverine Channel	0.244
Wetland F	PEMA/C | Riverine Channel	0.246
Wetland G	PEMA/C | Riverine Channel	0.003
Wetland H	PEMA/C | Riverine Channel	0.003
Wetland I	PEMA/C | Floodplain Depression	3.304
Wetland J	PEMA/C | Floodplain Depression	0.110
Wetland K	PEMA/C | Riverine Channel	0.313
Wetland L	PEMA/C | Floodplain Depression	1.939
Wetland M	PEMA/C | Riverine Channel	5.489
Wetland N	PFOA/C | Riverine Channel	2.534
Wetland O	PEMA/C | Riverine Channel	1.456
Wetland P	PEMA/C | Riverine Channel	10.661
Wetland Q	PEMA/C | Riverine Channel	2.124
Wetland R	PEMA/C | Floodplain Depression	0.202
	Total	30.443

REGIONAL WATER MANAGEMENT PLANS

The Rawhide Creek Watershed is located within the Lower Platte North Natural Resources District, and falls within the study areas of the following management plans:

- LPNNRD Voluntary Integrated Management Plan (LPNNRD, 2018)
  - Identifies goals and objectives with a purpose of sustaining the balance between water supply and uses in the LPNNRD.
- Lower Platte River Basin Coalition Basin Water Management Plan (LPRBC, 2017)
  - Cooperative planning effort between multiple agencies to characterize and sustain the long-term balance between water uses and supplies throughout the Lower Platte River Basin.

Neither of these regional water management plans contains goals related to flood prevention and/or flood damage reduction. To comply with the goals of these plans, potential alternatives should avoid depletion of flows to the Platte River.

FLOODPLAIN MANAGEMENT

The regulatory floodplain is a geographic area delineated by the Federal Emergency Management Agency (FEMA) to determine levels of flood risk and administrate the National Flood Insurance Program (NFIP). The regulatory floodplain is broken down into a variety of flood zones to categorize the type and severity of flood risk present in each area. The Rawhide Creek Watershed contains Zone A, Zone AE, Zone AO, and Floodway, which are described below:

- Zone A – Areas of 100-year (1% annual chance) flood; base flood elevations not determined. Typically developed through a basic flood study.
- Zone AE – Areas of 100-year (1% annual chance) flood; base flood elevations determined. Typically developed through a detailed flood study.
- Zone AO – Areas of 100-year (1% annual chance) shallow flooding where depths are between 1 and 3 feet; average depths of inundation are shown. Typically developed through a detailed flood study or observations of flooding.
- Floodway - The channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in flood elevations at any location.

Most of the regulatory floodplain area is composed of Zone A, AE, and AO. The extents of the regulatory floodplain for the Rawhide Creek Watershed, obtained from the FEMA National Flood Hazard Layer, are displayed in Figure 5. The regulatory floodplain contains approximately 78,444 acres of the watershed, or 55% of the total watershed area. Of this area, 4,417 acres are composed of floodway. The majority of the regulatory floodplain area in the watershed encompasses land used for agricultural production, but approximately 2,333 acres of regulatory floodplain falls within the corporate limits of watershed communities. The ARA contains 1,109

acres of regulatory floodplain, or 85% of the total ARA area. Details of FIRM panels relevant to the ARA are included in Table 10. A detailed hydraulic and hydrologic (H&H) model was developed to support this plan, additional information is included in Appendix D.

Table 10: ARA Firm Panel Details

FIRM Panel Number	Effective Date
31053C0250E	1/2/2008
31053C0375E	1/2/2008
31053C0385E	1/2/2008

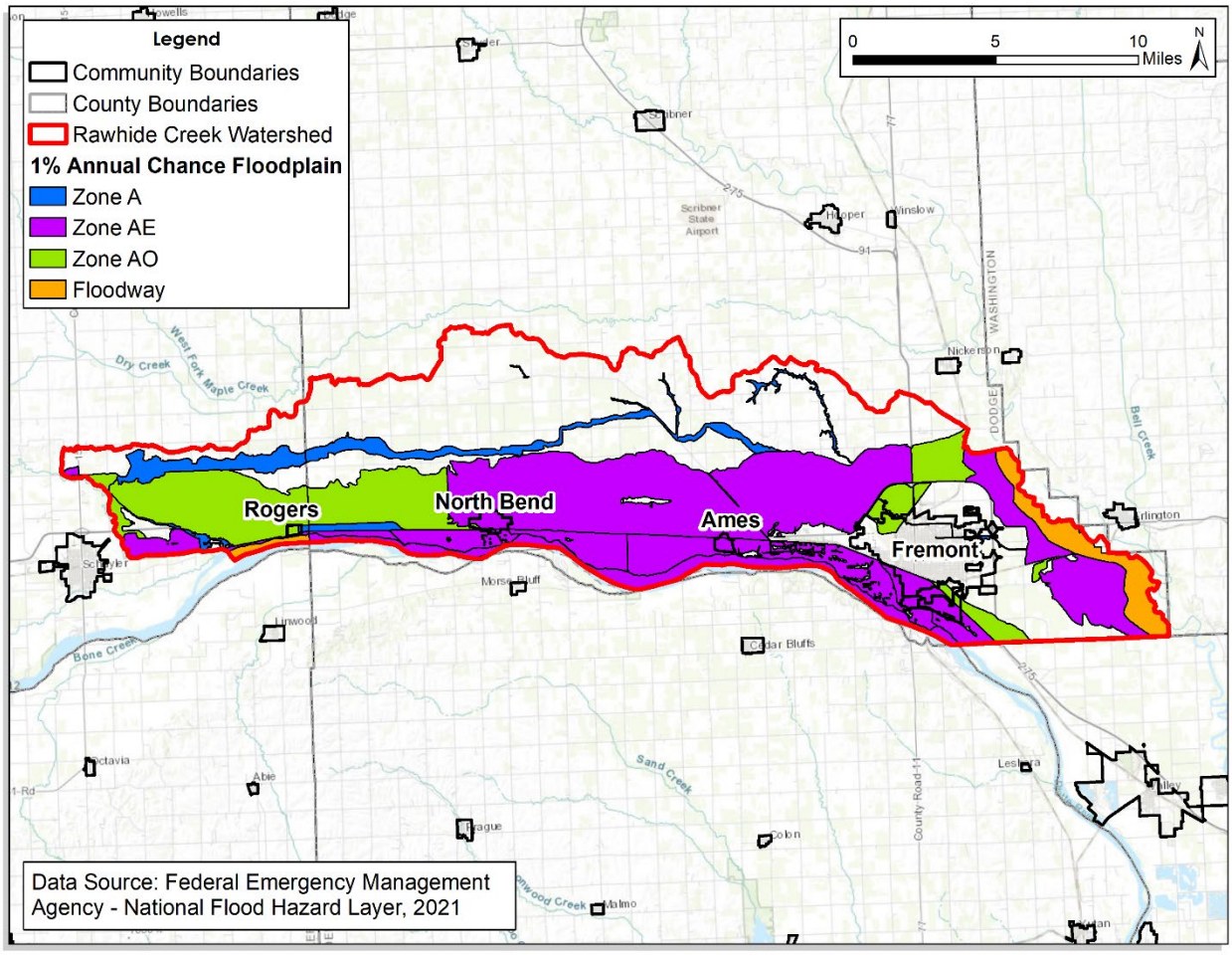

Figure 5: 100-Year Floodplain in the Rawhide Creek Watershed

3.04 PLANT AND ANIMAL RESOURCES

FISH AND WILDLIFE (INCLUDING COORDINATION REQUIREMENTS)

Major wildlife species in this area include white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), opossum (*Dedelphidae*), mourning dove (*Zenaida macroura*), and meadowlark (*Sturnella neglecta*). Fish species include smallmouth bass (*Micropterus dolomieu*), bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), largemouth bass (*Micropterus salmoides*), and black bullhead (*Ameiurus melas*).

Several laws, rules, regulations, or executive orders are related to the fish and wildlife resources within the watershed, including coordination with federal and state agencies. This Plan-EA is subject to the following:

- Endangered Species Act (ESA)
- Fish and Wildlife Coordination Act (FWCA)
- Nongame and Endangered Species Act (NESCA)
- Section 12 of P.L. 83-566

Where applicable, each of these are discussed in detail within the Plan-EA. Coordination with USFWS and NGPC is documented within Chapter 6 and Appendix A. The USFWS will use the information presented in this Plan-EA to assist in future project reviews.

THREATENED AND ENDANGERED SPECIES

The Endangered Species Act of 1973 provides a framework to conserve and protect threatened and endangered species, and their habitats. The USFWS and National Marine Fisheries Service jointly maintain and enforce the national list of threatened and endangered species and assist states in developing conservation programs. In Nebraska, the NGPC maintains the state list of threatened and endangered species. The Fish and Wildlife Coordination Act of 1934, as amended through PL 116-188, directs the USFWS to investigate and report on any proposed Federal actions and provide recommendations to minimize impacts on fish and wildlife resources. The Nebraska Nongame and Endangered Species Conservation Act (Nebraska Revised Statute 37-806) protects threatened and endangered species at a state level and allows the state to create recovery plans for those species that are in the most immediate danger.

The NGPC Conservation and Environmental Review Tool (CERT) was accessed on January 28, 2022 (Project ID NE-CERT-005651), and the USFWS Information for Planning and Consultation (IPaC) Tool was accessed on August 8, 2024 (Project Code 2024-0127869), to compile the initial list of species that may exist within the watershed area. Additionally, NGPC provided a list of species of concern within the watershed in a letter (included in Appendix A) received on December

17, 2021. Information about the resulting species is included below. Descriptions are based on information available from NGPC and USFWS sources. A discussion of these species specific to the ARA is included in Chapter 5. Copies of the CERT and IPaC reports are included in Appendix E.

Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) – Federally and State Threatened

The eastern black rail is a sparrow-sized marsh bird, and the smallest rail in North America. Adults have an average length of 4 – 6 inches and a wingspan of 8.7 – 11 inches. The birds are gray-black in coloration, with white speckled upperparts, and have a grayish crown, chestnut-colored nape, and a short tail. The birds are secretive and difficult to detect. In some locations, males will sing throughout the day and night, while in others they only sing at night. During breeding and wintering seasons, eastern black rails fly little and will flush for only a short distance when pursued, mostly remaining on the ground and running quickly through dense vegetation.

Interior Least Tern (*Sternula antillarum athalassos*) – State Endangered

The interior least tern is the smallest North American tern. Adults average between 8 and 10 inches in length, with a 20-inch wingspan. Adults are gray above and white below, with a black cap, black nape and eye stripe, white forehead, yellow bill with a black or grown trip, and yellow to orange legs. They have narrow, pointed wings and a forked tail. Nesting habitat is typically bare or sparsely vegetated sand, sandbars, and islands. The birds prefer an open habitat and tend to avoid thick vegetation.

Lake Sturgeon (*Acipenser fulvescens*) – State Threatened

The lake sturgeon is a temperate, freshwater fish found only in North America. Their habitat is typically on the bottom of a clean lake or riverbed with a sand or gravel substrate. They have slender bodies covered with rows of bony plates, a single dorsal fin, a projecting snout, and a small toothless mouth surrounded by four barbels. Larger than other sturgeons, the lake sturgeon commonly weighs 100 pounds or more. The long-living fish are slow growing, reaching reproductive age after approximately 20 years.

Northern Long-eared Bat (*Myotis septentrionalis*) – Federally and State Endangered

The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches in length with a wingspan of 9 to 10 inches. The species range includes 37 states and much of Canada. The bats spend winter hibernating in caves and mines with constant temperatures, high humidity, and little air movement. During the summer, the bats roost singly or in colonies underneath bark, in cavities or in crevices of trees. The greatest threat to northern long-eared bats is white-nose syndrome, a fungal infection which affects them during hibernation.

Pallid Sturgeon (*Scaphirhynchus albus*) – Federally and State Endangered

Pallid sturgeons are bottom dwelling, slow growing fish that feed primarily on small fish and immature aquatic insects. They have a flattened snout, long slender tail, and are armored with rows of bony plates. While seldom seen, the fish can reach lengths of 6 feet and weights of 80 pounds. Pallid sturgeons are adapted to the bottoms of large, silty rivers, and prefer a diversity of depths and velocities provided by braided channels and sandbars. The long-living fish are slow growing, with females reaching reproductive age between 7 and 15 years, with up to 10-year intervals between spawning.

Piping Plover (*Charadrius melodus*) – Federally and State Threatened

Piping plovers are small shorebirds with a sand-colored upper body, white underside, and orange legs. During breeding season, adults have a black forehead, black breast band, and orange bill. They are migratory birds, breeding in the Northern Great Plains, Atlantic Coast, and shorelines of the Great Lakes in the spring and summer, and wintering in the Gulf of Mexico. The birds prefer wide, flat, sandy beaches with little vegetation. Nesting territories often include small creeks or wetlands.

Rufa Red Knot (*Calidris canutus rufa*) – Federally and State Threatened

The rufa red knot is a stocky, robin-sized shorebird with relatively short bill and legs, and a wingspan of approximately 20 inches. The birds have a proportionately small head, small eyes, and short neck, and a black bill that tapers from a stout base to a relatively fine length. The rufa red knot is easily recognized during the breeding season by its distinctive red plumage. Nonbreeding season plumage is dusky or pale ashy gray above, with feathers on back narrowly edged in white. The birds prefer coastal marine and estuarine habitats with large areas of exposed intertidal sediments. The birds annually migrate between the far north of the central Canadian Arctic to the extreme south of Tierra del Fuego, making them one of the longest-distance migrants in the animal kingdom.

Sturgeon Chub (*Macrhybopsis gelida*) – State Endangered

The sturgeon chub is a small minnow species reaching up to 4 inches in length, however most individuals range between 1.5 and 2.5 inches. It is recognized by its long, flat snout with a barbell at the corner of its mouth. They are brown to olive colored on their back and white or silver on their belly with relatively large clear fins. The fish prefer fast, free flowing rivers with high turbidity and low visibility.

Western Massasauga (*Sistrurus tergeminus)* – State Threatened

The western massasauga is a small species of rattlesnake primarily found in grassland areas, on the edge of open woodland, or on rocky hillsides. These snakes are lightly colored with dark brown blotches along the back that contrast with the lightly colored soil and plants of the prairie. Its

underbelly is lightly colored with some dark spots, and the head has a dark broad lateral stripe along each side. In Nebraska, they generally require crayfish burrows in wetland areas to use as hibernacula.

Western Prairie Fringed Orchid (*Platanthera praeclara*) – Federally and State Threatened

The western prairie fringed orchid grows from a fleshy, tuberous root and has a single stem with alternate leaves. The long leaves come together at the base of the stem and the veins are parallel. The plant can grow up to 3 feet in height, but the average height is 18 to 30 inches. The flowers form an open arrangement at the top of the stem. Approximately two dozen creamy white or greenish flowers are present on each stalk. The lower lip of the flowers is divided into three feathery and fringed lobes. The flower can be found in the tallgrass prairie landscape. In eastern Nebraska they are found in upland prairies and loess soils. In central and northeast Nebraska, they grow in wet prairies and meadows.

Whooping Crane (*Grus americana*) – Federally and State Endangered

Whooping cranes are one of the rarest birds in North America. Standing nearly 5 feet tall with a wingspan of 7.5 feet, the birds are white with rust-colored patches on the tops and backs of their heads. They have yellow eyes and long, black legs and bills. Their primary wing feathers are black but are only visible during flight. The birds breed in northern Canada and winter in southern Texas. They begin their fall migration south in mid-September and begin the spring migration north in late March or early April, migrating over 2,000 miles each year.

Proposed and Candidate Species

The below species are undergoing review and are subject to reclassification before the project moves into the implementation phase. These species occur within the project area and could be affected by project implementation:

- Monarch Butterfly (*Danaus plexippus*) – Candidate
    - Found mainly in prairies, meadows, grasslands, and roadside ditches where milkweed grows.
- Western Regal Fritillary (*Argynnis idalia occidentalis*) - Proposed Threatened
    - Found in tallgrass prairies and other open and sunny locations including wet meadows, marshes, fields, and pastures.

INVASIVE SPECIES

Invasive species are non-native to an ecosystem. Once established, these species may cause irreparable harm, introduce disease, out-compete native species, change habitat, damage equipment or infrastructure, and negatively impact local and national economies. While there is

not a complete list of locations where invasive species are found, the Nebraska Invasive Species Council (NISC) maintains information on potential and known invasive species in Nebraska.

There are dozens of invasive species that have the potential to spread within the watershed. This may include aquatic species, insects, plants, birds, mammals, and even pathogens (such as white nose syndrome which impacts the northern long-eared bat). NISC prepared an *Adaptive Management Plan* in 2021 (NISC, 2021) to provide guidance on minimizing the impacts of nonnative invasive species through prevention and management. Some of their strategies include outreach campaigns to educate residents about the harm invasive species can cause, watercraft inspection and decontamination, and systematic surveys of types, sizes, and locations of invasive species populations.

The NISC has identified potential invasive species that could impact the watershed, including the ARA. A best available, although non-comprehensive, list of these potential invasive species is included in Table 11.

Table 11: Potential Invasive Species

Plant Species	Mammal & Bird Species	Insect Species	Aquatic Species
Canada Thistle (*Cirsium arvense*) Outproduces crops and grasses and inhibits growth.	Eurasian Collared-Dove (*Streptopelia decaocto)* Chases off native birds and carries parasites.	Emerald Ash Borer (*Agrilus planipennis Ledeb).* Destructive to ash trees.	Zebra and Quagga Mussels (*Dreissena polymorpha, Dreissena rostiformis)* Dense colonies decrease food supply for native species.
Creeping Foxtail (*Alopecurus arundinaceus*) Outcompetes native plants.	European Starling (*Sternus vulgaris)* Pest due to large presence at agriculture and livestock operations.	Spotted Lanternfly (*Lycorma delicatula)* Destructive to a wide variety of crops.	Asian Clam (*Corbicula fluminea)* Outcompetes native species and blocks irrigation and other pipes.
Downy Brome (*Bromus tectorum)* Outcompetes native grasses and spreads rapidly.	Feral Hog (*Sus scrofa)* Root and trample cropland and native grasslands.	Longhorned Beetle (*Anoplophora glabripennis)* Wood-boring insect that feeds on hardwoods.	Bighead Carp (*Hypophthalmichthys nobilis)* Outcompetes native species.
Garlic Mustard (*Alliaria petiolate)* Outcompetes native plants and kills butterfly larvae.	House Sparrow (*Passer domesticus)* Feed in large groups on grain in fields and storage.	Brown Marmorated Stink Bug (*Halyomorpha halys)* Feeds on a wide variety of crops.	Chinese Mystery Snail (*Cipangopaludina chinensis)* Outcompetes native species and carries parasites.
Japanese & Giant Knotweed (*Fallopia japonica, F. sachalinensis*)	Rock Dove / Feral Pigeon (*Columba livia)* Droppings spread disease and deteriorate buildings.	Cereal Leaf Beetle (*Oulema melanopus)* Destructive to grain crops.	Chytrid Fungus (*Batrachochytrium dendrobatidis)* Causes skin infection in amphibians.

Dense, rapid growth alters habitat and increases riverbank erosion.			
Leafy Spurge (*Euphorbia esula*) Toxic to cattle, replaces native grasses.	-	Japanese Beetle (*Popillia japonica)* Destructive to wide variety of plants.	Eurasian Watermilfoil (*Myriophyllum spicatum)* Outcompetes and displaces native aquatic plants.
Musk Thistle (*Carduus nutans*) Outcompetes native plants, dense colonies reduce yield.	-	Mountain Pine Beetle (*Dendroctonus ponderosae)* Destructive to pine trees.	Red Swamp Crayfish (*Procambarus clarkii)* Outcompetes native crayfish species.
Osage Orange (*Maclura pomifera)* Invades grasslands and displaces native plants.	-	Pine Shoot Beetle (*Tomicus piniperda)* Destructive to pine trees.	Rudd (*Scardinius erythrophthalmus)* Outcompetes native fish species and tolerant to poor water conditions.
Phragmites Common Reed (*Phragmites australis)* Forms large, dense stands, traps sediment, and reduces water quality.	-	Sirex Woodwasp (*Sirex noctilio F.)* Destructive to pine trees.	Rusty Crayfish (*Orconectes rusticus)* Damages aquatic vegetation, reduces food sources for native aquatic species.
Plumeless Thistle (*Carduus acanthoides)* Outcompetes native plants and harms crop yield.	-	Spongy Moth (*Lymantria dispar)* Defoliates trees.	Silver Carp (*Hypophthalmichthys molitrix)* Outcompetes native fish species.
Purple Loosestrife (*Lythrum salicaria, L. virgatum)* Outcompetes native plants and harms crop yield.	-	-	White Perch (*Morone americana)* Feed on native minnows and fish eggs.

MIGRATORY BIRDS AND EAGLES

The Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940, both of which have been amended multiple times since their inception, prohibit the taking of protected migratory bird species, bald eagles, and golden eagles without special permission. Under these two acts, 'taking' includes the pursuit, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct towards the birds themselves

as well as any parts, such as eggs, feathers, nests, etc. Migratory birds are protected if they meet one or more of the following criteria (USFWS, 2025):

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In Nebraska it's widely accepted that the nesting season for migratory birds occurs between April 1 – July 15, with some exceptions to this range. For example, raptors can be expected to nest in woodland habitats from February 1 – July 15, whereas sedge wrens, which occur in some wetland habitats, normally nest from July 15 – September 10. Golden eagles can be found in the Nebraska panhandle and commonly range into the central portion of the state during spring and fall. Bald eagles can be found throughout the entire state year-round, especially near water in the winter and spring. Multiple migratory bird species are likely present within the watershed. According to the Nebraska Ornithologists' Union, 296 species of birds have been identified in Dodge County alone, many of them migratory. Bird species of conservation concern are those bird species which, though not designated as federally threatened or endangered, are of high priority for conservation. Bird species of conservation concern, as detailed in the IPaC report accessed on August 8, 2024, include:

- American Golden Plover (*Pluvialis dominica*)
    - Found in burned, plowed, and harvested agricultural fields, pastureland, sod farms, estuaries, mudflats, prairie, and tundra.
- Bald Eagle (*Haliaeetus leucocephalus*)
    - Found within two and a half miles of the coast, bays, rivers, lake, or other bodies of water.
- Black Tern (*Chlidonias niger*)
    - Found in large freshwater wetlands, usually in dense marshes on the edges of shallow lakes of the open prairies or northern forests.
- Bobolink (*Dolichonyx oryzivorus*)
    - Found in damp meadows and natural prairies, or hayfields.
- Chimney Swift (*Chaetura pelagica*)
    - Found in caves and hollow trees, or other artificial sites with vertical surfaces and low light.
- Eastern Whip-poor-will (*Antrostomus vociferus*)
    - Found in forests with open understories.
- Hudsonian Godwit (*Limosa haemastica*)

- Found in freshwater tundra marshes and bogs, interior wetlands, coastal lagoons, marshes, and ocean coasts.
- Kentucky Warbler (*Oporornis formosus*)
  - Found in bottomland hardwood forests.
- Lesser Yellowlegs (*Tringa flavipes*)
  - Found in open deciduous or coniferous forest mosaics with wet or sedge meadows and marshes.
- Pectoral Sandpiper (*Calidris melanotos*)
  - Found in grassy shore edges, edges of tidal marshes, flooded fields, wet meadows, plowed fields, and dry prairie.
- Prothonotary Warbler (*Protonotaria citrea*)
  - Found in wooded swamps, flooded bottomland forests, and wooded areas near streams and lakes.
- Red-headed Woodpecker (*Melanerpes erythrocephalus*)
  - Found in forest edges, orchards, open pine woods, and groves of tall trees in open country.
- Ruddy Turnstone (*Arenaria interpes morinella*)
  - Found in high arctic tundra, along coastlines, and near marshes, streams, and ponds when migrating.
- Rusty Blackbird (*Euphagus carolinus*)
  - Found in flooded woods, swamps, marshes, and edges of ponds.
- Short-billed Dowitcher (*Limnodromus griseus*)
  - Found in mudflats, tidal wetlands, and shallow freshwater impoundments.
- Upland Sandpiper (*Bartramia longicauda*)
  - Found in grasslands and agricultural fields of the Great Plains.
- Wood Thrush (*Hylocichla mustelina*)
  - Found in deciduous woodlands of the eastern United States.

ECOLOGICALLY CRITICAL AREAS

A portion of the watershed falls into the Lower Platte River Biologically Unique Landscape (BUL). A portion of the ARA also falls into this BUL. BULs are non-regulatory areas and were created to identify landscapes based on known occurrences of natural communities and at-risk species. The Lower Platte River BUL consists of the floodplain region surrounding the Platte River from approximately Columbus, Nebraska to the confluence with the Missouri River. This includes wooded streambanks, sand pit lakes, wet meadows and marshes, crop fields, and several communities. The Platte River channel is wide and braided and supports a variety of bird species on its many sandbars. The river is home to several rare fish species including the lake sturgeon, sturgeon chub, and pallid sturgeon (Schneider et al., 2011).

NGPC's CERT tool also includes two known Wetlands Reserve Program sites in the watershed. Both sites are owned by private individuals. The Wetland Reserve Program is administered by

NRCS to help landowners protect, restore, and enhance wetlands which have previously been degraded due to agriculture. None of the Wetlands Reserve Program sites are located within the ARA.

3.05 FISH AND WILDLIFE HABITAT

FOREST RESOURCES

Forested areas comprised approximately 1.2% (1,744 acres) of the watershed's total area in 2023 (USDA, 2023). The ARA contains approximately six acres of forested land, less than 1% of the total ARA area. Though historically prairie grasses were the dominant plant community in this region, eastern Nebraska is home to a diverse mix of woodland species. Native woodlands are found mainly in the fire-protected stream valleys and bluffs. Cottonwoods(*Populus deltoides*), willows *(Salix Babylonic,* and *Salix nigra)*, boxelders (*Aver negundo*), and American elm (*Ulmus americana)* dominate the wetter floodplain areas. The drier river bluffs support oaks (*Quercus macrocarpa* and *Quercus rubra*), hickories (*Carya cordiformis*), basswood (*Tilia americana*), black walnut (*Juglans nigra*), and other deciduous trees (Schneider et al., 2011). Those woodland areas not found along stream channels in this region are commonly found in manmade rows planted to act as windbreaks.

RIPARIAN AREAS

Riparian areas are the narrow regions separating waterways and uplands. They are present throughout the watershed along Rawhide Creek, the Platte River, and their various tributaries. There are an estimated 7,600 acres of riparian areas within the watershed (USDA, 2023). The ARA contains approximately 68 acres of riparian areas. These riparian areas are primarily located along stream corridors and surrounding wetlands throughout the watershed.

3.06 HUMAN RESOURCES

FLOOD DAMAGES

To quantify flood damage, the project team utilized hydrologic and hydraulic models of flooding events of different recurrence intervals. During a 10-year flood, it was found that approximately 176 buildings in the City of Fremont are inundated, and the flood extents covered an area of 6,173 acres with an average depth of 1.25 ft in the area of benefit. During a 100-year flood it was found that approximately 454 buildings in the City of Fremont are inundated, and the flood extents covered an area of 12,234 acres with an average depth of 1.26 ft in the area of benefit. Additional information concerning the flood modeling is available in Appendix D.

COSTS

To quantify monetary flooding damages to structures, hydrologic and hydraulic modeling results were assessed using the Federal Emergency Management Agency's (FEMA) Hazards United States (HAZUS) program. Agricultural damages were estimated using a depth-damage curve applied to the most common land uses in the inundation area. Land use areas were identified in ArcGIS and include alfalfa, corn, soybeans, and grassland/pasture. Under existing conditions, average annual economic damages and expenses are estimated at $2,280,000. Of this total, approximately $127,200 is attributed to damage to agricultural land, while the remainder is associated with damage to structures and their contents. Nearly all of the buildings damaged by flood events are residential structures. For example, of the 753 structures impacted by the 500-year flood event, only four are commercial buildings. These damages are the result of expenses residents of the watershed face to repair property-related damages. Additional information about the economic analysis is available in Appendix D.

HISTORIC PROPERTIES AND CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. § 306108) and its implementing regulations (36 CFR Part 800) require federal agencies to take into account the effect of undertakings on historic properties (cultural resources that are listed on or are eligible for listing on the National Register of Historic Places (NRHP)). Cultural resources are physical or other expressions of human activity or occupation and include archeological sites, buildings, bridges, business districts, culturally significant landscapes, isolated artifacts or features, culturally sacred places, and objects of cultural and historic significance. In order for a cultural resource to considered a historic property, it must be associated with events significant to the broad patterns of history; associated with the lives of persons significant in the past; embody distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic value, or represent a significant and distinguishable entity; and/or must yield or be likely to yield, information important to history or prehistory. If an undertaking will alter, damage, or destroy a historic property, the agency has a responsibility to avoid, minimize, or mitigate the adverse effect.

Consultation with the State Historic Preservation Office, Federally Recognized Tribes, as appropriate, as well as other interested parties, is required for any watershed action. The identification and evaluation of historic properties was carried out in accordance with the guidance found in the NRCS National Cultural Resources Procedures handbook.

The area of potential effect (APE) for this project totals 1,496 acres and includes all areas that may be directly or indirectly affected by construction of the proposed alternative including, but not limited to, access roads, staging area locations, borrow pits, road improvements, excavation footprints, tree removal, spoil piles, utility relocations, and visual effects, etc. The APE includes a ¼ mile buffer around the detention cells for visual effects to neighboring farmsteads. Approximately 1,303 acres of the APE is direct effects related to construction; the APE for visual effects is 193 acres.

In support of the Plan-EA, Buried Past, LLC., and NRCS completed desktop records reviews through History Nebraska's State Historic Preservation Office (SHPO) and other online sources to identify known cultural resources within the APE (Bevitt and Bevitt 2024). This file search included archaeological sites, archaeological surveys, historic buildings surveys, historic building surveys, properties listed on or eligible for listing on the NRHP, National Historic Landmarks (NHL), and National Historic Trails. There are no archaeological sites, NRHP listed properties, NHLs, or National Historic Trails within the APE. One previously documented standing structure, a farmhouse built circa 1910, is located within the APE. Within one mile of the APE are one previously recorded archaeological site (25DD5) and one property listed on the NRHP (the Christopher Knoell Farmstead). The Mormon Pioneer National Historic Trail is ½ mile south of the APE.

Buried Past Consulting, LLC conducted a Class III intensive cultural resource investigation for the presence of historic properties and cultural resources within the APE between June and August 2023. The staff that completed the survey and prepared the report meet Secretary of Interior qualification standards for archaeologists and architectural historians per 36 CFR 61. The investigations included a variety of field methods including pedestrian survey, shovel testing, and auger testing. Standing structures adjacent to the road raise and detention cell were assessed to determine the visual effects of the project on those properties. The cultural resource inventory report describes the survey methods and results and is provided in Appendix E. The entire APE and an additional 208 acres were investigated.

A total of six archeological sites were recorded within the APE during the investigation (Table 12), including four historic artifact scatters (25DD68, 25DD69, 25DD72, and 25DD74), a historic dump (25DD73), and an isolated prehistoric artifact (25DD75). Additionally, six properties with standing structures (AR-1, AR-2, AR-5, AR-7, AR-6 and AR-8) were documented within the APE. One of the properties (AR-7) had been previously documented by the Nebraska State Historical Society. Each of the cultural resources recorded during the survey were evaluated for consideration to be listed in the NRHP following the guidelines in National Register Bulletin 15 *How to Apply the National Register Criteria for Evaluation*. None of the sites or buildings were found to meet the criteria for eligibility, and NRCS determined that all the sites and buildings recorded during the investigation were Not Eligible for listing on the NRHP. Please see Appendix E for a copy of the cultural resources inventory report, which contains descriptions of each resource and the NRHP evaluations as well as information about previous cultural resource investigations and known sites in the vicinity of the APE. NRCS determined that no historic properties would be affected by the proposed alternatives.

[INSERT SUMMARY OF CONSULTATION RESPONSES HERE].

Table 12: Archeological Sites and Buildings Documented During the 2023 Cultural Resource Inventory

Site/Architectural Resource (AR) Number	Site Type	Description	NRHP Determination
25DD68	Artifact scatter	Low density scatter of domestic debris and architectural material, including whiteware, stoneware, window glass, container glass, wire nails, tin cans, equipment part fragments, concrete, and brick fragments.	Not eligible
25DD69	Artifact scatter	Low density scatter of window glass, container glass, wire nails, stoneware fragments, metal bolts, and small limestone fragments.	Not eligible
25DD72	Artifact scatter	Low density artifact scatter of domestic debris including stoneware, decorative pressed glass, whiteware, window glass, container glass, farm equipment fragments, hardware fasteners, concrete fragments, brick fragments, and limestone fragments.	Not eligible
25DD73	Historic dump	Historic garbage dump consisting of discarded cans and assorted glass containers. items included a blue-white enamelware pot, a white-black enamelware saucepan, black enamelware roaster pan lid, metal hardware from a singletree, harness leather, portions of a standard draft horse field collar, a mid-century electric cookstove, oil cans, a fuel can, and several larger pieces of equipment and parts mostly buried by other dump debris and detritus. Many items appear to represent mid-20th century (1950s-1960s especially) brands and container styles with occasional items possibly representing earlier and later dating materials.	Not eligible
25DD74	Artifact scatter	Low-density surface scatter of domestic and architectural debris including whiteware, miscellaneous glazed stoneware, window glass, miscellaneous container glass, miscellaneous hardware fasteners, and concrete, limestone, and brick fragments.	Not eligible
25DD75	Isolated find	Isolated flake of light gray chert.	Not eligible
AR-1	Farmstead	Farmstead with early 20th century residence. Outbuildings included a barn, three metal grain bins, a wood-sided garage, and a newer metal structure.	Not eligible
AR-2	Farmstead	Early 20th century farmstead consisting of a cross gabled, two-story residence in New Traditional style, a wood-clad shed, metal shed, and metal-clad barn (no discernable style).	Not eligible
AR-5	Farmstead	Early 20th century farmstead consisting of a residence, newer metal sheds, a wood-clad shed, and a metal grain bin.	Not eligible

Site/Architectural Resource (AR) Number	Site Type	Description	NRHP Determination
AR-6	Farmstead	Early 20th century farmstead with an American four-square residence, five metal grain bins, and a dairy barn with a rounded roof. AR-6 is outside of APE. It is too far away to see the proposed detention cell.	Not eligible
AR-7 (DD00-085)	Farmstead	Early 20th century farmstead consisting of a residence, a newer metal building, and a metal grain bin.	Not eligible
AR-8	Farmstead	Early 20th century farmstead consisting of a residence, two metal grain bins, a newer metal shed, a windmill, and a concrete silo.	Not eligible

ENVIRONMENTAL JUSTICE, CIVIL RIGHTS, AND SOCIAL ISSUES

Executive Order 12898, issued in 1994, directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. Conforming to that directive, this project must ensure that any negative environmental or human health consequences do not disproportionately impact minority or low-income residents of the watershed.

Minorities in America are those persons who are a member of any of the following population groups: Native American, Alaskan Native, Asian American, Native Hawaiian, Pacific Islander, Hispanic/Latino, and Black or African American. Table 13 shows the percentage of the population considered to be a minority in the watershed, Colfax and Dodge Counties, the State of Nebraska, and the United States.

Poverty in America is dependent on the number of people in a household. The baseline for a single person household is an income of $14,580 or less (in 2023). For each additional person in the household, the income level increases by $5,140 (ASPE, 2023). The estimated percentage of the total population living in poverty in the watershed, Colfax and Dodge Counties, the State of Nebraska, and the United States is shown in Table 13.

The Council on Environmental Quality (CEQ) defines a community with potential environmental justice populations as one that has a greater percentage of minority or low-income populations than does an identified reference community. To determine the presence of environmental justice populations, communities in the study area were evaluated against the reference population of the State of Nebraska. Based on information gathered from the U.S. Census Bureau, several communities in the watershed contain populations that are at risk of being disproportionately impacted due to this Plan-EA. The City of Fremont, Village of Rogers, and Village of Inglewood are of concern due to race/ethnicity, as they contain a sizable Hispanic/Latino population (16%, 13%, and 34%, respectively). Additionally, the Village of Rogers and Village of Inglewood are of

concern due to income, as they contain a sizable population living in poverty (34%, and 12%, respectively).

Table 13: 2022 US Census Bureau Statistics

Category	Watershed	Colfax & Dodge Counties	Nebraska	United States
Minority Population	20.4%	26.9%	24.2%	42.3%
Population Living in Poverty	9.3%	9.3%	11.2%	12.6%

Source: US Census Bureau, 2022

LOCAL AND REGIONAL ECONOMY

Agriculture is the leading land use in the watershed, with row crops covering 78% and pastureland 5% in 2023 (USDA, 2023). The 2022 Census of Agriculture reported 1,150 farming operations in Colfax and Dodge Counties, covering more than 549,000 acres and operated by 2,026 producers. Of these, 1,157 producers resided on their operations, and farming was the primary occupation of 1,105. The average producer was 56 years old with 27 years of experience in agricultural operations. The total market value of agricultural products sold totaled over $891,000,000, with an average net cash income of about $214,000 per farm (USDA, 2022).

In 2022, about 2.1% of the watershed's roughly 13,770 employed residents worked in agriculture, according to the US Census Bureau. This figure is lower than the 5.4% employment rate in the agriculture industry reported for Colfax and Dodge Counties (Table 14). The watershed's largest employment sectors are educational services and healthcare at 24.9%, followed by manufacturing at 17.0%.

Table 14: US Census Bureau Economic Statistics

Employment Industry	Watershed	Dodge County
Educational services and healthcare	24.9%	22.3%
Manufacturing	17.0%	20.0%
Retail trade	11.3%	9.7%
Construction	7.8%	7.7%
Arts, entertainment, recreation, accommodation, and food service	7.2%	6.4%
Transportation and utilities	6.4%	5.9%
Finance, insurance, and real estate	5.8%	4.6%
Professional, scientific, and management services	5.3%	5.8%
Other services	4.1%	4.1%
Wholesale trade	3.7%	3.6%
Public administration	2.6%	3.3%
Agriculture, forestry, and mining	2.1%	5.4%
Information	1.8%	1.3%

Source: US Census Bureau, 2022

PUBLIC HEALTH AND SAFETY

Flooding poses a major risk to public health and safety. Floods can not only kill by drowning, but can make people more vulnerable to sickness and injury. Floodwater can be contaminated with human and livestock waste and chemicals, as well as debris that can cause serious harm. Flooding can cause harm to mental health as well as physical. The stress of disruption, potential displacement, damage to homes and belongings, as well as potential threats to life and health, can negatively affect residents' mental health.

The watershed contains portions of Highways 15, 30, 77, 79, and 275. These represent major commuting corridors between area communities. Many roads outside of the watershed's communities are unpaved, making them especially vulnerable to flooding damage. Damaged roads may impede watershed residents' access to emergency services. Most roads in the watershed are the responsibility of Colfax or Dodge County to maintain and repair. Approximately three dozen identified critical facilities in the watershed are in the 100-year regulatory floodplain. These include fire departments, churches, libraries, schools, drinking water and wastewater treatment facilities, sanitary lift stations, and post offices.

RECREATION

The watershed falls within the Metro Region of the NGPC Statewide Comprehensive Outdoor Recreation Plan (SCORP), which includes seven counties in eastern Nebraska. In total, the Metro Region contains 48,201 acres of public access recreation land and water. These recreation areas

include 583 parks, 435 playgrounds, 353 ballfields, 132 soccer fields, 198 camping sites, 2,356 lakes/ponds, and 382.34 miles of trails (NGPC, 2020). Additionally, the City of Fremont operates over 400 acres of parks throughout the community. There are no recreation areas within or near the ARA.

SCENIC AREAS, NATURAL AREAS, AND PARKLANDS

The watershed includes the Fremont Lakes State Recreation Area, composed of 40 acres of parkland and 300 acres of water spread across 20 sandpit lakes. Located approximately three miles west of Fremont, this area is a popular destination for campers, picnickers, anglers, and water sports enthusiasts. It is owned and managed by the NGPC. The Fremont Lakes State Recreation Area is not within the ARA.

NATIONAL PARKS, MONUMENTS, AND HISTORICAL SITES

The Mormon Pioneer Trail runs for approximately 1,300 miles through five states and was in use from 1846-1847. The California Trail runs for more than 5,000 miles across ten states and was in use throughout the 1840s-1850s. Portions of the Mormon Pioneer National Historic Trail and the California National Historic Trail cross through the watershed, roughly parallel to the Platte River. Neither of these trails cross the ARA/APE. No cultural resources, historic properties, or other sites with associations to the trails were discovered during the archeological investigation. The nearest historical location of either trail is located approximately 0.4 miles from the ARA/APE.

3.07 ECOSYSTEM SERVICES

As discussed in Chapter 1, the PR&G requires alternatives to be evaluated through an ecosystem services framework. Ecosystem services are the benefits (both tangible and intangible) that natural ecosystems provide to humans. An ecosystem services framework provides for an integrated approach that allows consideration and transparent evaluation of the benefits and trade-offs of potential alternatives. There are four broad categories of ecosystem services:

- **Provisioning** – benefits to people that can be extracted from nature, such as food, drinking water, timber, gas, oils, medicine, etc.
- **Regulating** – benefits provided by ecosystem processes that moderate natural phenomena, such as air quality, water quality, erosion prevention, flood control, pollination, climate regulation, etc.
- **Cultural** – non-material benefits that contribute to the development and cultural advancement of people. Cultural services make the world a place in which people want to live and address people's basic needs for a good, fulfilling life, such as aesthetics, recreation, tourism, spirituality, etc.

- **Supporting** – benefits provided by underlying natural processes, such as photosynthesis, nutrient cycling, soil formation, water cycling, etc.

An ecosystem services framework provides for an integrated approach that allows consideration and transparent evaluation of the benefits and trade-offs of potential alternatives. Ecosystem service flows can be expressed in both monetary and non-monetary metrics, which are then used to describe magnitude of changes, due to each alternative. These metrics are developed based on each service evaluated in terms that are unique and appropriate to the watershed area and alternatives analysis. Appropriate metrics should be based on current methodology to quantify impacted services over time and project- and regional-specific information and values.

Each proposed action is linked to ecosystem features and the associated services potentially affected. Supporting services, which refer to the underlying process that maintain conditions for life, allow the other services to exist and are not evaluated. Based on public scoping comments, planning documents, watershed plans from surrounding areas, and discussion with the project sponsor, it was determined that the primary benefits resulting from a flood risk reduction project would be the associated reduction in damages to properties, incomes, and farmland. Based on that information, provisioning and regulating ecosystem service flows were selected for monetization, and cultural ecosystem service flows were selected for non-monetized inclusion.

PROVISIONING SERVICES

Provisioning services include tangible goods provided for direct human use and consumption. Within this watershed, these include resources directly related to food production (prime and unique farmland) and land use as well as those that indirectly impact food production (water quality and quantity). Provisioning services can be quantified in the watershed by looking at lands used for agricultural production. As discussed in the Land Use section of this chapter, the watershed is dominated by agriculture, with row crops covering 78% (111,172 acres) of the watershed and pastureland another 5% (7,366 acres) in 2023 (USDA, 2023). Flood impacts can harm the capacity for food production, thereby reducing provisioning services. Provisioning services selected for monetization can be found in .

REGULATING SERVICES

Regulating services maintain a world in which it is possible for people to live and provide critical benefits that buffer against environmental catastrophe. For the scope of this analysis, these include resources are predominantly related to flood control (water quantity, floodplain management, flood damages, wetlands, riparian areas, and public safety). Additional resources are directly or indirectly related to erosion control (erosion and sedimentation and riparian areas) and water filtration and disease control (water quality, wetlands, and streams). Flood damages and costs are discussed in detail in section 3.06. Regulating services selected for monetization can be found in .

CULTURAL SERVICES

Public safety is the primary cultural service affected by flooding within the watershed. As discussed in the Human Resources section of this chapter ,residents are continually stressed and threatened by flooding under the existing watershed conditions. Potential displacement, damage to homes and possessions, loss of income, and potential loss of life are all major factors caused by flooding which lessen public safety and adversely affect cultural services within the watershed.

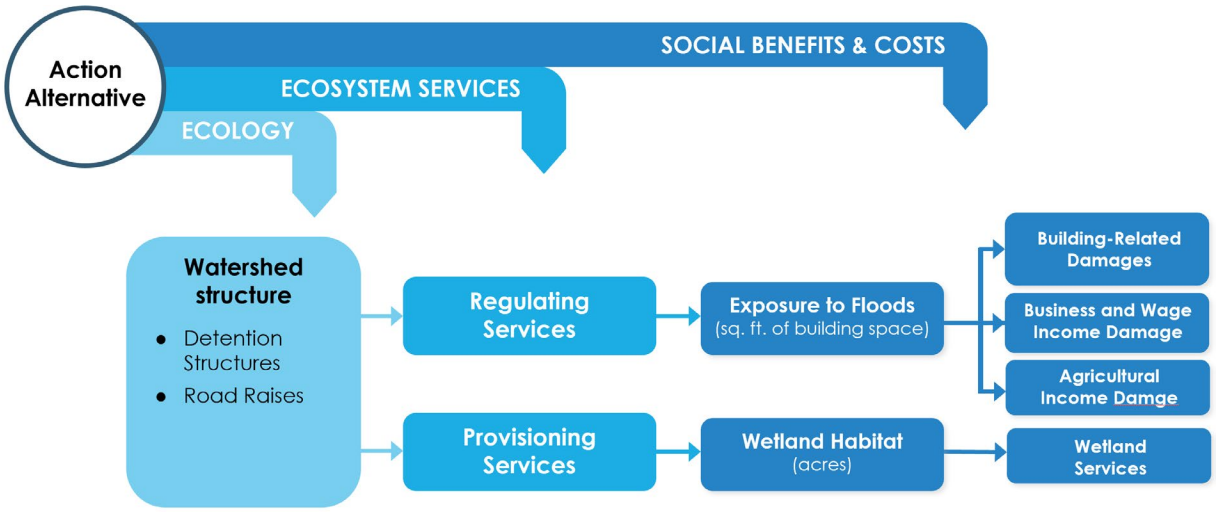

Figure 6: Ecosystem Service Flows Selected for Economic Evaluation

CHAPTER 4. ALTERNATIVES

The purpose of this chapter is to document the range of alternatives considered for the Rawhide Creek Watershed. All reasonable alternatives, including both structural and nonstructural, were rigorously explored and objectively evaluated through this process. This chapter identifies and provides information on the evaluation process of each alternative. For those not selected for the Final Array of Alternatives, this chapter discusses the reasons for their elimination. Alternatives selected for inclusion in the Final Array of Alternatives underwent further evaluation, and documentation of their effects on resources of concern is included in Chapter 5. Detailed information on impacts to wetlands or other aquatic resources (including avoidance, minimization, and mitigation measures) is presented in Chapter 5, with supporting information provided in Appendix E.

4.01 FORMULATION PROCESS

IDENTIFYING PROJECT MEASURES

The first step in the formulation of alternatives is to identify management measures. A management measure is a feature or an activity that can be implemented at a specific geographic site to address one or more planning objectives, including the project's purpose of flood damage reduction. Measures, which can be structural or nonstructural in nature, can sometimes be considered complete projects, but they can also be combined to form a complete and effective alternative. Measures are the building blocks of alternatives. Table 15 outlines each type of measure that was identified for this project. These measures were identified through the project scoping process, which included input from agencies and the public, and is detailed in Chapters 2 and 6.

Table 15: Management Measures for Flood Damage Reduction

Type of Measure	General Description of Measure
No Action	If no projects were implemented.
Channel Widening	Enlarge existing channel to improve conveyance.
Diversion Channel	Construct a channel to divert high flows around communities.
Levee(s)	Construct levee(s) along channel to contain or divert high flows.
Detention Cell(s)	Excavate one or more basins with earthen embankments to temporarily detain floodwater.
Stream Restoration with Wetland Storage	Clean out stream channels and construct additional wetlands to act as off-channel storage.
Dams / Reservoirs	Construct one or more dams upstream of communities to detain floodwater. Dams may be "wet" (permanent pools) or "dry" (designed to drain completely after flood events).
Conservation Measures	Changes in land use and land management practices throughout the watershed to reduce runoff, primarily

	accomplished through conversion of cropland to grass and/or adoption of best management practices.
Flood Proofing Buildings	Flood proof buildings in the 100-year floodplain.
Property Acquisitions	Buyout buildings in the 100-year floodplain.
Floodplain management through regulation or zoning	Introduce regulations to prevent development within floodplain areas.
Interior Drainage / Storm Sewer System	Enlarge and construct additional storm sewers in and around communities.

SCREENING CRITERIA FOR EVALUATION

Measures were evaluated using a set of screening criteria developed specifically for this project. The screening criteria were developed and refined using agency and public input gained through the scoping process. Additionally, the criteria helped to identify which potential alternatives were likely to conform to State and Federal requirements. In addition to the project's purpose and need, the objectives and constraints initially identified in Chapter 1 were utilized as screening criteria.

Formulation and evaluation of alternatives also took the following into consideration, adhering to PR&G guidance:

- **Completeness** is the extent to which an alternative provides and accounts for all features, investments, and/or other actions necessary to realize the planned effects, including any necessary actions by others.
- **Effectiveness** is the extent to which an alternative alleviates the specified problems and achieves the specified opportunities.
- **Efficiency** is the extent to which an alternative is the most cost-effective means of alleviating the specified problems and constraints and realizes the specified opportunities and objectives.
- **Acceptability** is the viability and appropriateness of an alternative from the perspective of the Nation's general public and consistency with existing Federal laws, authorities, and public policies.

Project Objectives

1. Reduce flood damage in the City of Fremont, and to agricultural lands, and reduce threats to life, health, and safety due to flooding.
2. Reduce flood damage to infrastructure (roads, bridges, utilities), and improve access to emergency services during flooding events.

Project Constraints

1. Avoid increasing flooding, or transferring flood risk, to properties downstream of Fremont.
2. Avoid causing depletions of instream flows in the Platte River

FORMULATION OF ALTERNATIVES

Once project measures were identified and screening criteria were developed, the next steps included identifying and formulating measures into a reasonable range of specific alternatives for detailed evaluation. A range of alternatives is necessary to ensure the analysis of significantly different approaches to addressing the problems and opportunities associated with the project's purpose and need.

The no action alternative is included in this analysis and is required to be carried forward into the final array of alternatives. It is the most likely future condition if none of the action alternatives are selected. The conditions of the no action alternative are utilized as the baseline to evaluate the effectiveness of the other alternatives in reducing flooding damages. This is also known as the Future Without Federal Investment (FWOFI).

4.02 DETAILED STUDY

EVALUATION PROCESS

The following sections document the detailed analysis of each alternative identified. As each alternative was investigated and refined, some were eliminated from further consideration once it was clear they would not be effective, became unreasonable, or failed to meet other screening criteria. Alternatives eliminated from further review are included within this section to document their consideration, analysis, and reasons for elimination. This screening process not only helps to identify the best alternative(s) for consideration but allows for the wise use of the limited planning resources.

The initial screening included the use of hydrologic and hydraulic modeling of the watershed to gauge the performance of each alternative at reducing flooding. Further evaluation on potentially effective alternatives included an analysis on impacts to resources of concern, primarily wetlands and aquatic resources, to help identify alternatives which had the least adverse environmental impacts. Following the detailed study of each alternative, those that met planning requirements and screening criteria were included in the Final Array of Alternatives. The Final Array of Alternatives then underwent further evaluation (documented in Chapter 5) before only one was selected as the preferred alternative (documented in Chapter 7).

CHANNEL WIDENING

The channel of Rawhide Creek that currently conveys flows through the City of Fremont has a capacity of approximately 320 CFS. The peak flow generated by a 100-year storm event is approximately 870 CFS as measured near Methodist Fremont Health (N Clarkson St) before bank overtopping leads to flooding. Many potential channel widening alignments were considered to reduce flooding damage in Fremont and better convey peak flood flows. The most effective was to widen Rawhide Creek through Fremont and to the Elkhorn River. The Rawhide Creek channel

within Fremont would need to be nearly quadrupled in size for approximately 7.2 miles. Additionally, these channel improvements would necessitate the expansion of approximately 20 bridges (3 Highway, 3 Railroad, and 14 City). Stream channels outside of Fremont to the southeast would also need to be widened to accommodate the increased peak flow without causing additional damage downstream for a length of approximately 9.3 miles with an additional 10 bridge expansions (1 Railroad, and 9 County). The alignment considered for channel widening is shown in Figure 7. Widening the channels would allow for greater capacity and has the potential to greatly reduce flooding damage.

A project of this magnitude would require a significant amount of earthwork along with the construction of multiple larger bridges and stream crossings. Within the City of Fremont, many homes and significant easements would need to be acquired. Significant stream and wetland impacts are likely along several segments of the channel. Widening of the channels would require the removal of existing wetlands and riparian areas established alongside the current stream corridor. Vegetation providing aquatic habitat in and near the streams, such as overhanging trees, would be removed. Construction of enlarged stream crossings for bridges and culverts would require fill placement within the channel, reducing the stream's function.

This alternative was found to meet the purpose and need of this project as it would reduce flooding damages in Fremont. This alternative would also satisfy Objectives 1 and 2. This alternative would satisfy Constraint 2 as no water would be detained. However, this alternative would not satisfy Constraint 1. Moving floodwater downstream more quickly has the potential to transfer flood risk downstream beyond Fremont. Increased flow velocities may also result in increased streambed and bank erosion beyond the project area. Additionally, the large amount of land rights required and large-scale permanent negative impacts to riparian areas, stream bed habitat, and wetlands caused by construction would make this alternative not efficient. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

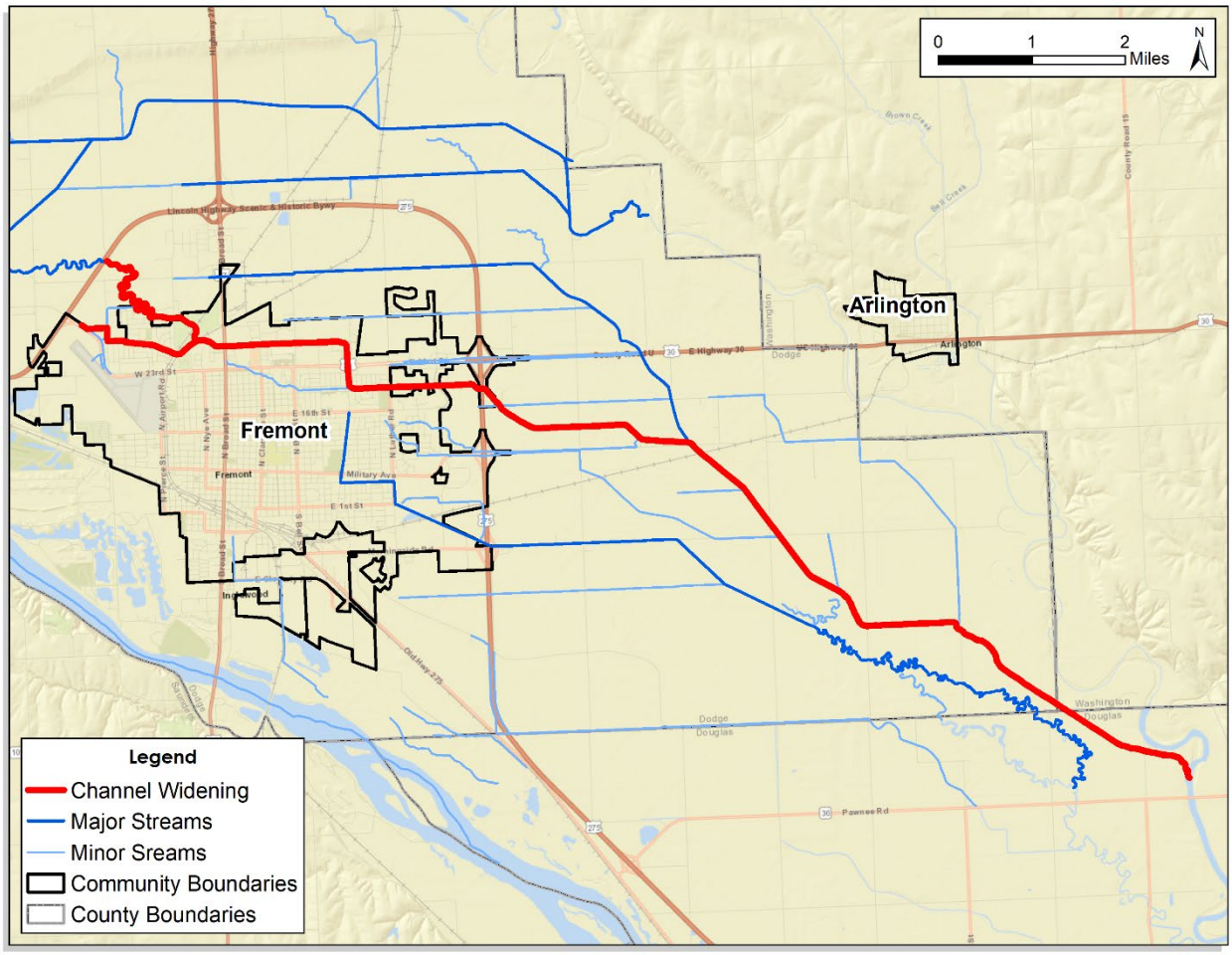

Figure 7: Potential Channel Widening Extents

DIVERSION CHANNEL

The watershed was investigated for potential locations to construct diversion channels with the primary intent of collecting floodwater that currently spills out of Rawhide Creek and existing ditches and conveying that floodwater to the Elkhorn River. The watershed currently contains multiple diversion channels and ditch improvements, none of which have the capacity to convey the runoff generated by a 100-year storm. The alignment considered for an additional diversion channel by this project is shown in Figure 8. Construction of this 0.3-mile-long diversion channel would also require widening of 11.4 miles of existing channels downstream of the diversion channel to handle the additional flow being added until it reaches the Elkhorn River. Additionally, this project requires the crossing of one city road, 10 county roads, 2 highways, and 1 railroad line.

Significant stream and wetland impacts are likely along several segments of the channel. Widening of the channels would require the removal of existing wetlands and riparian areas established alongside the current stream corridor. Vegetation providing aquatic habitat in and near the streams, such as overhanging trees, would be removed. Construction of enlarged stream crossings for bridges and culverts would require fill placement within the channel, reducing the stream's function.

This alternative was found to meet the purpose and need of this project as it would reduce flooding damages in Fremont. This alternative would also satisfy Objectives 1 and 2. This alternative would satisfy Constraint 2 as no water would be detained. However, this alternative would not satisfy Constraint 1. Moving floodwater downstream more quickly has the potential to transfer flood risk downstream beyond Fremont. Increased flow velocities may also result in increased streambed and bank erosion beyond the project area. Additionally, the large amount of land rights required and large-scale permanent negative impacts to riparian areas, stream bed habitat, and wetlands caused by construction would make this alternative not efficient. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

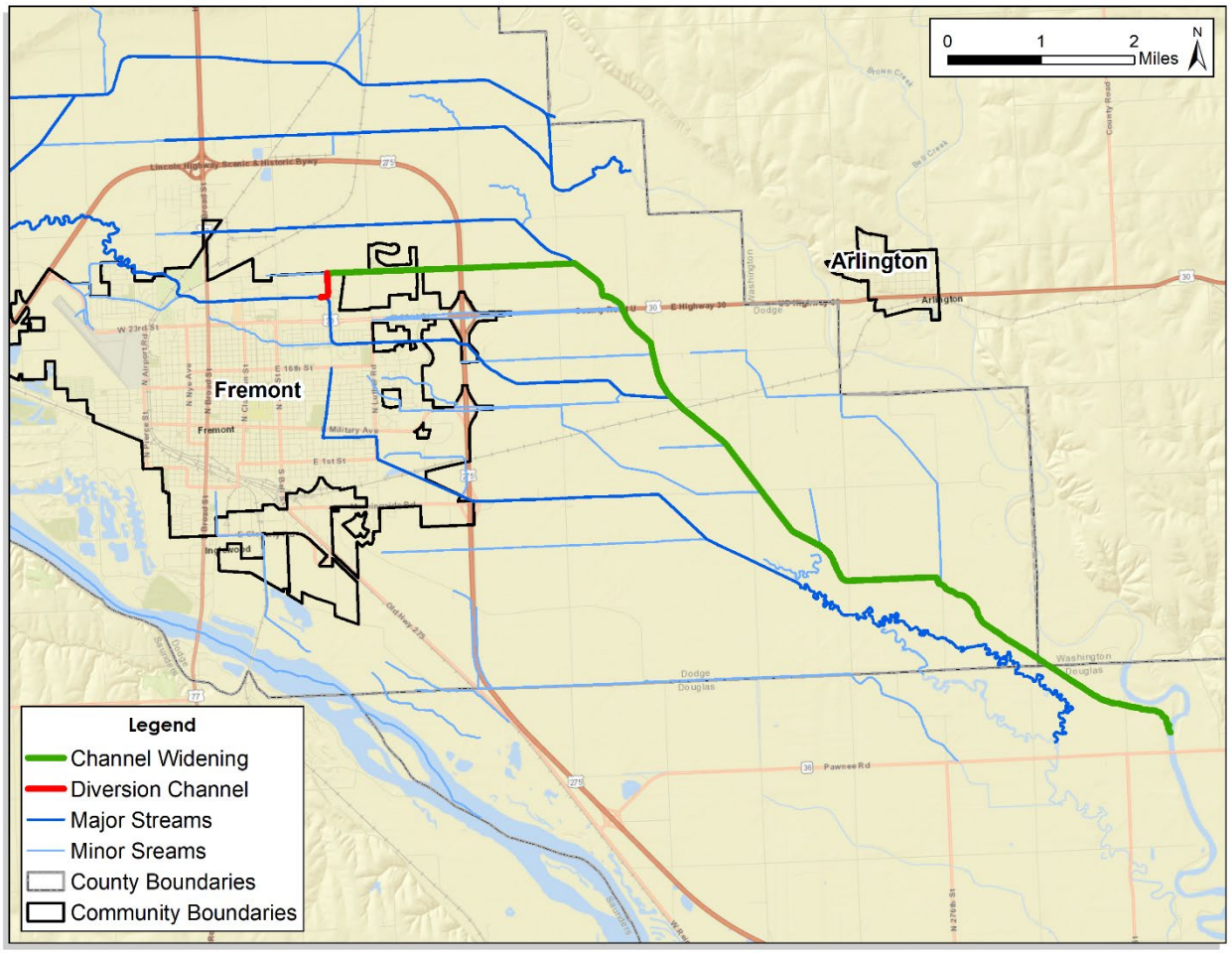

Figure 8: Potential Diversion Channel and Channel Widening

LEVEE / BERM IMPROVEMENTS

Multiple alignments of levees/berms were considered throughout the Rawhide Creek Watershed. Preliminary hydraulic and hydrologic modeling determined that the location which would provide the most flood damage reduction would involve making improvements to the existing embankment along Cutoff Ditch Road and the east leg of the Brush Creek Dam outfall berms to prevent them from overtopping during a 100-year storm event (Figure 9). This results in floodwater staying west of Cutoff Ditch Road and being conveyed southeast until flows can enter the Platte River directly. ~~Whi~~le levee / berm improvements were found to be beneficial towards meeting the purpose and need, they are unable to fully meet the project purpose and need as a standalone alternative as floodwater flows entering Fremont were not significantly reduced and more than four hundred structures still experienced inundation. This alternative has the potential to satisfy all Objectives and Constraints if combined with other measures. **Therefore, this alternative was**

dismissed from consideration as a standalone alternative and carried forward into the Final Array of Alternatives as a component of a combined alternative.

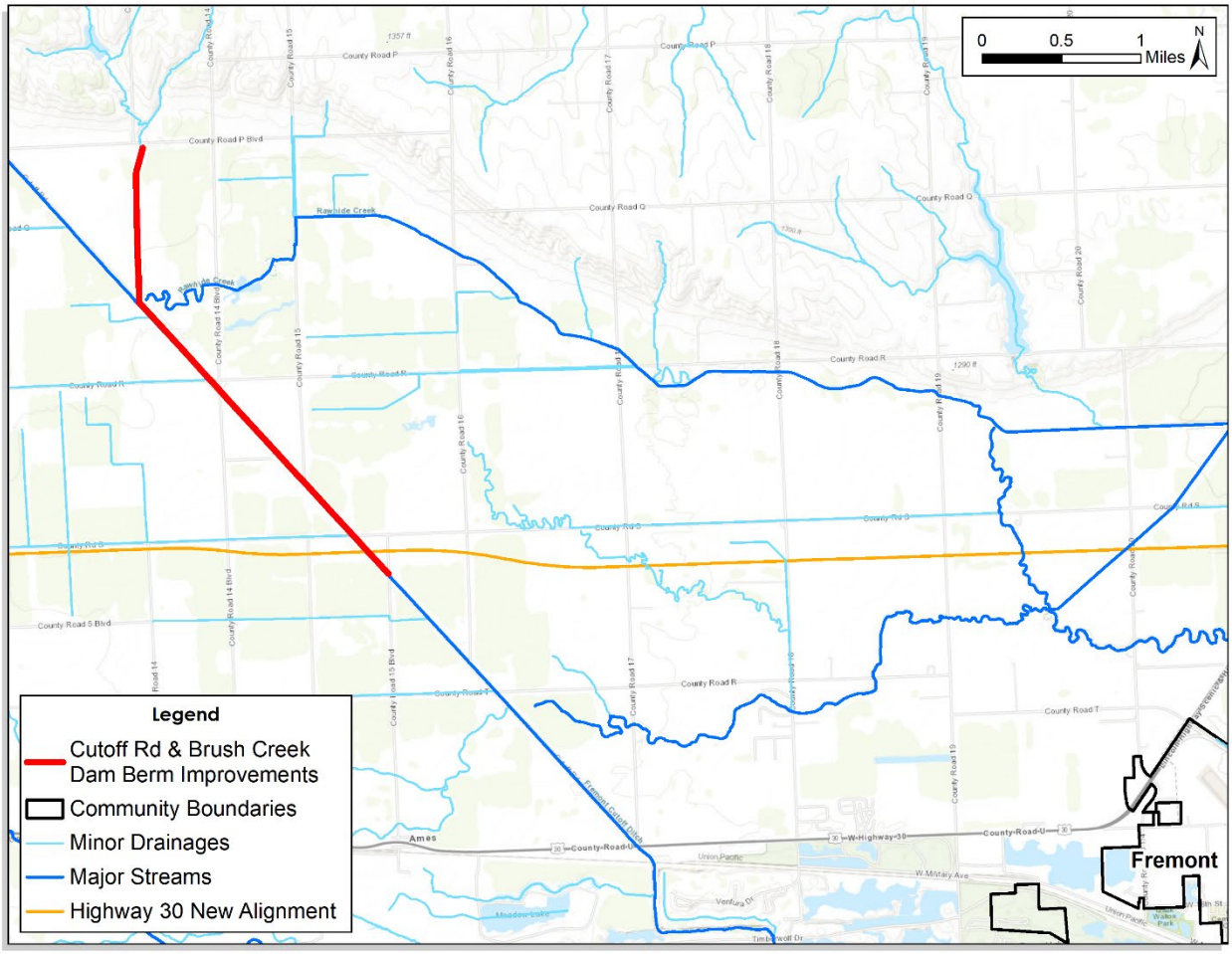

Figure 9: Potential Levee / Berm Extents

DETENTION CELL

This alternative investigated creating one or more detention cells west of Fremont to temporarily capture excess floodwater and reduce peak flows before runoff enters the city. Temporarily detained floodwater would be metered out into existing channels over a period of time to avoid overwhelming downstream infrastructure. Multiple locations for a detention cell were considered throughout the study area, with the preferred location selected being just upstream of the existing Merlyn England diversion channel and just upstream of the Fremont Municipal Airport, located south of Co. Rd. T Ave between Co. Rd. 20 Ave and Co. Rd. 19. It was determined that one large cell composed of two holding areas connected by a regulating channel would provide the most flexibility to the system to protect the city from large storms across multiple drainage areas. The location of the selected detention cell with channel connection can be seen in Figure 10.

The northern holding area would be formed by expanding an existing diversion project by increasing the berm height and excavating additional floodwater storage. This northern holding area would have an average depth of approximately 5.4 ft, would cover an area of approximately 125 acres, and would be ringed by a berm approximately 6.6 feet high on average. The southern holding area would be formed by new excavation. This portion of the detention cell would have an average depth of 4.9 ft, would cover an area of approximately 157 acres, and would be ringed by a berm approximately 8 feet high on average. The northern and southern holding areas would be connected via a 10-foot-wide channel with confining berms which allows the overall detention cell to hold a greater volume of water from variable sources and provides additional redundancy and flood resiliency to the watershed.

While the detention cell alternative was found to meet the project purpose and need as a standalone alternative, it was determined that it would be most cost-effective as part of a combined alternative as the overall excavated area could be reduced by 16 acres if combined with the berm alternative. This alternative was found to satisfy all Objectives and Constraints. Flooding damage would be reduced, infrastructure protected, access to emergency services improved, temporary detention of floodwater would avoid transferring flood risk downstream, and no permanent water holding would not cause depletions to the Platte River. **Therefore, this alternative was dismissed from consideration as a standalone alternative and carried forward into the Final Array of Alternatives as a component of a combined alternative.**

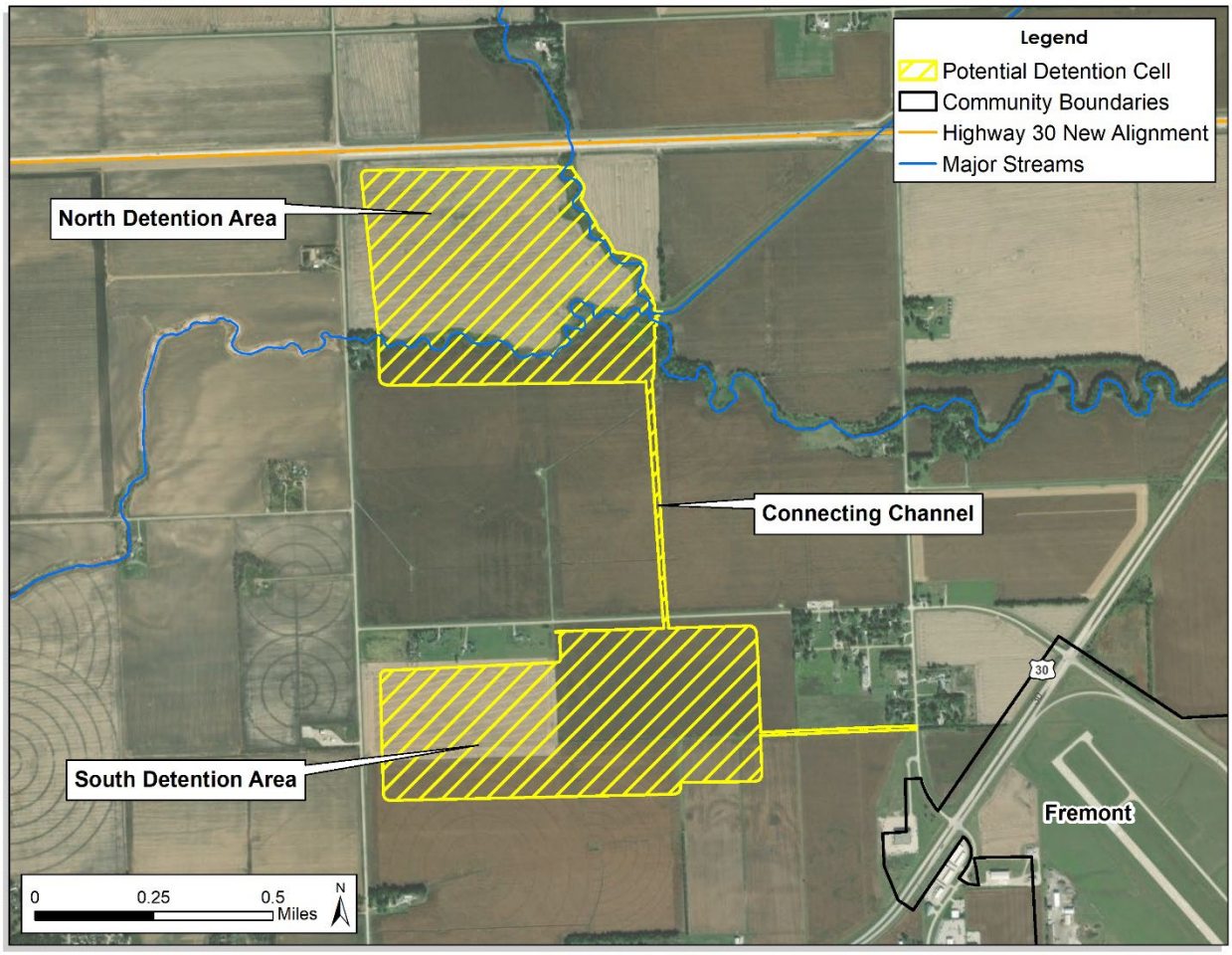

Figure 10: Potential Detention Cell Location

STREAM RESTORATION WITH WETLAND STORAGE

This alternative involves creating a series of wetlands along the stream corridor to provide storage and natural infiltration of flood waters. A water depth of 2-feet was used for estimating purposes. A substantial expansion of wetlands would require excavation to provide enough storage to prevent flooding damage in the watershed. This necessitates large areas of land acquisition, leading to high project costs. For example, a wetland 200-feet wide on each side of Rawhide Creek over a stream length of 10,000 feet would store approximately 200 acre-feet of floodwater. However, the volume of water entering Fremont in a 100-year flooding event is approximately 1,300 acre-feet. The exorbitant cost and land requirements to make this alternative functional would be unreasonable. This alternative was found to not meet the purpose and need. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

SINGLE DAM

This alternative consists of building a single large dam on Rawhide Creek to capture floodwaters and prevent damage downstream. However, potential locations for such a structure are limited by the watershed's topography. Much of the Rawhide Creek watershed is flat floodplain area and presents no options for tie-in locations for a large dam embankment, limiting the storage capacity of a potential reservoir. Additionally, the compartmentalization of the watershed due to the existing system of cutoff ditches adds further complications to finding a suitable site. Evaluation of the watershed was unable to find suitable locations for a single large dam. **Due to the lack of feasible dam sites, this alternative was not carried forward into the Final Array of Alternatives.**

MULTIPLE DAMS

This alternative consists of building multiple dams throughout the watershed to capture floodwater and prevent damage downstream. While there are existing dams throughout the watershed, investigation found very few suitable new dam sites due to the compartmentalization of the creek by the cutoff ditches, the topography of the watershed, and the Platte River floodplain. Expansion of the existing dams was investigated, and it was determined that they could not control enough of the watershed drainage area to successfully prevent floodwater from entering Fremont. Due to the limitations on dam locations, approximately two thirds of the area draining into Fremont would remain uncontrolled and the volume of floodwater entering Fremont would still be greater than the existing channel capacity of Rawhide Creek through the city. **Due to the lack of feasible dam sites and lack of effectiveness, this alternative was not carried forward into the Final Array of Alternatives.**

INTERIOR DRAINAGE / STORM SEWER SYSTEM

This alternative consists of enlarging existing and constructing additional new storm sewers and ditch networks to convey floodwater downstream away from communities. Interior drainage is a significant consideration in Fremont, as Rawhide Creek flows through town and drains approximately half of the community. Construction of an expanded storm sewer system within Fremont would not alleviate the flooding as these damages are driven by both excessive flows entering the community from the west, and the restricted Rawhide Creek channel through Fremont and out to the Elkhorn River.

Therefore, interior drainage improvements necessitate the widening of Rawhide Creek and the ditch system east of Fremont before this alternative would be viable. While an alternative that encompasses major storm sewer improvements, along with significant channel improvements from Fremont to the Elkhorn River, would reduce flooding damages in Fremont caused by Rawhide Creek; the cost would be extremely high. Such an alternative would require approximately 45 miles of channel widening, expansion or replacement of 53 city bridges, 25 county bridges, 9 highway bridges, 8 railroad bridges, and acquisition of many homes with an estimated cost of at least $125,000,000. The extents of this effort can be seen in Figure 11.

This alternative was found to meet the purpose and need of this project as it would reduce flooding damages in Fremont. This alternative would also satisfy Objectives 1 and 2. This alternative would

satisfy Constraint 2 as no water would be detained. However, this alternative would not satisfy Constraint 1. Moving floodwater downstream more quickly has the potential to transfer flood risk downstream beyond Fremont. Additionally, the large amount of land rights required and potential for mass environmental impacts would make this alternative not efficient. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

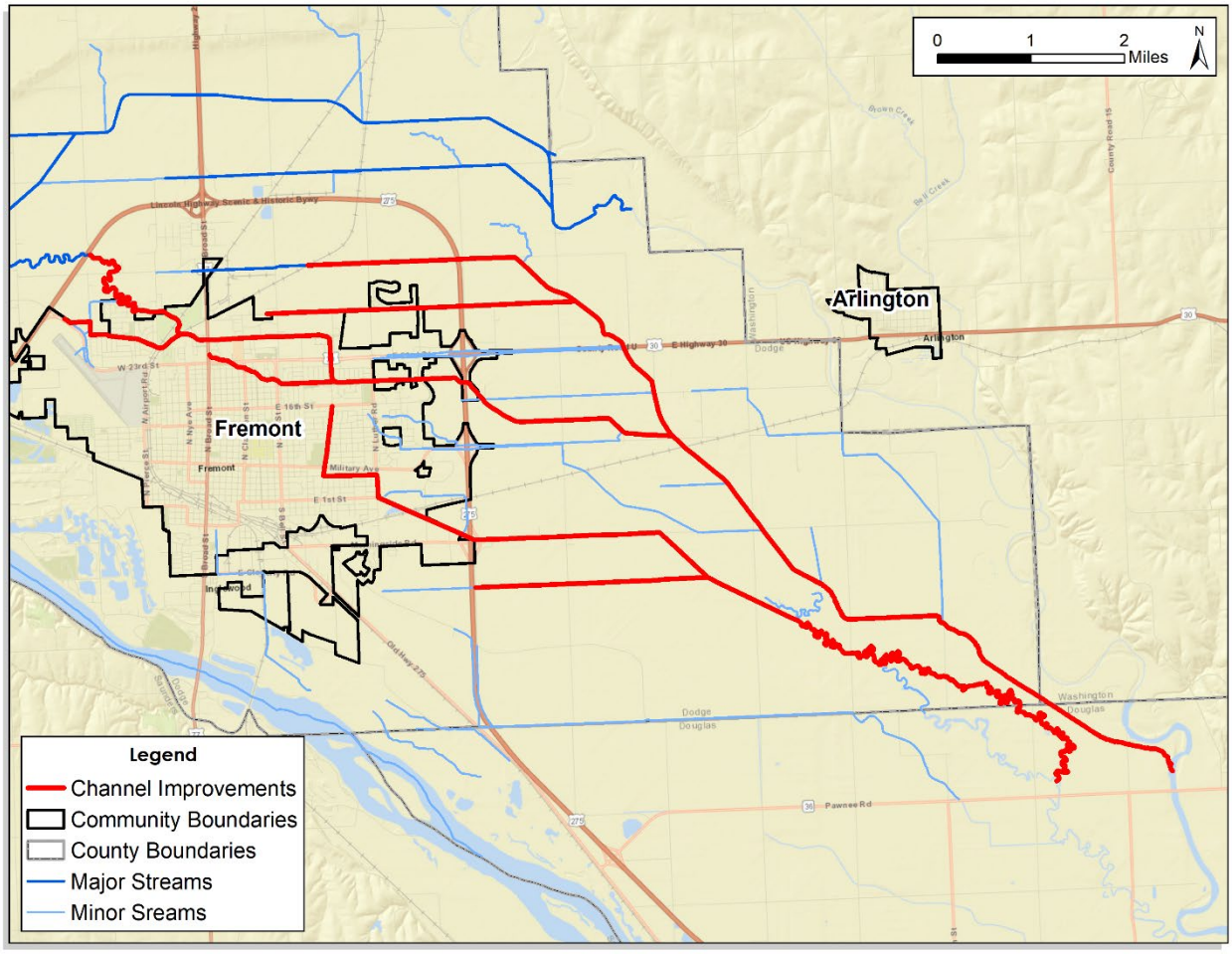

Figure 11: Extents of Improvements to Facilitate Interior Drainage Upgrades

CONSERVATION MEASURES UPSTREAM

The addition of conservation measures upstream could consist of a wide variety of best management practices, primarily located on farmland. To explore the potential "best-case scenario", preliminary modeling was conducted to simulate converting all cropland in the watershed back to native grassland. This represents the maximum amount of conservation possible within the watershed. Grassland would improve water infiltration and reduce runoff rates compared to cropland. Flood modeling showed that under this best-case scenario, the peak flow rate entering Fremont at Rawhide Creek would only be reduced by approximately 12% and at the

airport entrance by approximately 6%. The best-case scenario is not feasible, and costs would be exorbitant. It is extremely unlikely that any appreciable amount cropland would be converted to native grassland and instead there would be a push for voluntary implementation of small-scale conservation measures such as reduced tillage, buffer strip planting, contour farming, crop rotation, etc. in fields that do not already utilize these measures. The topography of the region does not support most water-holding measures such as terraces, water and sediment control basins, etc. Therefore, conservation measures have little affect on reducing flooding damages, and this alternative cannot meet the purpose and need. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

FLOOD PROOFING BUILDINGS

This alternative involves various techniques to reduce flood damage to individual buildings. These techniques may include waterproofing, basement filling, elevating buildings, flood vents, and other methods. Flood proofing can be a satisfactory solution for structures that experience moderate flooding at regular intervals, depending on the site-specific construction of the building and its relationship to the floodplain. As flood depths and velocities increase, flood proofing becomes less effective and less viable as a solution. For example, for buildings that only experience flood damage at the level of a 100-year recurrence interval but not during more frequent events, flood proofing may not be financially justifiable. Additionally, since flood proofing is a voluntary measure, it may be difficult to obtain total implementation.

To evaluate equivalent effectiveness, a building footprint inundation screening evaluation was completed. This evaluation found that during a 10-year flooding event, approximately 176 buildings in the Fremont area were inundated. During a 100-year flooding event, approximately 454 buildings in the Fremont area were inundated. Floodproofing all impacted buildings would present significant logistical challenges and costs. Other evaluated alternatives provide more expedient wide-area coverage for flood risk reduction and flood frequency reduction that is unfeasible for nonstructural action. Additionally, while the nonstructural alternative would reduce flooding damage to selected buildings, public infrastructure such as utilities and streets would remain subject to flooding, as well as agricultural land. Flooding frequency for impacted areas would not be reduced, and travel and access to emergency services would still be restricted during flooding events. This alternative is not complete or effective, and does not satisfy the project Objectives. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

PROPERTY ACQUISITIONS

This alternative involves acquiring properties within the 100-year inundation area and either demolishing or relocating buildings to prevent reoccurring flood damages, and designating the areas as perpetual open space. While this alternative would reduce structural flooding damage, public infrastructure would remain subject to flooding and travel and access to emergency

services would still be restricted during flooding events. Additionally, since property acquisition is a voluntary measure, it may be difficult to obtain total implementation.

Effectively, this alternative would require relocating a substantial portion of the City of Fremont. There are approximately 454 buildings within the modeled 100-year flood inundation area in Fremont. The city does not currently have enough available housing or rapid development activity to facilitate this, which would severely limit the feasibility of relocations within or adjacent to the city. This may require the development of a new subdivision for previously flood-affected homeowners, including construction of utilities and streets, in an upland area not subject to flooding. If comparable homes are not readily available, a portion of the property owners may elect to simply leave instead of relocating within the city.

Acquiring these structures would be extremely logistically challenging and costs would be exorbitant. Additionally, flooding would still impact public infrastructure and utilities, Fremont may lose population, and travel and access to emergency services would still be restricted during flooding events. This alternative is not complete or effective, and does not satisfy the project Objectives. **Therefore, this alternative was not carried forward into the Final Array of Alternatives.**

FLOODPLAIN REGULATION / ZONING

This alternative involves introducing additional new regulations to restrict further development within potential flood inundation areas. Regulation is a key component to maintaining the floodplain area and limiting future development in dangerous areas. Both the City of Fremont and Dodge County already participate in FEMA's NFIP program. Additionally, Dodge County has floodplain hazard zoning overlays and the City of Fremont enforces their own floodplain zoning. There are no opportunities for additional effective floodplain zoning. When considered as an alternative, floodplain regulation and zoning does not reduce flood damage. Existing structures and agricultural lands would continue to be at risk of flooding damage regardless of any regulation or zoning laws beyond those which already exist. **Therefore, this alternative does not meet the project purpose and need and was not carried forward into the Final Array of Alternatives.**

SUMMARY

A summary of the detailed alternatives analysis, and the decision on whether each alternative was included in the Final Array of Alternatives, is presented in Table 16.

Table 16: Summary Results of Alternatives Analysis

Screening Criteria	Alternatives					
	No Action	**Channel Widening**	**Diversion Channel**	**Levee / Berm Improvements**	**Detention Cell**	**Stream & Wetland Storage**
Purpose & Need Provide flood prevention (flood damage reduction) within and near the City of Fremont.	No, does not fulfill purpose and need. Flood damages would still occur.	Yes, fulfills purpose and need.	Yes, fulfills purpose and need.	Yes, fulfills purpose and need.	Yes, fulfills purpose and need.	No, does not fulfill purpose and need. Flood damages would still occur.
Contribution to Planning Objectives						
Objective 1: Reduce flood damage in the City of Fremont, and to agricultural lands, and reduce threats to life, health, and safety due to flooding.	N/A	Yes, would reduce flood damage and threats to residents.	Yes, would reduce flood damage and threats to residents.	Yes, would reduce flood damage and threats to residents.	Yes, would reduce flood damage and threats to residents.	N/A
Objective 2: Reduce flooding damage to infrastructure and improve access to emergency services during flooding events.	N/A	Yes, would reduce damage to infrastructure and improve access.	Yes, would reduce damage to infrastructure and improve access.	Yes, would reduce damage to infrastructure and improve access.	Yes, would reduce damage to infrastructure and improve access.	N/A
Response to Planning Constraints						

Screening Criteria	Alternatives					
	No Action	**Channel Widening**	**Diversion Channel**	**Levee / Berm Improvements**	**Detention Cell**	**Stream & Wetland Storage**
Constraint 1: Avoid increasing flooding, or transferring flood risk, to properties downstream of Fremont.	N/A	No, conveying floodwater downstream more quickly may transfer flood risk.	No, conveying floodwater downstream more quickly may transfer flood risk.	Yes, would satisfy Constraint 1.	Yes, would satisfy Constraint 1.	N/A
Constraint 2: Avoid causing depletions of instream flows in the Platte River.	N/A	Yes, would satisfy Constraint 2.	Yes, would satisfy Constraint 2.	Yes, would satisfy Constraint 2.	Yes, would satisfy Constraint 2.	N/A
Response to Evaluation Criteria						
Acceptability	N/A	Yes, channel widening is acceptable to the nation's public.	Yes, diversion channels are acceptable to the nation's public.	Yes, berms are acceptable to the nation's public.	Yes, detention cells are acceptable to the nation's public.	N/A
Completeness	N/A	Yes. No actions other than those described would be included in this alternative.	Yes. No actions other than those described would be included in this alternative.	Yes. No actions other than those described would be included in this alternative.	Yes. No actions other than those described would be included in this alternative.	N/A
Efficiency	N/A	No, the exorbitant cost of land acquisition and construction would render this	No, the exorbitant cost of land acquisition and construction would render	Yes, would reduce flooding and meet other planning guidelines.	Yes, would reduce flooding and meet other planning guidelines.	N/A

Screening Criteria	Alternatives					
	No Action	**Channel Widening**	**Diversion Channel**	**Levee / Berm Improvements**	**Detention Cell**	**Stream & Wetland Storage**
		alternative not efficient.	this alternative not efficient.			
Effectiveness	N/A	Yes, this alternative would effectively reduce flooding.	Yes, this alternative would effectively reduce flooding.	Yes, this alternative would effectively reduce flooding.	Yes, this alternative could effectively reduce flooding.	N/A
Carried Forward into Final Array of Alternatives?	Yes	No	No	Yes	Yes	No

Table 17: Summary Results of Alternatives Analysis Continued

Screening Criteria	Alternatives						
	Single Dam	**Multiple Dams**	**Interior Drainage**	**Conservation Measures**	**Flood Proofing**	**Property Acquisition**	**Floodplain Regulation**
Purpose & Need Provide flood prevention (flood damage reduction) within and near the City of Fremont.	No, does not fulfill purpose and need. No feasible sites.	No, does not fulfill purpose and need. No feasible sites.	Yes, fulfills purpose and need.	No, does not fulfill purpose and need. Flood damages would still occur.	Yes, fulfills purpose and need.	Yes, fulfills purpose and need.	No, does not fulfill purpose and need. Flood damages would still occur.
Contribution to Planning Objectives							
Objective 1: Reduce flood damage in the City of Fremont, and	N/A	N/A	Yes, would reduce flood damage and	N/A	No, would not reduce threats to life,	No, would not reduce damage to	N/A

Screening Criteria	Alternatives						
	Single Dam	**Multiple Dams**	**Interior Drainage**	**Conservation Measures**	**Flood Proofing**	**Property Acquisition**	**Floodplain Regulation**
to agricultural lands, and reduce threats to life, health, and safety due to flooding.			threats to residents.		health, and safety.	agricultural lands.	
Objective 2: Reduce flooding damage to infrastructure and improve access to emergency services during flooding events.	N/A	N/A	Yes, would reduce damage to infrastructure and improve access.	N/A	No, infrastructure would still flood and access would still be restricted.	No, infrastructure would still flood and access would still be restricted.	N/A
Response to Planning Constraints							
Constraint 1: Avoid increasing flooding, or transferring flood risk, to properties downstream of Fremont.	N/A	N/A	No, conveying floodwater downstream more quickly may transfer flood risk.	N/A	Yes, would satisfy Constraint 1.	Yes, would satisfy Constraint 1.	N/A
Constraint 2: Avoid causing depletions of instream flows in the Platte River.	N/A	N/A	Yes, would satisfy Constraint 2.	N/A	Yes, would satisfy Constraint 2.	Yes, would satisfy Constraint 2.	N/A
Response to Evaluation Criteria							
Acceptability	N/A	N/A	Yes, channel widening is acceptable to	N/A	Yes, flood proofing is acceptable to	Yes, property acquisition is acceptable to	N/A

Screening Criteria	Alternatives						
	Single Dam	**Multiple Dams**	**Interior Drainage**	**Conservation Measures**	**Flood Proofing**	**Property Acquisition**	**Floodplain Regulation**
			the nation's public.		the nation's public.	the nation's public.	
Completeness	N/A	N/A	Yes. No actions other than those described would be included in this alternative.	N/A	Yes. No actions other than those described would be included in this alternative.	Yes. No actions other than those described would be included in this alternative.	N/A
Efficiency	N/A	N/A	No, the exorbitant cost of land acquisition and construction would render this alternative not efficient.	N/A	No, the exorbitant cost of implementation would render this alternative not efficient.	No, the exorbitant cost of implementation would render this alternative not efficient.	N/A
Effectiveness	N/A	N/A	Yes, this alternative would effectively reduce flooding.	N/A	No, flood damages would still occur.	No, flood damages would still occur.	N/A
Carried Forward into Final Array of Alternatives?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

4.03 FINAL ARRAY OF ALTERNATIVES

The alternatives described below were selected for inclusion into the Final Array of Alternatives. Further evaluation of these alternatives is documented within Chapter 5. This included site visits, field data collection and a more refined analysis of economics, environmental and social impacts, cultural and social issues, permitting requirements, and refined engineering designs.

NO ACTION

This alternative is the most likely future condition if none of the action alternatives are selected. In this alternative there would be no implementation of any flood damage reduction measures, and flood damage to communities and agricultural lands would continue. The conditions of this alternative were utilized as the baseline to evaluate the effectiveness of the other alternatives in reducing flooding damages.

DETENTION CELL WITH BERM IMPROVEMENTS

This alternative consists of constructing one large detention cell composed of two holding basins with a connecting channel (Site DC1-13A), in combination with the Cutoff Ditch Road raise and Brush Creek Dam outfall berm improvements (Figure 12). The Cutoff Ditch Road improvements consist of raising Cutoff Ditch Road (Site L1-2), and the Brush Creek Dam outfall improvements consists of raising the east leg of the Brush Creek Dam outfall berms (site L1-1) to prevent them from overtopping during a 100-year event. The detention cell captures and temporarily stores excess floodwater before flows enter Fremont. During a flood event, floodwater would overflow from the existing channel and into the excavated detention areas. A controlled outlet structure would allow a metered outflow of floodwater to continue down the existing channels downstream of the detention cell without overwhelming the downstream infrastructure and causing flooding. All temporarily detained floodwater would be drained from the detention cell within 24-72 hours, depending on the magnitude of the flood event. Additional design details are included in Chapter 7, Structural Tables 3 and 3a, and Appendix D.

Preliminary modeling indicates that the 282-acre detention cell would reduce the peak flow from Rawhide Creek into Fremont from a 100-year storm from 578 CFS to 82 CFS and would also reduce the peak flow into Fremont from the southern Rawhide Creek tributary from 420 CFS to 195 CFS. The preliminary cost estimate (includes engineering, construction, and property rights) of the detention cell is $31,361,000. Permitting, construction testing, and other administrative activities are not included in this cost estimate.

Cutoff Ditch Road raise (L1-2) and Brush Creek Dam outfall (L1-1) berm improvements would consist of raising Cutoff Ditch Road and the east leg of the Brush Creek Dam outfall berms to prevent them from overtopping during a 100-year event. These are interdependent upon one another to successfully prevent overtopping. Preliminary modeling shows that these improvements would contain flows up to 420 CFS during a 100-yr event. The combined

preliminary construction cost (includes engineering, construction, and property rights) of the berm improvements is $4,882,900. Permitting, construction testing, and other administrative activities are not included in this cost estimate.

Investigation and modeling determined that the detention cell was critical to the successful reduction of flow into Fremont to meet the project purpose and need, and the inclusion of the upstream berm improvements as part of the system are very effective methods of reducing agricultural damages in the Fremont area. The combined berm improvements reduce the volume of floodwater entering the detention cell from the north by approximately 30 CFS, leading to a volume reduction of 80 acre-ft during a 100-year event. This allowed the footprint of the detention cell to be reduced by 16 acres. Additionally, the two holding areas of the detention cell are connected via an overflow channel that connects the two separate sub-watersheds that both contribute to flooding in Fremont and helps regulate peak flows leaving the system. In combination, these components work together as a complete and effective alternative to meet the project's purpose and need. Preliminary modeling indicates that this alternative would completely remove approximately 176 buildings from the 100-year flood inundation area.

In combination, the detention cell and berm improvements would prevent excess floodwater from entering Fremont and therefore protect the city from flooding damage. Note that these measures are interdependent and rely on each other to fully function as intended. **This alternative was found to meet the project purpose, along with the other screening criteria, and therefore it was selected for inclusion within the Final Array of Alternatives.**

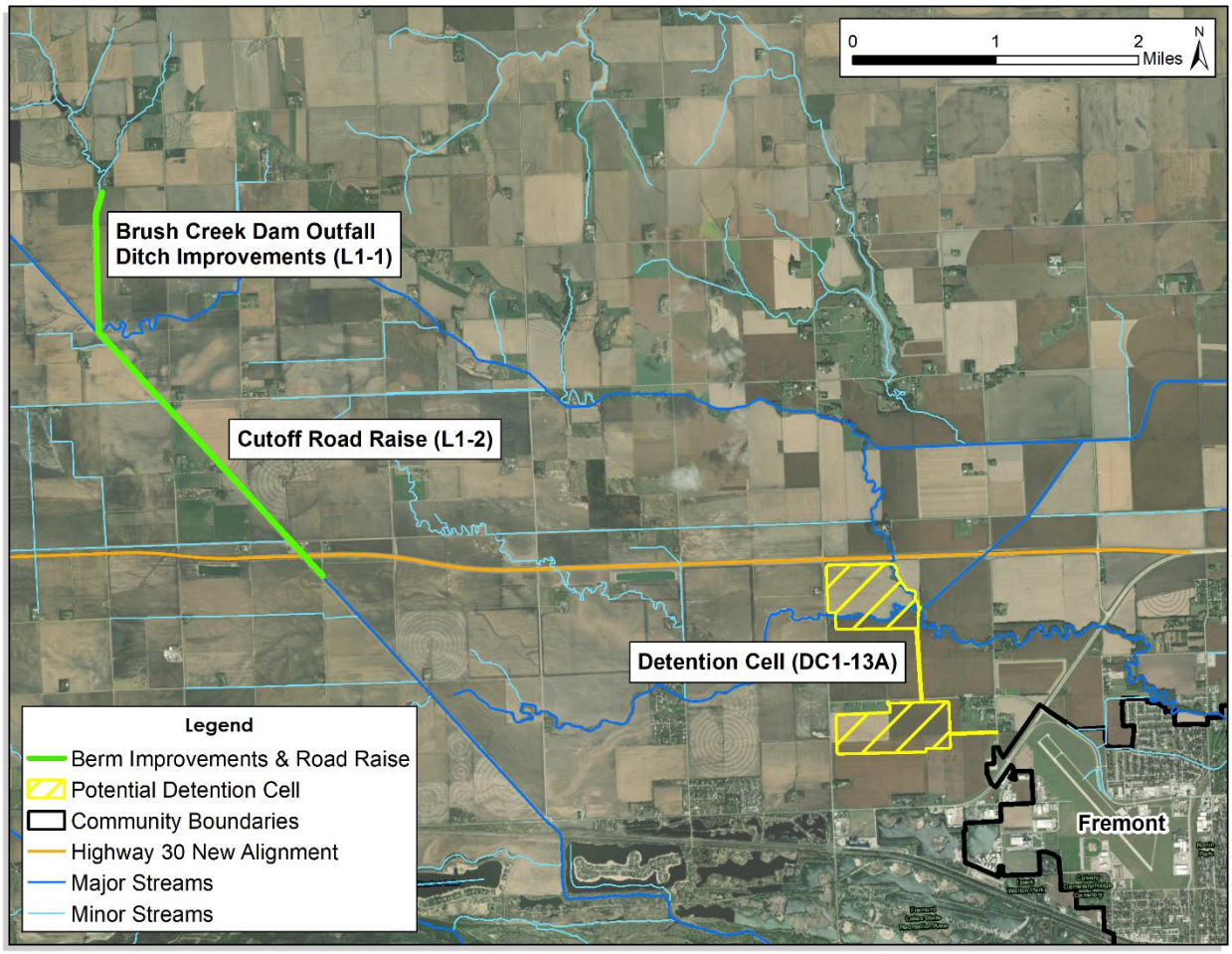

Figure 12: Combined Detention and Berm Alternative Extents

CHAPTER 5. ENVIRONMENTAL CONSEQUENCES

This chapter provides a detailed summary of the potential environmental impacts within both the affected resource areas (ARA) and area of potential effect (APE) that may result from the alternative selected for detailed study in Chapter 4 (Table 18). Both the ARA and APE are the geographic area within which each alternative is evaluated for potential impacts. The APE is utilized for evaluating potential effects on cultural and historic properties, while the ARA is utilized for all other environmental resources. The APE includes areas impacted by the construction of a potential alternative, including areas for construction access, stockpiling of materials, and similar activities. The ARA considers these same areas and includes additional areas that may be impacted due to lateral drainage of surrounding wetland areas due to excavation of a potential alternative. Maps of the ARA and APE can be found in Appendix C. Each resource concern included in this chapter was previously described in Chapter 3. NRCS form NE-CPA-52 was completed separately and is available upon request.

Table 18: Alternatives Selected for Detailed Study

Name	Description
No Action Alternative	This alternative represents the future conditions if there is no federal investment, and no projects are implemented.
Detention Cell with Berm Improvements	This alternative consists of excavating a detention cell in combination with berm improvements along the Brush Creek Dam outfall and raising Cutoff Ditch Road.

The effects of alternatives relative to resource concerns are defined in Table 18. This language is utilized throughout Chapter 5 to characterize the impacts that a given alternative may have.

Table 19: Definitions of Effects to Resource Concerns

Type	
Direct	Caused by the action and occurring at the same time and place.
Indirect	Caused by the action but occurring later in time and/or further away in distance.
Intensity	
No effect	Will not be changed by the alternative.
Negligible	The change will be so small as to be barely perceptible.
Minor	The change will be detectable but not substantial.
Major	The change will be substantial and/or significant.
Duration	
Short-term	Temporary, lasting during construction or shortly after.
Long-term	Persisting for the lifespan of the project.
Permanent	Lasting indefinitely.
Nature of Impact	
Adverse	The change will be negative.
Beneficial	The change will be positive.

Neutral	Neither adverse nor beneficial.

5.01 EVALUATION OF ALTERNATIVES THROUGH THE PLANNING PROCESS

This section compares the alternatives on how well they resolve the problems identified, their performance against the project objectives, their constraints, and evaluation criteria of completeness, acceptability, efficiency, and effectiveness. A summary of this comparison is provided in Table 20.

Table 20: Summary and Comparison of Alternatives – Planning Process

Item or Concern	No Action	Detention Cell with Berm Improvements
Alternative Major Features / Works of Improvement by Authorized Purpose		
Flood Prevention		
	None	L1-1 berm improvements
	-	L1-2 road raise
	-	DC1-13A detention cell
Project Objectives		
Objective 1: Reduce flood damage in the City of Fremont, and to agricultural lands, and reduce threats to life, health, and safety due to flooding.	No. Flooding would still occur at the current level. There would be no reduction in damages.	Yes. This alternative would reduce flooding damages in Fremont and to agricultural lands, and improve public health and safety.
Objective 2: Reduce flood damage to infrastructure (roads, bridges, utilities), and improve access to emergency services during flooding events.	No. Flooding would continue to impact infrastructure and hamper access to emergency services.	Yes. This alternative would reduce flood impacts to infrastructure and improve emergency access during flooding events.
Constraints		
Constraint 1: Avoid increasing flooding, or transferring flood risk, to properties downstream of Fremont.	Yes, would satisfy constraint 1.	Yes. This alternative would not increase downstream flooding
Constraint 2: Avoid causing depletions of instream flows in the Platte River.	Yes, would satisfy constraint 2.	Yes. This alternative would not cause deletions to the Platte River.
Evaluation Criteria		
Acceptability	Yes	Yes
Completeness	Yes	Yes
Efficiency	No	Yes
Effectiveness	No	Yes

5.02 EVALUATION OF ALTERNATIVES THROUGH THE ECOSYSTEM SERVICES TRADEOFF ANALYSIS

A summary of each alternative's impact on ecosystem services in the watershed and fulfillment of federal investment principles in water resources is shown in Table 21. Additional discussion is provided in Appendix D. The Preferred Alternative was created and supported through a local stakeholder process led by the Sponsor. As part of this process, stakeholders were invited to provide public comment and input into the design and evaluation of the Preferred Alternative.

Due to this input, the Preferred Alternative is the locally preferred alternative. The FWOFI is the alternative in that, without federal investment, there would be no change in the structure of the watershed. The Preferred Alternative is the environmentally preferred alternative as defined in Section 101 of the National Environmental Policy Act, which states:

> *"…It is the continuing responsibility of the Federal Government to (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain wherever possible an environment which supports diversity and variety of individual choice; (5) achieve balance between population and resource use which will permit high standards of living and wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."*

In terms of tradeoff, the preferred alternatives' investment in the watershed would generate significant public benefit by decreasing damages to buildings, decreasing loss of labor income, and decreasing farm productivity loss as compared to the Future Without Federal Investment (FWOFI). The benefits of the preferred alternatives outweigh the costs. While the FWOFI does not require any investment of public money, the tradeoff of avoiding monetary investments in infrastructure is accepting higher levels of building damages, income loss, and farm productivity loss in the watershed as compared to the preferred alternatives.

Table 21: Summary of Selected Alternatives and Ecosystem Services

	FWOFI Alternative	Detention Cell with Berm Improvements
Alternatives		
Locally Preferred		X
Nonstructural		

Environmentally Preferable		X
Maximum Net Monetized Benefits Plan		X
Socially Preferred		X
Preferred Alternative		X
Guiding Principles		
Healthy and Resilient Ecosystems	Does not meet guiding principle as there would be no protection to ecosystems harmed by flooding.	Meets the guiding principle as ecosystems harmed by flooding would be protected.
Sustainable Economic Development	Does not meeting guiding principle as this would not reduce the economic harm associated with flooding.	Meets the guiding principle as short-term economic benefits would be seen during construction, and long-term economic benefits would be provided by increased flood protection.
Watershed Approach	Does not meet guiding principle as there is no consideration of upstream or downstream impacts.	Meets the guiding principle as this alternative considers the potential transfer of flood damages downstream.
Environmental Justice	Meets the guiding principle as there would be no disproportionate impact to minority or low-income populations.	Meets the guiding principle as there would be no disproportionate impact to minority or low-income populations.
Public Safety	Does not meet guiding principle as flooding would continue to threaten public safety.	Meets the guiding principle as this alternative improves public safety through reduced flooding risk.
Floodplains	Does not meet the guiding principle as developed areas would continue to be within the floodplain.	Meets the guiding principle as developed areas would be removed from the floodplain.
Ecosystem Services Effects		
Provisioning		
Changes to Agricultural Production	Agricultural lands would continue to be damaged by flooding.	Construction of this alternative would remove approximately 300 acres of cultivated cropland from production, but would provide flood protection to 1,500 acres of agricultural land.
Regulating		
Flood Risk Reduction	The watershed would continue to experience an estimated $8,545,000 in annual damages due to flooding.	This alternative would provide a flood damage reduction benefit of approximately $1,315,800 annually.
Cultural		
Improved Public Safety	Public safety would continue to be threatened by flooding.	Public safety would be improved through reduced road overtopping, building

		inundation, infrastructure damage, etc.
Economic Analysis		
Total Project Investment	$0	$37,829,000
Annualized Project Investment	$0	$1,146,600
Annual OM&R Cost	$0	$171,300
Total Annualized Project Costs	$0	$1,317,900
Monetized Benefits for Ecosystem Services		
Cultural		
Not monetized	N/A	N/A
Provisioning		
Reduced Flood Damage to Agricultural Lands	$0	$2,800
Increased Wetland Habitat	$0	$113,600
Regulating		
Property-Related Damage Reduction	$0	$339,400
Business and Wage Income Damage Reduction	$0	$860,000
Total Annual Monetized Benefits	$0	$1,315,800
Total Annual Monetized Costs	$0	$1,146,600
Benefit-Cost Ratio	N/A	1.1
Annual Monetized Net Benefit	N/A	$169,200
Regional Economic Development / Economic Impact Assessment		
Regional Employment	N/A	N/A
Regional Income	N/A	N/A
Regional Impacts	N/A	N/A

(1) Note that all costs and benefits for Action Alternative are compared to the Future Without Federal Investment (FWOFI) here and elsewhere in this document. Benefits and costs were calculated over a 105-year analysis period using a discount rate of 2.75 percent. All values reported in 2024 dollars.

5.03 SOIL RESOURCES

LAND USE

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. Existing land uses in the watershed would not change. The primary land uses in the watershed would continue to be agricultural.

Detention Cell with Berm Improvements: This impact would be direct, minor, permanent, and adverse. Construction of the alternative would remove approximately 300 acres of cultivated cropland from production, this amounts to less than 1% of all cropland in the watershed. This change to land use could have a negligible adverse effect on the local agricultural economy by reducing overall yield and could have a minor positive effect on local groundwater quality by reducing the agricultural pollutant loading. Outside of the area directly affected due to construction, the agricultural nature of the watershed would remain unchanged.

PRIME AND UNIQUE FARMLAND

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. Flooding would continue to threaten prime and unique farmland in the Fremont region. While not all designated prime and unique farmland is actively used for crop production, the potential for future use of prime farmland could be reduced due to flooding damages.

Detention Cell with Berm Improvements: This impact would be direct, minor, permanent, and adverse. In accordance with NEPA and FPPA requirements, anticipated impacts to prime and unique farmland were reviewed by the Nebraska NRCS Assistant State Soil Scientist. Per this consultation, construction of this alternative would result in 122 acres of prime and unique farmland being permanently taken out of possible agricultural production. The FPPA consultation found that no protection or additional evaluation would be necessary for this project. The FPPA consultation letter is included in Appendix A.

5.04 WATER RESOURCES

Detailed information concerning impacts to aquatic resources (including avoidance, minimization, and mitigation measures) are presented here when appropriate, with supporting information provided in Appendix E.

WATERS OF THE UNITED STATES & CLEAN WATER ACT

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. There would be no intentional placement of fill within any streams or waterbodies. This alternative would not require any review under the Clean Water Act.

Detention Cell with Berm Improvements: This impact would be direct, minor, permanent, and adverse. All applicable provisions of the Clean Water Act would be complied with during the permitting and construction of this alternative. The project would be reviewed by USACE under CWA Section 404. It is anticipated that the berms/road raise would be permitted under a Nationwide permit, while the detention cell would be permitted under an Individual Permit. Final impacts and mitigation requirements would be verified during the potential future design and permitting phases.

Steps were taken to avoid and minimize impacts to aquatic resources to the greatest extent possible. These included utilizing and expanding upon existing infrastructure in the watershed, altering preliminary shapes and sizes of the detention cell, and leaving an undisturbed riparian buffer around stream channels within the detention cell. A summary of the remaining impacts is provided in Table 22. These are permanent impacts involving fill placement and/or excavation and would require mitigation. It is assumed that all impacts fall under USACE jurisdiction, final determination would be made during the design phase of the project. Further detail is provided in the Surface Water Quantity, and Wetlands sections below, and in Appendix E.

Table 22: Summary of Impacts to Aquatic Resources

Aquatic Resource Impacted	Classification	Total Impact (ac)
Stream	Intermittent	0.095
Wetland	PEMA/C	7.494

Note: PEMA/C – Palustrine, emergent, temporarily or seasonally flooded

SURFACE WATER QUANTITY

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. There would be no change to existing conditions. Streams would continue to flow to the Elkhorn and Platte Rivers as they currently do. There would be no depletion of Platte River flows.

Detention Cell with Berm Improvements: This impact would be direct, minor, permanent, and beneficial.

The NRCS developed a water consumptive use model for Nebraska that refines the amount of potential Platte River water that practices such as water impoundments and grade stabilization structures would either accrete or deplete. In a July 12, 2001, consultation letter, the USFWS concurred that on-farm conservation programs that result in annual cumulative depletions of flows to the Platte River that are 25 acre-feet or less in Nebraska have “no adverse effect” on flows in the Platte River and associated federally listed species and designated critical habitat. NRCS will consult individually on projects that result in site-specific annual changes of consumptive water

use of greater than 25 acre-feet. The NRCS water consumptive use model was used to determine potential depletions to flows in the Platte River because of alternatives.

The berm improvements and road raise portion of this alternative would not detain any water and would not contribute to any depletions of flows to the Platte River system. The detention cell portion of this alternative was evaluated using the NRCS Consumptive Use Calculator. Depletions were calculated for each site by comparing the results of the Consumptive Use Calculator for existing and proposed conditions. The existing landcover in the detention cell sites is composed primarily of irrigated cropland. The proposed landcover in the cell bottoms would consist of short warm season grasses, such as buffalograss, and short wetland vegetation that would thrive with or without standing water, such as sedges and rushes. 95% of residue would be maintained in the non-growing season. Construction of the alternative would remove approximately 300 acres of cropland from production, of which 220 acres is irrigated.

The results of the NRCS Consumptive Use Calculator indicate that the land cover change caused by construction of the detention cell would result in a depletion of approximately 55 ac-ft during the months of May and June. The remaining months of the year yield accretions of 116 ac-ft, resulting in a net accretion of approximately 61 ac-ft. Additionally, the NRCS Consumptive Use Calculator does not account for the reduction in groundwater pumping for irrigation (a standard irrigation well in this region pumps 800 gallons/minute), the overall reduction in area inundated during flooding events after the alternative is implemented (1,817 acres during a 100-year flood), or the increase in water delivery directly to the Platte River rather than being lost to overland flooding (160 ac-ft during a 100-year flood). When considering all these factors, potential depletion of flows to the Platte River would be negligible after the construction of the proposed alternative. The NRCS Consumptive Use Calculator spreadsheets are included in Appendix E. Please note that additional review of potential depletions to flows in the Platte River will occur during the development of a Biological Assessment during the final design and permitting phase.

SURFACE WATER QUALITY

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. Surface water quality would continue to be harmed due to flooding. Pollutants carried by floodwaters would continue to move through the watershed, degrading surface water quality.

Detention Cell with Berm Improvements: This impact would be indirect, long-term, minor, and beneficial. The detention cell will capture pollutants during flooding conditions, improving downstream water quality. Pollutants commonly carried by floodwater in this region include sediment and agricultural chemicals, which are known to contribute to high concentrations of nitrogen and phosphorus. Under normal flow conditions, pollutants in runoff would continue to be transported through the watershed and accumulate in the same locations they do under current conditions. There are no impaired waterbodies that would be directly affected by this alternative.

GROUNDWATER QUANTITY

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. This alternative would not cause any changes to existing groundwater quantity in the watershed. The no action alternative would not create any additional opportunities for groundwater recharge, nor would it cause any depletions of groundwater.

Detention Cell with Berm Improvements: This impact would be indirect, long-term, minor, and beneficial. This alternative would not cause any groundwater depletion and is not associated with any pumping of groundwater. The detention cell would provide limited opportunities for groundwater recharge as it would only hold water during flooding events and for a short period of time after floodwater recedes.

GROUNDWATER QUALITY

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. Groundwater quality in this region is primarily driven by land use and management decisions such as application of fertilizer to agricultural lands. Leaching and travel of pollutants into and within an aquifer occurs over many years. The no action alternative would not lead to any changes in land use or management, and therefore would have no impact on existing groundwater quality.

Detention Cell with Berm Improvements: This impact would be indirect, minor, long-term, and beneficial. Groundwater quality in this region is primarily driven by land use and management decisions such as application of fertilizer to agricultural lands. This alternative has the potential to improve groundwater quality by reducing pollutant loading. Construction of this alternative would remove approximately 300 acres of cultivated cropland from production. Nitrate loss to groundwater from an irrigated cornfield in this region is estimated to be approximately 8.2 lbs/acre/year (Potter et al., 2006). Therefore, the overall nitrate load to groundwater in the watershed would be reduced by approximately 2,460 lbs/year under this alternative.

WETLANDS

Detailed information, maps of wetland impacts, and delineation reports can be found in Appendix E.

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. Wetlands would continue to be threatened by flooding damage. While inundated during a flood, wetlands can become clogged by debris or scoured due to the erosive forces of floodwaters.

Detention Cell with Berm Improvements: This impact would be direct, minor, permanent, and adverse. Construction of this alternative would result in 7.494 acres of permanent impacts to wetlands. These impacts would be caused directly by construction activities such as fill placement or excavation, as well as indirectly due to potential lateral drainage of wetlands near an excavated area. All impacted wetlands are of the Cowardin Classification PEMA/C. All impacts would occur at the detention cell site. The berm and road raise portions of the alternative would not cause any

wetland impacts. Mitigation actions would be required for these wetland impacts. Mitigation would be accomplished by creating new additional wetlands of the appropriate Nebraska subclass and function onsite within the detention cell.

Impacts were avoided and minimized to the maximum extent possible by utilizing and expanding upon existing infrastructure, altering preliminary shapes and sizes of the detention cell, and leaving an undisturbed riparian buffer around stream channels within the detention cell. Wetlands divided by excavation would be plugged with an earthen berm to avoid any drainage into the excavation. All impacts are necessary to build these sites to meet current NRCS design standards. This project complies with the Food Security Act by not making the wetland areas easier to farm than they currently are or converting any wetlands to farmland. Some wetlands impacted by the proposed alternative may not be under USACE jurisdiction. A Jurisdictional Determination would be completed during the design and permitting phase of the future project. If any wetlands are found to not be under USACE jurisdiction, a Functional Assessment would be performed to determine final mitigation needs for any wetlands under NRCS jurisdiction. This would ensure the project complies with Executive Order 11990 by adequately replacing impacted wetlands with new wetlands of appropriate size and function. Additional information, including a breakdown by wetland subclass, is included in Appendix E.

REGIONAL WATER MANAGEMENT PLANS

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would be inconsistent with the goals of the identified regional water management plans as this alternative would not result in any active management of water resources and would place the City of Fremont under continued risk of flooding damage.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. This alternative is not part of any existing regional water management plans nor any requirement of a regional water management plan. This alternative is consistent with the goals of existing regional water management plans as it would not result in any depletions of flows to the Platte River, would not involve any new consumptive uses of water, and would protect the City of Fremont from flooding damage.

FLOODPLAIN MANAGEMENT

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. This alternative would have no effect on the current regulatory flood hazard areas or on the management of floodplain regions within the watershed. There would be no change to any mapped regulatory floodplains and residents living in the floodplain would continue to be required to purchase flood insurance.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. This alternative would provide significant reductions to the extent and depth of all flooding recurrence intervals up to and including the 100-year event in the Rawhide Creek

Watershed upstream of and within Fremont. Note that flood risk remains during events greater in magnitude (less frequent) than the 100-year recurrence interval. After the installation of this alternative, approximately 56 buildings will be removed from the inundation extents of a 10-year flood, and 175 buildings will be removed from the inundation area of a 100-year flood. Reduced flooding depth and duration will further benefit many of the remaining buildings. The total area inundated during a 100-year flooding event will be reduced by approximately 1,817 acres. Figures showing modeled existing and proposed flooding conditions are shown in Appendix C.

Project benefits are significant based on flood modeling developed for the purposes of this plan to assess existing and proposed flood risk conditions. Hydrologic and hydraulic analyses were conducted using parameters developed in accordance with appropriate engineering-based methods. Each of the models developed was calibrated using the best available scientific data including historical observations and gage information. Complete details about the flood models developed for this project are included in Appendix D. It is anticipated implementation of this alternative will result in a future revision to the regulatory floodplain based on the additional flood risk analysis detail for Rawhide Creek developed for this plan. To assure a successful map change and to support floodplain permitting for the project, based on the conceptual alternative presented in this plan it is anticipated a Conditional Letter of Map Revision (CLOMR) would be submitted prior to project construction, if the project is funded and implemented. Once the project is completed, a Letter of Map Revision (LOMR) would be requested from FEMA to ensure updated regulatory floodplain maps are developed.

5.05 PLANT AND ANIMAL RESOURCES

Fish and Wildlife (Including Coordination Requirements)

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would allow flooding to continue affecting fish and wildlife populations and habitat throughout the watershed. Flooding can degrade water quality, aquatic / riparian habitat, and upland habitat by depositing debris and pollutants or scouring away vegetation and soil. Some species can be washed away or drowned by floodwaters or become more susceptible to illness due to exposure to contaminants carried by floodwaters.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. This alternative would improve and increase habitat for wildlife by removing land in the path of the detention cell from agricultural production and converting it to perennial vegetation and wetland habitat. A total of approximately 300 acres of cropland would be removed from production. The alternative would reduce the frequency and severity of events where floodwater spills beyond the existing channels. This reduction in overland flooding would help protect the many common terrestrial species that inhabit the watershed. The erosive forces of floodwater in Rawhide Creek would be reduced as floodwater is temporarily held in the detention

cell and released over time. This would work to help reduce damages to aquatic / riparian habitat within and immediately surrounding Rawhide Creek.

THREATENED AND ENDANGERED SPECIES

Coordination with NRCS, USFWS, and NGPC was conducted to obtain feedback on the potential impacts that any of the alternatives had on streams or other bodies of water, and what recommendations were offered to minimized impacts to comply with the Fish and Wildlife Coordination Act and Nongame and Endangered Species Conservation Act. Additional information about coordination is included in Chapter 6.

The area of interest for the CERT environmental review report was updated on November 28, 2023 (Project ID NE-CERT-011181), to include only the ARA for each alternative, rather than the full watershed. Additionally, project activities within CERT were coded based on the appropriate NRCS Conservation Practice Standard codes. IPaC was also rerun for the ARAs on August 8, 2024 (Project Code 2024-0127882). Additionally, an informal conference was held between NRCS, NGPC, and USFWS on November 3, 2023, to determine potentially impacted species. Copies of CERT and IPaC reports will be provided upon request.

Determinations of potential effects from the alternatives are individually discussed for each species below. Where impacts could not be completely avoided, conservation measures were identified to avoid any adverse impacts. Note: Consultation with USFWS and NGPC is ongoing. This section will be updated if additional information is received through the consultation process. Please note that these findings are only associated with determining any significant impacts that would otherwise prevent the creation and signature of a FONSI. The USFWS Nebraska Ecological Services Field Office does not provide concurrence on effects during the planning phase of watershed projects and defers consultation until the design phase of the project when more specific project information is available. Consultation will need to occur with both USFWS and NGPC, through the creation of a Biological Assessment, for the preferred alternative selected prior to any construction efforts to ensure impacts to listed species are properly avoided, minimized, or mitigated.

Eastern Black Rail (*Laterallus jamaicensis ssp. Jamaicensis)*

No Action Alternative: No effect. The Eastern Black Rail is a transient migrant species in this region. There would be no change to potential habitat for the Eastern Black Rail under this alternative.

Detention Cell with Berm Improvements: No effect. The Eastern Black Rail is a transient migrant species in the State of Nebraska. There would be no change to potential habitat for the Eastern Black Rail under this alternative.

Interior Least Tern (*Antillarum athalassos)*

No Action Alternative: May affect, not likely to adversely affect. Continued flooding may alter existing habitat used by the interior least tern.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. A survey would be completed by a qualified biologist if construction occurs within sight or sound of suitable habitat between April 15 and August 15. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. The interior least tern nests and raise their young on river sandbars or lakeshores. The nearest potentially suitable riverine habitat is approximately 1.5 miles from the ARA, and the nearest potentially suitable lakeshore habitat is approximately 0.5 mile from the ARA.

Lake Sturgeon (*Acipenser fulvescens*)

No Action Alternative: No effect. There would be no depletion of flows to the Platte River and no direct impact within the river channel.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. Sturgeon prefer large rivers with high turbidity and braided channels. The nearest potentially suitable river habitat is approximately 1.5 miles from the ARA.

Northern Long-eared Bat (*Myotis septentrionalis)*

No Action Alternative: No effect. There would be no change to potential habitat for the northern long-eared bat (NLEB) under this alternative.

Detention Cell with Berm Improvements: The NLEB range is within the ARA limits; however, there are no known hibernacula within 5.0 miles, any known maternity roosts within 1.5 miles, or any known swarming/staging areas within the ARAs. Northern long-eared bats could conceivably roost underneath bark, in cavities, or in crevices in both live and dead trees that will be cleared.

As of March 31, 2023, the re-classification of this species was finalized, listing it as a federally and state endangered species. Currently, updated conservation measures and other requirements are being discussed and have not been finalized. The Interim Consultation Framework does not apply to this project due to the anticipated construction schedule. Once new guidance to avoid adverse impacts to NLEB are issued, the newest conservation measures will be implemented, as necessary, to avoid adverse impacts to the species. Currently, the conservation measure that will be followed is that no tree removal will occur during the active season (April 2 – October 31) or prior to new guidance being released. The initial determination is that any proposed alternatives selected as the preferred may affect- but are not likely to adversely affect the NLEB. However, due to the guidance changes associated with this species, additional coordination and consultation will be required prior to implementation of any alternatives.

Pallid Sturgeon (*Scaphirhynchus albus)*

No Action Alternative: No effect. There would be no depletion of flows to the Platte River and no direct impact within the river channel.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. Sturgeon prefer large rivers with high turbidity and braided channels. The nearest potentially suitable river habitat is approximately 1.5 miles from the ARA.

Piping Plover (*Charadrius melodus*)

No Action Alternative: May affect, not likely to adversely affect. Continued flooding may alter existing habitat used by the piping plover.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. A survey would be completed by a qualified biologist if construction occurs within sight or sound of suitable habitat between April 15 and August 15. Piping plover prefer shorelines, mud flats, and sandbar habitats. The nearest potentially suitable riverine habitat is approximately 1.5 miles from the ARA, and the nearest potentially suitable lakeshore habitat is approximately 0.5 mile from the ARA.

Rufa Red Knot (*Calidris canutus rufa*)

No Action Alternative: No effect. The rufa red knot is a transient migrant species in this region. There would be no change to potential habitat for the rufa red knot under this alternative.

Detention Cell with Berm Improvements: No effect. The rufa red knot is a transient migrant species in the State of Nebraska. There would be no change to potential habitat for the rufa red knot under this alternative.

Sturgeon Chub (*Macrhybopsis gelida*)

No Action Alternative: No effect. There would be no depletion of flows to the Platte River and no direct impact within the river channel.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. Sturgeon prefer large rivers with high turbidity and braided channels. The nearest potentially suitable river habitat is approximately 1.5 miles from the ARA.

Western Massasauga (*Sistrurus tergeminus*)

No Action Alternative: No effect. There would be no change to potential habitat for the western massasauga under this alternative.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. The western massasauga prefers moist grassland habitats where crayfish burrows can be found. The ARA does not contain any such suitable habitat. However, a survey would be completed by a qualified biologist for crayfish burrows prior to ground disturbing activities or water level manipulation.

Western Prairie Fringed Orchid (*Platanthera praeclara*)

No Action Alternative: No effect. There would be no change to potential habitat for the western prairie fringed orchid under this alternative.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. The orchid can be found in tallgrass prairie landscapes with high soil moisture. The ARA does not contain any such suitable habitat. However, a survey would be completed by a qualified biologist during the flowering period (June 15 – July 15) prior to ground disturbing activities. If suitable habitat or any western prairie fringed orchids are found during the survey, work would be paused until consultation with USFWS is conducted to determine how best to avoid adverse impacts.

Whooping Crane (*Grus americana*)

No Action Alternative: No effect. There would be no depletion of flows to the Platte River and no direct impact within the river channel. This alternative would not alter any habitat used by the whooping crane.

Detention Cell with Berm Improvements: May affect, not likely to adversely affect. Whooping cranes prefer shallow braided rivers for roosting during migration season. The nearest potentially suitable river habitat is approximately 1.5 miles from the ARA. There would be no depletion of annual consumptive flows to the Platte River greater than 25 acre-feet. Construction would not take place during either of the migration seasons (March 6 -April 29 and October 9 – November 15), or daily surveys would be conducted prior to the start of construction activities during these migration seasons. If a whooping crane is found during the survey, work would be paused until consultation with USFWS is conducted to determine how best to avoid adverse impacts. In addition, any seeding plans would need to be approved by the NRCS State Biologist.

INVASIVE SPECIES

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. Floodwaters have the capability to carry and spread invasive species to new areas. Under the no action alternative, new invasive species may spread to the watershed, or existing invasive species may expand their presence in the watershed due to flooding events.

Detention Cell with Berm Improvements: This impact would be direct, negligible, short-term, and neutral. Invasive species would have the potential to be introduced or spread due to construction activities, but this alternative would minimize the potential effect of invasive species

in the watershed due to measures which would be taken during construction. Seeding plans for each project site would include native species certified by the NRCS State Biologist to minimize erosion and prevent the introduction or spread of invasive species or noxious weeds. Any watercraft or heavy construction equipment utilized will be cleaned, drained, dried, and properly decontaminated if transported between sites. The potential for invasive species to spread during flooding would remain following implementation of this alternative.

MIGRATORY BIRDS AND EAGLES

No Action Alternative: This impact would be indirect, minor, long-term, and adverse. Flooding events have the potential to alter or destroy habitat utilized by migratory birds and eagles in the watershed.

Detention Cell with Berm Improvements: This impact would be direct, negligible, short-term, and neutral. This alternative would minimize potential negative effects on migratory birds and eagles due to the utilization of best management practices during construction. The project would comply with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. To avoid impacts to migratory birds there would be no tree clearing from April 1 to July 15, or a nesting survey will be required. Eagle surveys would be conducted within ½ mile of each project site prior to construction. If bald eagles are nesting in the area, consultation with NGPC and USFWS would be initiated.

ECOLOGICALLY CRITICAL AREAS

No Action Alternative: This impact would be indirect, major, permanent, and adverse. Flooding would continue to have the potential to harm and/or destroy ecologically critical areas. Habitat can be scoured and washed away or clogged by debris due to floodwaters.

Detention Cell with Berm Improvements: This no effect impact would be indirect, negligible, and short-term. The Lower Platte River BUL is a non-regulatory area, and this alternative would not change the overall description of the landscape. There are no NRCS Wetlands Reserve Program sites located within the ARA.

5.06 FISH AND WILDLIFE HABITAT

FOREST RESOURCES

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. Woodlands would continue to be threatened by flooding in the watershed. The majority of wooded areas are established along waterways in this region and are particularly susceptible to the erosive forces of floodwaters. Trees can be uprooted and carried downstream or undermined by erosion and left to die.

Detention Cell with Berm Improvements: This impact would be direct, negligible, permanent, and adverse. Construction of this alternative would require the removal of multiple individual trees but would not convert any existing cohesive woodland areas as the vast majority of the land needed for construction is currently utilized for row crop agriculture. Woodlands downstream of the alternative would benefit from reduced flooding damages following implementation of this alternative.

RIPARIAN AREAS

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. Riparian areas within the watershed would continue to be damaged by flooding. Floodwaters can scour away soil and vegetation within riparian areas or choke them with debris or sediment deposited by flooding. Many riparian areas are found adjacent to crop fields and have been altered and degraded over time to better suit agricultural purposes, making them even more susceptible to flood damage due to the lack of perennial vegetation. This alternative would not reduce the risk of flooding damage to any riparian areas.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. Construction of this alternative would remove agricultural lands from production and replace those areas with greenspace connected to the Rawhide Creek channel via grading. This would expand riparian habitat within the detention cell. The hydrologic connection with existing and new riparian areas would be maintained under normal flow conditions. The berm improvements and road raise would not impact any riparian areas.

5.07 HUMAN RESOURCES

FLOOD DAMAGES

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would allow flooding damages to continue at existing rates in the project area. During a 10-year flood, it was found that approximately 176 buildings in the City of Fremont were inundated. During a 100-year flood it was found that approximately 454 buildings in the City of Fremont were inundated.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. After the installation of this alternative, approximately 56 buildings will be removed from the inundation extents of a 10-year flood, and 175 buildings will be removed from the inundation area of a 100-year flood. Reduced flooding depth and duration will further benefit many of the remaining buildings. The total area inundated during a 100-year flooding event will be reduced by approximately 1,817 acres. The alternative is designed to reduce flood damage up to and including the 100-year recurrence interval. The potential for flood damage remains during events greater than the 100-year recurrence interval.

COSTS

No Action Alternative: This impact would be indirect, major, permanent, and adverse. Under this alternative it is estimated that approximately $8,545,605 in flooding damage would continue to occur on an average annual basis in the Fremont region. This damage estimate includes structural damage to buildings and damage to agricultural lands.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. Construction of this alternative would create average annual gross benefits of approximately $1,315,800 per year. After the alternative is installed, the total area inundated during a 100-year flooding event will be reduced by approximately 1,817 acres. The alternative is designed to reduce flood damage up to and including the 100-year recurrence interval. The potential for flood damage remains during events greater than the 100-year recurrence interval.

HISTORIC PROPERTIES AND CULTURAL RESOURCES

No Action Alternative: This no effect impact would be indirect, permanent, and neutral. This alternative would not change current conditions for any historic properties. There would be no Federal Action, and no immediate change to the surrounding lands. Historic properties and cultural resources, both known and unknown, in the Fremont region would continue to be at risk of damage due to flooding. Structures can be inundated or destroyed completely, and archaeological sites can be scoured by floodwaters or buried by debris.

Detention Cell with Berm Improvements: Sites 25DD68 and 25DD69 are in agricultural fields adjacent to the proposed Cutoff Ditch Road raise (L1-2), and the project would have permanent negative impacts on the sites. Construction equipment may drive over the sites while adding fill to the road, which will compact the sites and could damage artifacts. Additionally, the road may also be widened to accommodate the increase in height, which would remove the southwestern portions of both sites.

The Cutoff Ditch Road raise (L1-2) may have negligible permanent effects on Architectural Resource 1 (AR-1). The road raise will be visible from the property, but the effects will be negligible because the road will look similar to existing conditions. The buildings associated with AR-1 will not be damaged, destroyed, or altered by this project.

The buildings associated with AR-2 will not be damaged, destroyed, or altered by this project. Portions of the berm on the east side of the Brush Creek Dam outfall ditch (L1-1) may be visible to AR-2. There may also be temporary auditory and visual effects to the property during construction. Visual impacts will be minimal. The berm will be seeded with grass after construction, and the vegetation should further minimize visual impacts.

Sites 25DD72 and 25DD74 are located within agricultural fields where no ground disturbance or material staging is proposed for DC1-13A. However, it is possible that construction equipment could drive over these fields. Vehicle traffic may compact the site and damage artifacts. The

impacts will be minor and permanent but are similar to existing impacts from agricultural equipment.

Site 25DD73 is located within the connecting channel between the two holding basins of the detention cell (DC1-13A), and the site will be destroyed by construction.

Site 25DD75 is an isolated object located at the edge of the APE for DC1-13A, and it is unlikely that the site will be damaged or destroyed by this project.

Property AR-5 is located near a field where excess soil from the detention cell excavation will be spread (DC1-13A). Visual impacts of these activities will be avoided by spreading the soil over the surface rather than piling the excess soil. The buildings associated with AR-5 will not be damaged, destroyed, or altered by this project.

The detention cell (DC1-13A) is unlikely to be visible from AR-6. The property is more than ¼ mile away from the detention cell. Vegetation and topography will obscure the detention cell from view.

The detention cell (DC1-13A) will have minor, permanent visual impacts on AR-7 as the detention cell will be visible from the property. Impacts to the property will be minimized through grading and vegetation of the detention cell. The buildings associated with AR-7 will not be damaged, destroyed, or altered by this project.

No construction activities or spoil piles are planned near property AR-8. A tree line between the property and the detention cell (DC1-13A) will minimize visual effects. The buildings associated with AR-8 will not be damaged, destroyed, or altered by this project. There may be temporary auditory effects from construction equipment while the detention cell is under construction, but the impact to this property will be minimal.

The cultural resource survey did not find any trail ruts, cultural materials, or other features associated with the Mormon Pioneer National Historic Trail within the APE. LiDAR hillshade imagery did not identify any trail ruts within or near the APE. The mapped route of the trail is approximately ½ mile south of the APE for DC1-13A, and this project will not have any effect on the trail.

All the resources listed above have been evaluated for eligibility in the NRHP, and none are eligible. No mitigation is necessary. If any cultural resources are identified during construction, all activities will be halted immediately and NRCS will proceed in accordance with the regulation on post-review discoveries (36 CFR § 800.13) by following the procedures outlined in Appendix D.

This undertaking may result in reduced flood damage to historic properties downstream, especially NRHP listed properties in Fremont. There are no anticipated negative cumulative effects to historic properties from this project.

ENVIRONMENTAL JUSTICE, CIVIL RIGHTS, AND SOCIAL ISSUES

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would allow flooding to continue to disproportionately impact the at-risk populations living in the City of Fremont. According to the US Census Bureau 2022 estimate, in total, the Hispanic/Latino population at risk amounts to approximately 4,633 residents, and the population living in poverty at risk amounts to approximately 104 residents.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. This alternative would reduce the risk of flooding damages and potentially reduce the burden of required flood insurance costs to previously identified at-risk populations in the City of Fremont. According to the US Census Bureau 2022 estimate, in total, the Hispanic/Latino population at risk amounts to approximately 4,633 residents, and the population living in poverty at risk amounts to approximately 104 residents. Additionally, the possibility for short-term benefits exists if residents of those communities are hired to work on the project during the construction phase. There would not be any property acquisition without just compensation, and there are no structural property relocations

LOCAL AND REGIONAL ECONOMY

No Action Alternative: This impact would be indirect, major, permanent, and adverse. Flooding would continue to impact the City of Fremont and surrounding agricultural areas, harming the local and regional economy. An economic burden would continue to be placed on property owners required to purchase flood insurance. Additionally, flooded roads would continue to inhibit people from going to work and prevent goods from being transported, and flooded fields would prevent crops from being planted and harvested.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. Flood damage to the City of Fremont and surrounding agricultural areas would be reduced, thus protecting the local and regional economy, and potentially reducing or removing the need for flood insurance for some property owners. The project would protect the community from future flood events and help promote community growth and prosperity. Reducing roadway flooding would allow residents to travel to work and earn an income, allow for transportation of goods, and allow for agricultural lands to be planted and harvested without interruption. Construction of this alternative would create average annual gross benefits of approximately $1,315,800 per year. Construction of the alternative may also provide short-term economic benefits if watershed residents are hired to work on the project during the construction phase. Temporary disruption to agricultural or residential access roads during construction, and the temporary closure of Cutoff Ditch Road may indirectly affect the local economy.

PUBLIC HEALTH AND SAFETY

No Action Alternative: This impact would be indirect, major, permanent, and adverse. Flooding would continue to be a threat to public health and safety in the Fremont region. Floods

can not only kill by drowning but can make people more vulnerable to sickness and injury. Floodwater can be contaminated with human and livestock waste and chemicals, as well as debris that can cause serious harm. Additionally, flooding can block access to emergency services.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. The flood damage reduction benefits that would be achieved with this alternative would improve the public health, safety, and welfare of the watershed by reducing the frequency and duration of flooding in and around the City of Fremont. This alternative would protect the lives of residents by reducing the occurrence of overtopped roads, inundated buildings, and threats to community infrastructure and decreasing the need for emergency personnel to assist during flood events. Temporary disruption to agricultural or residential access roads during construction, and the temporary closure of Cutoff Ditch Road may indirectly affect access to emergency services. Reduced exposure to floodwater will prevent potential instances of sickness and injury, as well as flood-related deaths.

RECREATION

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. There are no major public recreation sites within the watershed. Flooding may impact people's ability to travel to recreation sites due to road closures.

Detention Cell with Berm Improvements: This impact would be indirect, minor, long-term, and beneficial. Instances of road overtopping and/or closures due to flooding would be reduced, allowing easier travel to recreation areas for residents of Fremont and surrounding areas. Additionally, private landowners may have more opportunities to use their own land for recreation in the vicinity of the project sites and downstream.

SCENIC AREAS, NATURAL AREAS, AND PARKLANDS

No Action Alternative: This impact would be indirect, minor, permanent, and adverse. The Fremont Lakes State Recreation Area would continue to be at risk of flooding damage.

Detention Cell with Berm Improvements: This impact would be indirect, minor, long-term, and beneficial. Construction would not directly affect any areas of scenic beauty or parklands as none exist in the ARA. The Fremont Lakes State Recreation area, located downstream of the ARA, would benefit from the reduced likelihood of flooding damages stemming from Rawhide Creek. Additionally, this alternative will increase the overall extent of natural areas in the watershed by converting the detention cell area from cropland to greenspace.

NATIONAL PARKS, MONUMENTS, AND HISTORICAL SITES

No Action Alternative: This no effect impact would be indirect, negligible, and neutral. The Mormon Pioneer and California National Historic Trails pass through the southern half of the

watershed, but there is no infrastructure or visitor use associated with the trails. There are no surviving trail ruts or recorded archaeological sites associated with the trails within the watershed.

Detention Cell with Berm Improvements: This no effect impact would be indirect, negligible, and neutral. Neither the Mormon Pioneer or California National Historic Trails pass through the ARA. There would be no effect to either trail due to construction activities. There are no surviving trail ruts or recorded archaeological sites associated with the trails within the watershed.

5.08 ECOSYSTEM SERVICES

Human resources within the watershed provide various ecosystem services. As described in Chapter 3, ecosystem services and flows most relevant to proposed alternatives were selected for analysis. The section below describes impacts to selected ecosystem services for each alternative. Additional analysis of ecosystem service tradeoffs is provided at the end of this chapter.

REGULATING SERVICES

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would not regulate any flooding within the watershed. Continued flooding would lead to ongoing flood damage and concerns for public health and safety. Watershed residents would continue to be displaced during flood events, and they would continue to be stressed about damage to their homes and belongings as well as potential threats to their lives.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. This alternative would provide regulation of flooding damages in the Fremont region, leading to enhanced regulating services. As previously discussed in section 5.07 and detailed in Appendix D, this alternative would reduce flood damage and produce monetary annual flood damage reduction benefits for the watershed. The alternative is designed to reduce flood damage up to and including the 100-year recurrence interval. Risk of flood damage remains during events greater in magnitude than the 100-year recurrence interval.

PROVISIONING SERVICES

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would not provide any flooding protection to agricultural lands in the project area. Flooding would continue to lessen provisioning services within the watershed as viewed through food production capacity. Flooding can prevent planting and harvesting activities, drown crops, bury fields with debris, and scour away topsoil.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. While construction of this alternative would remove approximately 300 acres of

cultivated cropland from production, it would provide flood protection to approximately 1,500 acres of agricultural lands in the inundation area of a 100-year flooding event. This alternative would enhance the provisioning services provided by agricultural lands by reducing the likelihood of flooding impacts to these 1,500 acres of agricultural lands. Additionally, construction of this alternative would result in the net creation of approximately 15 acres of new wetland habitat in the watershed.

CULTURAL SERVICES

No Action Alternative: This impact would be indirect, major, permanent, and adverse. This alternative would not benefit public safety within the watershed and therefore would not improve cultural services. Watershed residents would continue to be displaced during flood events, and they would continue to be stressed about damage to their homes and belongings as well as potential threats to their lives.

Detention Cell with Berm Improvements: This impact would be direct, major, long-term, and beneficial. Cultural services within the watershed would be enhanced by improved public health and safety in the Fremont region. Stress and the financial hardships caused by flooding would be alleviated for residents with the implementation of this alternative.

5.09 CUMULATIVE EFFECTS

Cumulative effects are the combined effects caused by the implementation of the detention cell with berm improvements alternative, and all other past, present, and future actions. This includes both direct and indirect impacts. To understand potential cumulative impacts, the guidelines within the Council on Environmental Quality's "Considering Cumulative Effects under the National Environmental Policy Act" were reviewed.

PAST ACTIONS

The Rawhide Creek Watershed and the surrounding region largely became populated beginning throughout the 1830s-1860s during the westward emigration of settlers following the Platte River. Beginning during this period, land use shifted from native prairie to row crops. Flooding has been an issue to residents of the watershed since the 19th century and a variety of flood reduction efforts have been implemented in the watershed. A series of drainage ditches was constructed in the 1920s, a flood control dam and diversion channel was completed in 1978, and USACE completed a flood hazard mitigation plan for the City of North Bend in 2004.

CURRENT AND REASONABLY FORESEEABLE FUTURE ACTIONS

The effects of climate change can be anticipated to be present within the watershed, causing higher average temperatures and more extreme weather events. Changes in precipitation patterns are unlikely to lead to changes in land use in the region due to the prevalence of

groundwater-based irrigation. In response to climate pressures, it is reasonable to anticipate that adoption of conservation practices by agricultural producers will improve in the future. Climate change may lead to variations in normal streamflow conditions due to changes in precipitation patterns. This could also affect threatened and endangered species that rely on normal streamflow. More extreme weather events may increase the frequency of flooding within the watershed. The proposed alternative design considers variation and allows for additional freeboard, increasing the watershed's overall resiliency to climate change induced flooding events.

It is reasonably foreseeable that the City of North Bend may pursue some of the recommendations of the 2004 USACE study, such as flood proofing buildings or participating in the National Flood Insurance Program (USACE, 2004). The City of Fremont has been slowly growing for several decades and will likely continue to develop. However, it is unlikely that any major conversion of land use away from agriculture will occur in the watershed in the foreseeable future. It is reasonably foreseeable that the City of Fremont will begin to implement nonstructural recommendations around the Fremont Lakes area based on recommendations from the Platte Township – West Fremont Drainage Study FEMA Hazard Mitigation Grant Program (HMGP) Building Resilient Infrastructure and Communities (BRIC) Project Scoping currently underway as a second phase of that project. Additionally, the City of Fremont is currently working to secure funding for the construction of the Elkhorn Township Drainage Improvements project which would reduce the frequent flooding (5- to 10-year events) experience by the southwest portion of the city, including the Lon D. Wright Power Plant.

CUMULATIVE EFFECTS BY RESOURCES

Table 23 provides a summary of the cumulative effects on the resource concerns identified previously in the Plan-EA.

Table 23: Cumulative Effects on Resource Concerns

Item or Concern	Past Action	Present Action	Proposed Action	Future Action	Cumulative Effect
Soil Resources					
Land Use	Conversion from prairie to farmland	Ongoing use of farmland for agricultural production	Conversion of 300 acres of farmland to perennial vegetation for construction	Protection of farmland from flooding damage	Action will protect farmland and allow continued agricultural production
Prime & Unique Farmland	Development of prime and unique farmland for	Ongoing use of farmland for agricultural production	Conversion of 122 acres of prime and unique	Protection of prime and unique farmland	Action will protect farmland and allow continued

Item or Concern	Past Action	Present Action	Proposed Action	Future Action	Cumulative Effect
	agricultural production		farmland for construction	from flooding damage	agricultural production
Water Resources					
Surface Water Quantity	Development and agricultural use of the region resulted in channelization of streams and depletions of flows to the Platte River	Ongoing development and maintenance of the channelized streams.	Action will result in no depletions to the Platte River and will reduce peak flows during floods	Other potential actions being investigated by the City of Fremont would further detain and reduce peak flows during floods	Less floodwater would spread overland beyond existing channels and more water would return to the Platte and Elkhorn Rivers.
Surface Water Quality	Development and agricultural use of the region introduced pollutants to surface waters	Ongoing development and agricultural production continue to harm water quality	Detention cell will capture pollutants in floodwater, improving downstream water quality	Ongoing development and agricultural production continue to harm water quality	Minor beneficial effect on surface water quality during flooding conditions
Groundwater Quantity	Development of the region resulted in minor fluctuations in groundwater levels	Ongoing development will continue to withdraw groundwater	Detention cell will present limited opportunities for groundwater recharge	Continued development will continue to withdraw groundwater	Minor beneficial effect on groundwater recharge potential in the region
Groundwater Quality	Development of the region introduced agricultural pollutants to groundwater	Ongoing agricultural production continues to introduce pollutants to groundwater	Land use change due to construction will slightly reduce pollutant loading	Major land use changes are unlikely and agricultural production will continue to harm groundwater	Minor beneficial effect, but pollutant loading will largely continue at current rates
Wetlands	Development of the region led to loss of wetlands	Regulations protect wetlands from further loss	Net creation of new wetland areas in the watershed	Continued protection of wetlands	Overall increase of wetland habitat in the watershed
Regional Water Management Plans	Creation of agencies to	Cooperative planning	Consistent with goals of	Potential changes to existing plan	Alternative will comply with current

Item or Concern	Past Action	Present Action	Proposed Action	Future Action	Cumulative Effect
	govern water resources	efforts ongoing	existing plans	goals over time	regional water management plans
Floodplain Management	Development of the region restricted / disconnected floodplains	Floodplain management is closely regulated	Will reduce extents and depths of flooding	Potential alterations of regulatory floodplain	Potential reduction in regulatory floodplain size, beneficial for watershed residents
Plant & Animal Resources					
Fish and Wildlife (Including Coordination Requirements)	Loss of habitat due to development of the region	Remaining habitat is protected	Will provide additional new habitat by removing cropland from production	Improved fish and wildlife habitat	Overall increase in fish and wildlife habitat
Threatened and Endangered Species	Loss of habitat and population due to development	Protection of T&E species by state and federal agencies	Will avoid / minimize potential impacts to T&E species	Continued protection of T&E species and increase in available habitat	No adverse effect on T&E species
Invasive Species	Introduction of invasive species due to development	Regulation and control of invasive species	Will avoid / minimize potential spread of invasive species	Continued regulation and control of invasive species	No adverse effect to invasive species
Migratory Birds & Eagles	Loss of habitat due to development	Regulation and protection of species	Will avoid / minimize potential impacts	Continued regulation and protection	Net increase in habitat due to cropland conversion
Ecologically Critical Areas	Changes in land cover due to development	Regulation and protection by agencies	Will not harm ecologically critical areas	Continued regulation and protection	No adverse effect on ecologically critical areas
Fish & Wildlife Habitat					
Forest Resources	Loss of forested areas due to land cover change	Scattered groups of trees throughout the	Removal of individual trees necessary	Number of trees in the watershed likely to remain	Negligible cumulative effect.

Item or Concern	Past Action	Present Action	Proposed Action	Future Action	Cumulative Effect
		watershed, no cohesive forests	for construction	relatively stable	
Riparian Areas	Loss of riparian areas due to development and channelization of streams	Degraded riparian areas exist throughout the watershed	Will result in the net creation of new additional riparian areas	Implementation of additional flood reduction measures may create more riparian areas	Positive effect by creating new riparian areas
Human Resources					
Flood Damage	Development within floodplains leading to flood damages	Continued inhabitation of flood prone areas	Reduction of flooding damages to existing developed areas	Further implementation of flood reduction measures	Proposed action will work in tandem with other flood control measures to reduce damages
Costs	Development within floodplains leading to flood-related costs	Continued flooding damages and costs	Reduction of flood-related costs	Further implementation of flood reduction measures will reduce flood-related costs	Proposed action will work in tandem with other flood control measures to reduce flood-related costs
Historic Properties & Cultural Resources	Protection of historic properties & cultural resources by various agencies	Ongoing flooding has the potential to damage cultural resources	Construction would not damage any sites deemed eligible for NRHP	Reduced risk of flooding damage to downstream cultural resources	No anticipated adverse effect on cultural resources
Environmental Justice, Civil Rights, and Social Issues	Protection of environmental justice & civil rights by government	Flooding exacerbates known environmental justice issues	Will provide flood protection to populations at risk of environmental justice issues	Further implementation of flood reduction measures will continue to protect populations at risk	Reduced disproportionate flooding impacts on identified populations at risk
Local & Regional Economy	Development of agriculture	Flood damages	Will reduce flood	Further implementati	Improved opportunities

Item or Concern	Past Action	Present Action	Proposed Action	Future Action	Cumulative Effect
	dependent economy	harm economic growth	damages to agricultural land and urban areas	on of flood reduction measures will reduce flooding damages	for economic growth
Public Health & Safety	Development within floodplains leading to threats to health & safety	Ongoing threats due to flooding	Will reduce flood damages, improving health & safety	Further implementation of flood reduction measures will improve health & safety	Improved health & safety due to reduced flooding threat
Recreation	Development of recreation areas within flood prone areas	Recreation continues in flood prone areas	Will improve access to downstream recreation sites during flooding	Further implementation of flood reduction measures will improve access during flooding	Overall benefit to recreation in the region by reducing flood impacts
Scenic Areas, Natural Areas, & Parklands	Development of parks within flood prone areas	Ongoing flood damages to parks	Will reduce the risk of flood damage and increase overall natural areas due to land use change	Further implementation of flood reduction measures will reduce the risk of flood damage to parks	Overall benefit by reducing flood impacts
National Parks, Monuments, and Historical Sites	Westward migration creates historic trails	Some portions of trails are preserved	Will not impact historic trails	Other actions will be assessed individually to determine their impact	No effect on historic trails

5.10 POSSIBLE CONFLICTS WITH PLANS AND POLICIES

A review of available regional water management plans and coordination with the Sponsor and City of Fremont shows that there are no anticipated conflicts with currently available plans or policies, and that the detention cell with berm improvements alternative is consistent with each regional water management plan.

5.11 RISK AND UNCERTAINTY

To estimate cost and benefits for the alternatives includes consideration of risk factors and uncertainty values that could affect the project in the future. The alternative cost and benefits were based on an evaluated life of 100 years. Engineering estimates were used for cost and included contingencies to help account for unforeseen circumstances and risk. Estimated project costs and benefits may change due to factors outside of the control of the Sponsor. The basis for the engineer's estimate is a combination of similar project experience and professional judgement.

Climate change is expected to result in increased heavy precipitation and runoff events nationally, including Nebraska (UNL, 2014), which is likely to lead to increases in flood frequency, intensity, or water volumes. The design of the detention cell with berm improvements alternative considers some variation and allows for additional freeboard. This alternative increases the watershed's resiliency to climate change induced flooding events.

5.12 PRECEDENT FOR FUTURE ACTIONS WITH SIGNIFICANT IMPACTS

The actions required to implement the proposed alternative do not set a precedent for future actions in the watershed that would cause significant impacts. Any other projects similar in nature and vision would be evaluated under their own standalone study.

5.13 CONTROVERSY

The City of Fremont has experienced flooding damage repeatedly since its founding. Property owners are aware of the intent to reduce flood risks and there were no significant concerns voiced during public meetings or community meetings held throughout the planning process. The proposed alternative is not controversial.

5.14 ALTERNATIVE SUMMARY AND COMPARISON

Table 24 provides a summary of the environmental consequences identified for the No Action Alternative and the detention cell with berm improvements alternative discussed throughout Chapter 5. This summary includes resource concerns identified in Chapter 2 and detailed in Chapter 3.

Table 24: Summary and Comparison of Selected Alternatives Impacts on Resource Concerns

Item or Concern	No Action Alternative	Detention Cell with Berm Improvements Alternative
Alternative Description	Most likely future condition if no alternatives are implemented.	Construct an excavated detention cell in conjunction with berm improvements and a road raise.

Item or Concern	No Action Alternative	Detention Cell with Berm Improvements Alternative
Installation Cost		
NRCS Contribution	$0	$27,896,000
Sponsor Contribution	$0	$9,933,000
Total	$0	$37,829,000
Soil Resources		
Land Use	No changes to existing land uses.	Would convert approximately 300 acres of cropland to perennial vegetation. Minor adverse effect.
Prime & Unique Farmland	Minor adverse impact. Potential for continued flood damage to prime and unique farmland.	Permanent conversion of 122 acres necessary for construction. Negligible effect per consultation.
Water Resources		
Waters of the United States & Clean Water Act	No effect. No placement of fill in any streams or waterbodies.	Minor adverse impact. Mitigation would be required due to 0.095 acres of stream impacts and 7.494 acres of wetland impacts.
Surface Water Quantity	No change to existing quantity conditions, no depletion of flows to the Platte River.	Minor beneficial impact. Reduced peak flows and temporary detention of floodwater. No depletion of flows to the Platte River.
Surface Water Quality	Minor adverse impact. Flooding would continue to degrade surface water quality.	Minor beneficial impact. The detention cell would capture pollutants in floodwater, improving downstream water quality.
Groundwater Quantity	No effect. No change to existing quantity conditions.	Minor beneficial impact. Potential for recharge during flooding conditions.
Groundwater Quality	No effect. No change to existing quality conditions.	Minor beneficial impact. Slight reduction in pollutant loading to groundwater due to land use change.
Wetlands	Minor adverse impact. Potential for continued flood damage to wetlands.	Minor adverse impact due to construction filling and/or removing wetlands. Mitigation would be required and would result in new wetland habitat establishment in the cell bottom.
Regional Water Management Plans	Major adverse impact. Lack of active management would place Fremont under continued risk of flooding damage.	Major beneficial impact. Alternative is consistent with goals of regional water management plans.
Floodplain Management	No effect. No change to existing floodplain conditions.	Major beneficial impact would reduce the extents and depth of flooding up to and including the 100-year interval.
Plant & Animal Resources		
Fish and Wildlife (Including Coordination Requirements)	Major adverse impact. Continued flood damage to various species.	Major beneficial impact. Reduced flood damage and habitat improvements.

Item or Concern	No Action Alternative	Detention Cell with Berm Improvements Alternative
Threatened and Endangered Species	Potential for flooding to damage habitat for certain species.	Conservation measures would be followed to minimize potential adverse impacts.
Invasive Species	Potential for invasive species to spread via flooding.	Best management practices would be used to minimize potential adverse impacts caused by construction activities.
Migratory Birds & Eagles	Potential for habitat loss due to flooding.	Negligible impact. Alternative would comply with the MBTA and Bald and Golden Eagle Protection Act.
Ecologically Critical Areas	Continued threat of flooding destroying ecologically critical areas.	No effect due to construction. Reduced threat of flooding.
Fish & Wildlife Habitat		
Forest Resources	Potential for woodland areas to be damaged by flooding.	Minor loss of trees due to construction is anticipated. Negligible effect.
Riparian Areas	Potential for riparian areas to be damaged by flooding.	Creation of new additional riparian areas.
Human Resources		
Flood Damage	Major adverse effect of continued flooding damages.	Major beneficial effect of reduced flooding damages.
Costs	Continued flooding damages estimated at approximately $8,545,605 annually.	Gross benefit of reduced flooding damages estimated at $1,315,800 annually.
Historic Properties & Cultural Resources	Potential damage to NRHP properties from flooding.	Construction would not damage any sites deemed eligible for NRHP. No anticipated negative cumulative effects to historic properties.
Environmental Justice, Civil Rights, and Social Issues	Affected populations would continue to be disproportionately at risk of flooding impacts.	Reduced disproportionate impacts due to flooding to identified at-risk populations in Fremont.
Local & Regional Economy	Continued economic burden to residents due to flooding.	Reduced flooding damages would provide economic benefits.
Public Health & Safety	Continued threats from flooding.	Reduced threats to public health and safety due to reduced likelihood of flooding.
Recreation	No change to existing conditions.	Improved access to recreation sites due to reduced road closures caused by flooding.
Scenic Areas, Natural Areas, & Parklands	Potential flooding damage to Fremont Lakes.	Reduced risk of flood damage to Fremont Lakes. Increase in overall natural areas due to change in land use.
National Parks, Monuments, and Historical Sites	No effect.	No effect.
Ecosystem Services		
Provisioning	Continued flooding damage to agricultural lands.	Protection of agricultural areas resulting in enhanced provisioning services.
Regulating	No regulation of flooding, continued risk of damages.	Enhanced services via regulation of flood damages.

Item or Concern	No Action Alternative	Detention Cell with Berm Improvements Alternative
Cultural	Continued flood risks to public safety.	Reduced risks to public safety.

CHAPTER 6. CONSULTATION, COORDINATION, AND PUBLIC PARTICIPATION

This chapter contains information on the involvement of the public and agencies as stakeholders in the development of this plan. In addition to the meetings detailed here, there was regular coordination between the SLO (Dodge County), USACE, and NRCS throughout the duration of the planning period.

The USACE is a cooperating agency for this NEPA document and will use the analysis to assist in project review for meeting requirements for Section 404 of the Clean Water Act. Supporting information on impacts to wetlands and other aquatic resources (including avoidance, minimization, and mitigation measures) is provided in Appendix E.

As previously noted, the detention cell with berm improvements alternative would affect wetlands within the watershed. For wetlands that could be converted to a commodity crop, Dodge County, landowners, and producers have been informed and are aware of the potential effect of the wetland conversion provisions and of the actions needed to avoid loss of program benefits according to the Food Security Act (FSA).

Consultation with the State Historic Preservation Officer (SHPO) and nation-to-nation consultation with appropriate federally recognized Tribal governments regarding cultural resources and sacred and cultural sites and other resource and economic concerns has taken place through development of this Plan-EA under the National Historic Preservation Act, Section 106, as amended.

NOTE: cultural resources correspondence is ongoing, and this section will be updated as that process is completed. Any letters or other information will be added to Appendix A.

The USFWS and NGPC have been consulted regarding potential impacts to threatened and endangered species.

NOTE: threatened and endangered species correspondence/consultation is ongoing, and this/other sections will be updated as that process is completed. All letters or other information will be added to Appendix A.

6.01 AGENCY SCOPING MEETING – NOVEMBER 18, 2021

An agency scoping meeting was held with representatives from Dodge County, the City of Fremont, Natural Resources Districts, NRCS, NDOT, USACE, NGPC, NDEE, EPA, and NeDNR. Discussion at this meeting. Discussion at this meeting centered on an overview of the project area watersheds, purpose and need, anticipated types of alternatives, project schedule, and next steps. The agency mailing list is included in Table 25, and the Tribal mailing list is included in Table 26. This meeting gave attendees an overview of the WFPO program, and details about the

study area and planning process and schedule. This overview was followed by a roundtable discussion in which each agency was given the opportunity to share their agency's point of interest in the watershed, any pertinent information they may have, and any concerns.

Table 25: Agency Mailing List for First Scoping Meeting

Ames Diking and Drainage District	Nebraska State Historic Preservation Office
Bureau of Reclamation, Nebraska-Kansas Area Manager	North Bend Drainage District
City of Fremont	Office of the Governor
City of North Bend	Omaha Public Power District
City of Schuyler	Papio-Missouri River NR
Colfax County	Platte Township
Cotterell Diking and Drainage District	Riverview Shores-North Bend
Dodge County	Rod and Gun Club
Elkhorn Township	SID #3 - Lake Ventura
FEMA	SID #5 - Timberwood
Fremont Leisure Lake 11	SID #5 - Timberwood
Lower Elkhorn NRD	United States Army Corps of Engineers
Lower Platte North NRD	US Environmental Protection Agency
National Park Service	US Fish and Wildlife Service
Nebraska Department of Environmental Energy	US Geological Survey
Nebraska Department of Natural Resources	USDA-NRCS Nebraska - State Office
Nebraska Department of Transportation	Village of Inglewood
Nebraska Game and Parks Commission	Willow wood Lakes

Table 26: Tribal Mailing List for First Scoping Meeting

Apache Tribe of Oklahoma
Omaha Tribe of Nebraska
Otoe-Missouria Tribe of Oklahoma
Cheyenne Arapaho Tribes of Oklahoma
Pawnee Nation of Oklahoma

6.02 PUBLIC MEETING – NOVEMBER 18, 2021

A public open house meeting was held in Fremont with representatives of the project team and was attended by residents of the watershed. A presentation was provided to the group with information concerning the study area, flooding issues, purpose and need, anticipated types of alternatives, project schedule, and next steps. Attendees were encouraged to provide feedback and information about past flooding events and proposed solutions.

6.03 PUBLIC MEETING – APRIL 4, 2022

A public open house meeting was held in North Bend with representatives of the project team and was attended by residents of the watershed. Information was provided about the study area, purpose and need, and types of alternatives being considered. Attendees were encouraged to provide feedback and information about past flooding events and proposed solutions.

6.04 PUBLIC MEETING – SEPTEMBER 6, 2023

A public open house was held in Fremont to give residents of the watershed an opportunity to learn about the progress of the study and collect their input on the proposed alternatives. This open house was advertised through flyers and news articles. Comments were collected verbally in-person, and through written forms.

6.05 COORDINATION AND CONSULTATION WITH USFWS AND NGPC

NRCS invited both U.S. Fish and Wildlife Service (USFWS) and the Nebraska Game and Parks Commission (NGPC) to participate in the November 18, 2021, agency scoping meeting. NGPC provided a list of species to consider and offered guidance on alternatives to consider in planning in a letter dated December 17, 2021 (see Appendix A).

NRCS held an informal conference meeting with USFWS and NGPC for Endangered Species Act (ESA) Section 7 and Nebraska Nongame and Endangered Species Act (NESCA) preliminary consultation on November 1, 2023. The meeting was held to describe the project alternatives and discuss the initial findings of impacts on listed species. These initial determinations are presented in Chapter 5 of this Plan-EA. All the involved agencies agreed on the list of species discussed in Chapter 3 of this Plan-EA. Potential Platte River depletion issues were also discussed. Both agencies declined to provide opinions on the determinations of effect during the planning stage, and requested that a Biological Assessment be prepared during the design phase of the project and submitted for further consultation.

NRCS submitted a P.L. 83-566 Section 12 consultation request to USFWS on October 21, 2024.

NRCS, USFWS, and NGPC held a project coordination meeting on October 29, 2024, to discuss multiple watershed projects including the Rawhide Creek watershed Plan-EA. During the meeting the agencies discussed the next steps in the consultation process, including submitting an informal consultation letter after the plan has been reviewed by the NRCS National Water Management Center.

NRCS submitted an informal consultation letter to USFWS and NGPC on [INSERT DATE – NOTE: USFWS and NGPC prefer that we wait to submit our consultation letter until after NWMC review in case there are major changes that need to be made to the alternatives]

6.06 NHPA SECTION 106 CONSULTATION

Per 36 CFR 800.2, NRCS identified potential consulting parties for NHPA Section 106 consultation, including the Nebraska State Historic Preservation Office (NeSHPO) and Indian tribes that might attach religious and cultural significance to historic properties within the watershed boundaries in the early stages of planning. On October 19, 2021, NRCS sent letters to the Tribal representatives listed in Table 26 to inform them of the project and invite them to consult with NRCS on concerns related to Section 106 of the NHPA. The letter also included an invitation to the November 2021 agency scoping meeting. NRCS received a response to the letter from the Pawnee Nation Tribal Historic Preservation Officer (THPO) on December 8, 2021, requesting to be involved with planning efforts for this project and identifying the presence of at least one known Pawnee village site and two other archaeological sites associated with the Pawnee Nation within the watershed.

After the cultural resources inventory was complete, NRCS sent NHPA Section 106 consultation request letters on October 16, 2024, to NeSHPO, National Park Service, the Tribes listed in Table 26, the Ponca Tribe of Nebraska, the Ponca Tribe of Oklahoma, and the Oregon and California Trail Association. The consultation letter presented the proposed alternatives, the area of potential effect, the historic property identification efforts, the determinations of eligibility, and the determination of effect. Copies of the cultural resources inventory report, site forms, and maps of the APE were submitted with the consultation letter to support the determination of effect.

NOTE: A summary of the comments received, and actions taken after NWMC plan review will be included here.

6.07 COORDINATION WITH USACE

NRCS invited the U.S. Corps of Engineers (USACE) to be a cooperating agency on the Rawhide Creek in a letter dated April 20, 2021. USACE accepted the invitation to be a cooperating agency and assigned Project ID NWO-2021-00837-WEH. A copy of the acceptance letter could not be found in the files, so NRCS sent a follow-up invitation on July 1, 2024. USACE provided a new acceptance letter on July 8, 2024 (see Appendix A).

USACE was invited to participate in scoping meetings, 30% review, 60% review, and 90% review meetings. Additionally, NRCS, USACE, Dodge County, JEO Consulting Group, Inc., and the LPNNRD met on February 13, 2024, to review the wetland delineation results and Clean Water Act permitting requirements.

6.08 INTERAGENCY AND PUBLIC REVIEW

NOTE: A summary of the comments received and actions taken after interagency and public review period will be included here.

CHAPTER 7. PREFERRED ALTERNATIVE

7.01 RATIONALE FOR THE PREFERRED ALTERNATIVE

Of the alternatives considered, the detention cell with berm improvements alternative meets the project purpose and need, provides the most ecosystem service benefits, best meets the Federal Objective, is the locally preferred alternative, and provides a positive monetary benefit to cost ratio. Economic tables are provided at the end of this chapter, and additional information concerning alternatives analysis is available in Chapter 4 and Appendix D.

7.02 MEASURES TO BE INSTALLED

The preferred alternative consists of three pieces that would co-function to provide flood damage reduction to Fremont and the surrounding area. At site L1-1, a berm would be constructed along the eastern bank of the existing Brush Creek Dam outfall for a length of approximately 1 mile to prevent floodwater from overtopping the existing ditch. At site L1-2, Cutoff Road, which parallels an existing drainage ditch, would be raised for a distance of approximately 2.3 miles to prevent floodwater from overtopping the road, reducing agricultural flooding damages and the detention volume needed in the detention cell (Site DC1-13A). Site DC1-13A is composed of two holding areas and a connecting channel. The northern holding area is located at the upstream end of the existing Merlyn England diversion channel. This site would consist of excavating 125 acres to provide for a ponding depth of 5.4 ft to provide temporary detention of floodwaters that could then be released over time, reducing flooding in Fremont. The southern holding area consists of a similar excavation of 157 acres for a ponding a depth of 4.9 ft to provide temporary detention of floodwaters that could then be released over time, reducing flooding in Fremont. The two holding areas of the detention cell would be connected via a 10-foot-wide channel which provides redundancy between the different drainage subwatersheds and helps regulate peak flows leaving the system. Note that all of these measures are interdependent to function as a complete alternative. The measures cannot function as designed independently and will only provide the designed level of flood protection if constructed interdependently.

Details are provided in the Structural Tables at the end of this chapter. A geologic/geotechnical investigation has been performed in support of the planning stages of the preferred alternative. Further detailed geotechnical investigation as necessary will be completed during the design phase of the project. Additional information including geologic and seismic analysis is available in Appendix D, and maps and drawings are provided in Appendix C. Note that technical and financial assistance for the implementation of the preferred alternative is limited and would be provided only when it contributes to achieving the project's objectives. Participation in the WFPO program is voluntary and the Sponsor would make the final decision on what measures would be implemented.

Each of the works of improvement would abide by the design requirements of at least one NRCS Conservation Practice Standard (CPS). For the purposes of planning and environmental review the following Nebraska CPS codes were identified as potentially applicable to the components of the preferred alternative; however, final determination would be made during the design phase.

- CPS 326: Clearing and Snagging
- CPS 342: Critical Area Planting
- CPS 356: Dike and Levee
- CPS 402: Dam
- CPS 410: Grade Stabilization Structure
- CPS 460: Land Clearing
- CPS 560: Access Road
- CPS 572: Spoil Disposal
- CPS 580: Streambank and Shoreline Protection
- CPS 582: Open Channel
- CPS 584: Channel Bed Stabilization

SITE L1-1

Site L1-1 consists of a new embankment constructed on top of an existing berm with the purpose of preventing flows from flanking around the north side of Cutoff Ditch Road. The new embankment would consist of a 10-foot wide top with 3:1 side slopes. The average height of the berm would be 6.5 feet, and it would run for nearly one mile in length. Additional information is available in Appendix D. L1-1 and L1-2 are interdependent to prevent floodwater from leaving the existing channel and causing overland flooding.

SITE L1-2

Site L1-2 consists of raising Cutoff Ditch Road to tie-in with the raised embankment constructed at site L1-1. The road raise would follow the path of the existing Cutoff Ditch Road and would include a 25-foot top width and 3:1 side slopes. The average height of the road raise would be 3.8 feet and it would run for approximately 2.3 miles in length. Additional information is available in Appendix D. L1-1 and L1-2 are interdependent to prevent floodwater from leaving the existing channel and causing overland flooding.

SITE DC1-13A

This site consists of a detention cell composed of two holding areas connected by a regulating channel. The detention cell is designed to NRCS TR-60 standards. The northern holding area would be formed by expanding an existing diversion project by increasing the berm height and excavating additional floodwater storage. This northern holding area would have an average depth of approximately 5.4 ft, would cover an area of approximately 125 acres, and would be ringed by a berm approximately 6.6 feet high on average. The southern holding area would be

formed by new excavation. This portion of the detention cell would have an average depth of 4.9 ft, would cover an area of approximately 157 acres, and would be ringed by a berm approximately 8 feet high on average. Additional information is available in Appendix D and Structural Table 3.

The northern and southern holding areas would be connected via a 10-foot-wide channel with confining berms which allows the overall detention cell to hold a greater volume of water from variable sources and provides additional redundancy and flood resiliency to the watershed. The detention cell would temporarily detain floodwater and release it over time, reducing peak flows and erosive potential downstream. During a flood event, floodwater would overflow from the existing channel and backfill into the excavated detention areas. A controlled outlet structure would allow a metered outflow of floodwater to continue through the existing channels downstream of the detention cell without overwhelming the downstream infrastructure and causing flooding. All temporarily detained floodwater would be drained from the detention cell within 24-72 hours, depending on the magnitude of the flood event. Under normal, non-flooding conditions, downstream hydrology would be maintained, and flows would remain in the current channel.

The Fremont Municipal Airport was consulted regarding construction of the detention cell as the cell is located just over a mile northwest of the airport, but is in line with the runway. The Airport Authority and City Engineering Department reviewed the proposed plans and concluded that the detention cell and other measures would be acceptable to the airport. A consultation letter is included in Appendix A.

7.03 MITIGATION AND CONSERVATION

Impacts to existing natural resources and historic properties due to the installation of this project were identified in Chapter 5. All adverse impacts were avoided and minimized to the greatest extent practicable. The remaining impacts to streams and wetlands would require mitigation. In-field surveys, paired with other existing data were utilized to determine mitigation needs. Mitigation quantities for each resource were based on input from NRCS resource specialists and USACE Regulatory requirements. Land required for mitigation would be located at or near the alternative sites and would be acquired by the Sponsor for the duration of the project life. All necessary mitigation plans would be developed as part of the design phase, prior to construction.

The project would be reviewed by USACE under CWA Section 404. It is anticipated that the road raise and berm improvements would be permitted under a Nationwide Permit, while the detention cell would be permitted under an Individual Permit. All impacts are necessary to build these sites to meet current NRCS design standards. This project complies with the Food Security Act by not making wetland areas easier to farm than they currently are, nor does it convert any wetlands to farmland. This project complies with Executive Order 11990 by adequately replacing impacted wetlands with new wetlands of appropriate size and function. Additional information is included in Appendix E.

WETLAND MITIGATION

Implementation of the preferred alternative would cause permanent wetland impacts. The Cutoff Ditch Road Raise and Brush Creek Dam Berm Outfall improvements, composed of sites L1-1 and L1-2, avoid all impacts entirely. The detention cell (site DC1-13A) minimized impacts to the greatest extent possible by limiting grading extents to avoid existing wetlands and constructing berms through interrupted wetlands to prevent them from draining into the excavated detention cell areas. All remaining impacts would be necessary for the structures to meet current NRCS design standards.

Some wetlands impacted by the proposed alternative may not be under USACE jurisdiction. A Jurisdictional Determination would be completed during the design and permitting phase of the future project. If any wetlands are found to not be under USACE jurisdiction, a Functional Assessment would be performed to determine final mitigation needs for any wetlands under NRCS jurisdiction. This would ensure the project complies with Executive Order 11990 by adequately replacing impacted wetlands with new wetlands of appropriate size and function.

These impacts would be mitigated by creating new additional wetlands of the appropriate Nebraska subclass and function onsite in the bottom of the detention cell. Mitigation ratios are anticipated to be 3:1 based on guidance received from USACE. This ratio accounts for both potential USACE Clean Water Act and NRCS Executive Order 11990 mitigation needs. Mitigation ratios would be subject to change during the final design and permitting of this project. In total, the preferred alternative would require an estimated 22.482 acres of wetland mitigation. Additional information is provided in Appendix E.

The Fremont Municipal Airport was consulted regarding creation of wetlands within the detention cell as it is located just over a mile northwest of the airport, but is in line with the runway. The Airport Authority and City Engineering Department reviewed the proposed plans and concluded that the creation of wetlands in the detention cell would be acceptable to the airport as long as potential wetland mitigation is done in the western portion of the cell bottom so as to not increase the potential for wildlife within the flight paths of the airport. A consultation letter is included in Appendix A.

STREAM MITIGATION

Implementation of the preferred alternative would cause permanent stream impacts. The Cutoff Ditch Road Raise and Brush Creek Dam Berm Outfall improvements, composed of sites L1-1 and L1-2, avoid all impacts entirely. The detention cell (site DC1-13A) avoided the majority of impacts by not grading below the ordinary high water mark throughout the bottom of the detention cell area. However, unavoidable stream impacts would occur at locations where the outlet structures

would be installed. All impacts are necessary to build these sites to meet current NRCS design standards.

The Nebraska Stream Condition Assessment Procedure (NeSCAP) was performed on the impacted stream segments. NeSCAP was performed at the two locations where stream channels were impacted. Both impacted locations are where the outlet structures of the detention cell would be installed. Installation of these features would necessitate fill placement in the existing stream channel, resulting in negative impacts to the channel. The NeSCAP results indicate that channel mitigation would be required to offset these impacts. NeSCAP documentation is available upon request.

Mitigation would occur within the footprint of the detention cell site DC1-13A along the existing stream reaches. NeSCAP would be utilized to evaluate mitigation actions, ensuring they improve the functionality of the existing stream channels. Potential mitigation activities may include, but are not limited to, establishment of riparian vegetation, improvements to in-stream habitat and cover, floodplain reconnection, channel shaping and/or increase of sinuosity, and improvement of riparian buffers.

CONSERVATION MEASURES

Conservation measures would be implement to prevent, avoid, and minimize potential adverse impacts to certain threatened and endangered species, migratory birds, and invasive species. For threatened and endangered species, conservation measures include construction timing, biological surveys, and approved seeding plans. For migratory birds, conservation measures include surveys and construction timing. For invasive species, conservation measures include approved seeding plans and proper cleaning / decontamination of transported equipment.

7.04 PERMITS AND COMPLIANCE

The following items have been identified which the proposed alternative may need to comply with:

- USACE
  - Clean Water Act, Section 404 (regulatory program)
- NeDNR
  - Dam Safety Review (if applicable)
  - Water Storage Permit (if applicable)
- NDEE
  - Dust Control Title 129 - Nebraska Air Quality Regulations, Chapter 15 Section 003
  - Solid Waste Management; Nebraska Title 128 and Title 132
  - National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit

- Fish and Wildlife Coordination Act PL 116-188
  - USFWS notified of planning project per PL 83-566, Section 12
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act
- Endangered Species Act
  - The only concurrence being provided for the Plan-EA by both agencies is for NEPA, as it relates to identifying significant impacts.
  - Further consultation with USFWS and NGPC will be initiated after design is complete. A Biological Assessment will be required at that time.
- Fish and Wildlife Coordination Act
- Nebraska Nongame and Endangered Species Conservation Act
- Floodplain Management
  - Local floodplain development permits
  - EO 11988
  - EO 13690/14030, Federal Flood Risk Management Standard
- National Historic Preservation Act
  - Consultation with Nebraska SHPO and Federally Recognized Tribes
  - Determination of No Historic Properties Affected
  - No objections to the determination of effect were received
  - Completed NHPA Section 106 responsibilities, further information is available in Appendix E.
- National Environmental Policy Act
- Operation, Maintenance, and Replacement (OM&R) plans for each structure

7.05 COSTS AND COST SHARING

Cost descriptions are summarized in Economic Table 1 and Economic Table 2. Additional details are available in Appendix D.

CONSTRUCTION

Construction costs are the total of all costs required to build the proposed project. This includes all components of the project from initial contractor mobilization through final seeding, fencing, and mitigation activities.

ENGINEERING

Engineering costs include all elements of the preferred alternative design, such as permitting (including mitigation and conservation measures), construction oversight, geological and geotechnical investigation and analysis, and topographic survey. All permitting costs are the responsibility of the project Sponsor. NRCS would provide funding for remaining engineering-related costs.

REAL PROPERTY ACQUISITION AND EASEMENTS

Approximately 366 acres of permanent real property acquisition, and 242 acres of temporary easements would be required for implementation of the preferred alternative. Easement costs are estimated to be 100% of land value for areas permanently altered. Based on property sales in the region and to ensure a conservative estimate, a value of $15,000 per acre was used for permanent real property acquisition, and $5,000 per acre was used for temporary easements. Costs of legal fees and land appraisals are estimated at 10% of the total land rights costs. The Sponsor is responsible for 100% of these costs.

OPERATION, MAINTENANCE, AND REPLACEMENT

Operation, Maintenance, and Replacement (OM&R) cost estimates are based on previous experience. OM&R costs are estimated to be 0.75% of the total construction cost per year. OM&R is the responsibility of the Sponsor for the evaluated life of the project. However, no costs for replacement of the measures or their components beyond the end of the evaluated life is included.

PROJECT ADMINISTRATION

Project administration costs are based on experience with other projects. Initial estimates were based on 5% of the construction costs and were then updated based on input from the Sponsor. The Sponsor is responsible for 100% of its own project administration costs, which includes items like contract administration, review of materials, progress meetings during design and construction, landowner coordination, etc.

7.06 INSTALLATION AND FINANCING

FRAMEWORK FOR CARRYING OUT THE PLAN

Final design for all sites would occur within two years of plan approval and funding authorization. Construction of sites would occur over a period of 5 years, following funding authorization. Total cost distributions for the project are provided in Table 27.

Table 27: Total Project Cost Distributions

Project Costs	PL 83-566 Funds	Other Funds	Total
Construction	$21,856,300	$987,900	$22,844,200
Engineering	$5,939,700	$0	$5,939,700
Real Property Rights[1]	$0	$7,460,000	$7,460,000
Permitting	$0	$913,900	$913,900
Project Administration	$100,000	$571,200	$671,200
Total	$27,896,000	$9,933,000	$37,829,000

[1]Includes construction costs that are defined as "real property rights" in Title 390-National Watershed Program Manual, Part 506, subpart E, Section 506.50(K)(12).

PLANNED SEQUENCE OF INSTALLATION

Table 28 below provides the approximate timeline for completion of the project. Note that all the projects making up the preferred alternative are interdependent and designed to work in tandem, therefore the full level of flood protection described in this plan would not be achieved until all structures are completed and operational. It is anticipated that construction of all the projects making up the preferred alternative will occur simultaneously to some extent. However, due to the large size of the detention cell, it is recommended that it should be completed first with the berm improvement and road raise projects following. Additionally, excavated materials from the detention cell may be used in construction of the road raise and berm improvements.

Table 28: Project Timeline

Project Step	Timeline
Final design plans and specifications complete	2025
Obtain USACE Section 404 permit(s)	2025
Secure land rights/easements	2025
Bidding/contracting	2025
Begin construction	2026
Complete construction DC1-13A	2028
Complete construction L1-1 and L1-2	2029

RESPONSIBILITIES

The project Sponsor is responsible for land rights and easements, permits and compliance as outlined in Section 7.04, and the costs outlined in the previous sections of this chapter. The Sponsor has analyzed the financial needs of this project and would be able to make funds available, as necessary. The NRCS would provide federal funds for construction of the preferred alternative through the WFPO program. The availability of those federal funds is contingent on appropriations being made available for this purpose. The Sponsor would have a financial management plan in place before receiving federal funds.

CONTRACTING

Implementation of the preferred alternative would be accomplished using binding contract agreements between the NRCS and the Sponsor.

REAL PROPERTY AND RELOCATIONS

The Sponsor would need to permanently acquire approximately 366 acres of real property, and an additional 242 acres of temporary easements, to construct the preferred alternative. No relocations would be required.

OTHER AGENCIES

No other federal agencies are required or anticipated to provide assistance with the implementation of this plan.

CULTURAL RESOURCES

No protection, preservation, recovery, or any other mitigation activities to reduce adverse effects to historic properties is required. If any evidence of cultural resources is encountered during the construction of the preferred alternative, all activities would be halted immediately and NRCS would proceed in accordance with the regulation on post-review discoveries (36 CFR § 800.13) by following the procedures outlined in Appendix D.

FINANCING

Costs outlined in the previous sections of this chapter are the responsibility of the Sponsor. The Sponsor can levy taxes and issue bonds for the purposes of financing projects. The Sponsor also has the option of using eminent domain, but this option should be avoided if possible.

CONDITIONS FOR PROVIDING ASSISTANCE

The total cost to implement the preferred alternative is $37,829,000. Of this amount, $27,896,000 would be provided by the NRCS through the WFPO program. The remainder ($9,933,000) would be provided by the project Sponsor. Note that Federal financial assistance is dependent on appropriations for the purposes of this project.

7.07 OPERATION, MAINTENANCE, AND REPLACEMENT

OM&R includes all activities related to ensuring the structures of the preferred alternative remain in functioning condition. All OM&R activities and costs for the lifetime of the project are the responsibility of the project Sponsor. The estimated average annual OM&R cost is $161,381 (Economic Table 4). Activities may include, but are not limited to, vegetation removal, seeding, rodent management, access maintenance (roads, gates, etc.), and repair of any damage regardless of cause (natural disaster, vandalism, etc.). An OM&R plan would be prepared for each structure, and the structures would be inspected annually. Special inspections should be conducted following major events such as floods. Replacement costs are not necessary as the design life for all structures is equal to the project life.

7.08 ECONOMIC AND STRUCTURAL TABLES

The results of the economic analysis for the Preferred Alternative are compared against the damages under the FWOFI and serve as the best estimate of the additional economic value that would be created under the Preferred Alternative. Results are presented using the Economic and Structural Tables (NWPM Part 506, NRCS 2014b) shown below. These tables summarize

installation costs, distribution of costs, and total annual average costs for the Preferred Alternative.

ECONOMIC TABLE 1: ESTIMATED INSTALLATION COST OF THE PREFERRED ALTERNATIVE

Works of Improvement	Federal Land (ac)	Non-Federal Land (ac)	Total (ac)	Public Law 83-566 Funds (Non-Federal land)	Other Funds (Non-Federal land)	Total
L1-1 & L1-2	0	26	26	$3,605,000	$1,524,700	$5,129,700
DC1-13A	0	340	340	$24,291,000	$8,408,300	$32,699,300
Total	**0**	**366**	**366**	**$27,896,000**	**$9,933,000**	**$37,829,000**

ECONOMIC TABLE 2: ESTIMATED PREFERRED ALTERNATIVE COST DISTRIBUTION

Works of Improvement	Engineering[1]	Administration[1]	Construction[1]	Total PL 83-566[1]	Property Rights[2]	Administration[2]	Construction[2]	Permitting[2]	Total Other[2]	Total
L1-1 & L1-2	$886,900	$25,000	$2,693,100	$3,605,000	$585,000	$85,300.00	$717,900	$136,500	$1,524,700	$5,129,700
DC1-13A	$5,052,800	$75,000	$19,163,200	$24,291,000	$6,875,000	$485,900.00	$270,000	$777,400	$8,408,300	$32,699,300
Total	**$5,939,700**	**$100,000**	**$21,856,300**	**$27,896,000**	**$7,460,000**	**$571,200**	**$987,900**	**$913,900**	**$9,933,000**	**$37,829,000**

1) PL 83-566 Funds
2) Sponsor Funds

STRUCTURAL TABLE 3: DAMS WITH PLANNED STORAGE CAPACITY

	DC1-13A
Hazard Class of Structure	High
Seismic Zone	1
Uncontrolled Drainage (sq mi)	9.92
Controlled Drainage (sq mi)	NA
Total Drainage (sq mi)	9.92
Runoff Curve No.	81
Time of Concentration (hr)	6.5
Top of Dam Elev. (ft)	1,211.8
Aux. Spillway Crest Elev. (ft)	1,206.9
Princ. Spillway Top Weir Elev. (ft)	1,198.3
Princ. Low Orifice/Operating Pool Elev. (ft)	NA
Aux. Spillway Type	Riprap
Aux. Spillway Bottom Width (ft)	300
Aux. Spillway Exit Slope (%)	33
Dam Max. Height (ft)	13.5
Volume of Fill (cu yd)	73,105
Capacity	
Total Reservoir Capacity (ac ft)	1,454.1
Sediment Submerged (ac ft)	0
Sediment Aerated (ac ft)	163.8
Beneficial Use (ac ft)	NA
Floodwater Retarding (ac ft)	1,454.1
Between High and Low Stage (ac ft)	NA
Surface Area	
Sediment Pool Area (ac)	164.38
Beneficial Use Pool (ac)	NA
Floodwater Retarding Pool Area (ac)	384.22
Principal Spillway Design	
Rainfall Volume (1-day) (in)	6.91
Rainfall Volume (10-day) (in)	10.6
Runoff Volume (1-day) (in)	3.76
Runoff Volume (10-day) (in)	NA
Dimensions of Conduit (in)	6'x6' with 1 @ 6'x7'
Type of Conduit	RCB
Frequency Operation-Auxiliary Spillway (% Chance)	0.2%
Auxiliary Spillway Hydrograph	
Hydrograph Rainfall Volume (in)	6.91
Hydrograph Runoff Volume (in)	5.27
Hydrograph Storm Duration (hr)	24
Hydrograph Velocity of Flow (ft/s)	0
Max. Reservoir Water Surface Elev. (ft)	1,207.62
Freeboard Hydrograph	
Rainfall Volume (in)	23.7
Runoff Volume (in)	21.15
Storm Duration (hr)	24
Max. Reservoir Water Surface Elev. (ft)	1,209.9
Capacity Equivalents	

	DC1-13A
Sediment Volume (in)	0.31
Floodwater Retarding Volume (in)	2.75
Beneficial Volume (in)	NA

Prepared February 2025

STRUCTURAL TABLE 3A: DIKES

Levee	Station	Top Width (ft)	Average Side Slope (h:v)	Average Height (ft)	100-yr Frequency Velocity (ft/s)	Levee Protection	Volume of Earth Fill (yd^3)
L1-1	11+71.17 to 63+24.67	10	3:1	6.5	7.8	Fremont Cutoff Ditch	29,960
L1-2	10+67.73 to 133+33.55	25	3:1	3.8	5.5	Fremont Cutoff Ditch	64,065

Prepared August 2024

In addition to the installation costs, the preferred alternative will entail costs associated with operations and maintenance. These costs are included as "Other Direct Costs" in Economic Table 4.

ECONOMIC TABLE 4: AVERAGE ANNUAL COSTS

Works of Improvement	Amortization of Installation Cost	Other Direct Costs[1]	Total
L1-1 & L1-2	$135,100	$22,200	$157,300
DC1-13A	$862,700	$126,600	$989,300
Total	**$997,800**	**$148,800**	**$1,146,600**

Notes: Totals may not sum due to rounding. Prepared: January 2024
Price base: 2024 dollars amortized over 103 years (starting two years after construction begins) at a discount rate of 2.75 percent.
1: Other direct costs include annual operations and maintenance associated with each work of improvement based on 0.75 percent of construction costs.

The impact of the preferred alternative on ecosystem flows and values is shown in Economic Table 5a. The preferred alternative would positively impact regulating services in the watershed by avoided building-related damages In total, the preferred alternative would create average annual gross benefits of approximately $1,315,800 per year.

ECONOMIC TABLE 5A: ESTIMATED AVERAGE ANNUAL FLOOD DAMAGE REDUCTION BENEFITS

Benefit/Avoided Damage	Agricultural- Related	Non-Agricultural- Related
Onsite		
Reduced building-related damages	$339,400	-
Reduced income loss	$860,000	-
Reduced crop damages	$2,800	-
Increased wetland habitat	$113,600	-
Subtotal	**$1,315,800**	**-**
Offsite		
N/A	-	-
Subtotal	**$1,315,800**	**-**
Total Quantified Benefits		
	$1,315,800	**-**

Notes: Totals may not sum due to rounding. Prepared: 2024.
Price base: 2024 dollars amortized over 103 years (starting two years after construction begins) at a discount rate of 2.75 percent.

Using the resulting benefits and costs from the previous two tables, Economic Table 6 presents a comparison of the average annual benefits and average annual costs for the preferred alternative. In total, the preferred alternative will generate average annual benefits of $1,315,800 compared to average annual costs of $1,146,600, for a benefit-cost ratio of 1.1.

For the purposes of incremental analysis, the preferred alternative includes interdependent subcomponents that must be analyzed as one increment. These include the primary flood damage reduction action of the detention cell, and the appurtenant actions of the berm improvements and road raise. Based on flood risk modeling completed to evaluate the effectiveness of the detention cell, this is the primary flood damage reduction action for the City of Fremont. However, completing the detention cell alone allows floodwater to circumvent the detention cell to the north and continue to flow into Fremont. The addition of the berm improvements and road raise prevent floodwater from circumventing the detention cell. These features are inherently appurtenant to the detention cell and function to offset the flooding damage that would occur to Fremont if they did not exist. Therefore, all subcomponents are considered functionally interdependent. This results in a single project increment being considered for the analysis.

ECONOMIC TABLE 6: COMPARISON OF BENEFITS AND COSTS

Works of Improvement	Reduced Building-Related Damages[1]	Reduced Crop Damages[1]	Increased Wetland Habitat[1]	Reduced Business Income & Wage Losses[1]	Total Annualized Benefits	Average Annual Cost	Benefit Cost Ratio
Preferred Alternative	$339,400	$2,800	$113,600	$860,000	$1,315,800	$1,146,600	1.1
Total	$339,400	$2,800	$113,600	$860,000	$1,315,800	$1,146,600	1.1

Notes: Totals may not sum due to rounding. Prepared: 2024.
Price base: 2024 dollars amortized over 103 years (starting two years after construction begins) at a discount rate of 2.75 percent.
1) Agriculture-related benefits

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LIST OF PREPARERS

The Rawhide Creek Watershed Plan-EA was prepared by an interdisciplinary team. The individuals who provided significant input to the plan-EA are included in Table 29. Reviewers who guided development of the Plan-EA are included in Table 30. The draft Plan-EA was reviewed and concurred with by State staff specialists responsible for engineering, soils agronomy, range conservation, biology, cultural resources, forestry, and geology. The document was also reviewed by the NRCS National Watershed Management Center (NWMC). A similar review was also provided by USACE personnel.

Table 29: List of Preparers

Name	Current Title & Tenure (Years)	Education	Other Pertinent Qualifications, Publications, and Professional Licenses
JEO Consulting Group, Inc. Staff			
Colleen Ocken	Project Engineer (5 years)	B.S. Biological Systems Engineering	EI Registration (NE)
Dillon Vogt	Natural Resources Specialist (8 years)	B.S. Water Science, Hydrology; Minor - Mathematics	PH (Professional Hydrologist)
Eric Marrow	Environmental Scientist (8 years)	B.S. Fisheries & Wildlife; Minor - Geography	
John Callen	Senior Project Engineer (19 years)	B.S. Biological Systems Engineering	PE Registration (NE, IA), Certified Floodplain Manager (CFM)
John Petersen	Project Manager / Senior Project Engineer (17 years)	B.S. Civil Engineering	PE Registration (NE, IA, MO)
Justine Cherovsky	Environmental Scientist (2 years)	B.S. Environmental Studies Minor - Fisheries and Wildlife	
Katie Boden	Environmental Scientist (3 years)	B.S. Fisheries & Wildlife; B.S. Environmental Restoration Science	AWB (Associate Wildlife Biologist)
Ross Lawrence	Project Manager (12 years)	B.S. Agricultural Engineering	PE Registration (NE, IA, ID), Certified Floodplain Manager (CFM)

Tyler Westfall	CADD Operator (5 years)	A.A.S. Computer Aided Design Drafting	
BBC Research and Consulting Staff			
Michael Verdone	Economist (13 years)	Ph.D. Natural Resource Economics	
Buried Past Consulting LLC			
Tod Bevitt	Principal Investigator / Archeologist (28 years)	M.A. Anthropology	
Wendi Bevitt	Historian (24 years)	B.A. History	
Thiele Geotech Inc			
Raeanna Thiele	Vice President (10 years)	B.S. Civil Engineering; M.S. Civil Engineering	PE Registration (NE, IA)
Heath Cutler	Project Manager / Senior Project Engineer (16 years)	B.S. Civil Engineering	PE Registration (NE, IA)

Table 30: List of Government Reviewers

Note to Reviewers – Please review, modify, or update the following table as needed.

Name	Current Title	Agency
Merceidez Fabok	Natural Resource Specialist	NE-NRCS
Jordan Rodriguez	Economist	NE-NRCS
Nicole Zimmerman	Hydraulics and Hydrology Engineer	NE-NRCS
Melissa Baier	Assistant State Conservationist-Water Resource and Easements	NE-NRCS
Allen Gehring	State Conservation Engineer	NE-NRCS
Jason Sall	Watershed Construction Engineer	NE-NRCS

DISTRIBUTION LIST

Note: this section will be completed and included in the final environmental assessment (EA)

The Draft Plan-EA was submitted to the NWMC for review. Following this review, and after comments were addressed, the Draft Plan-EA was distributed to the agencies, organizations, and persons identified in Table 31. A public notice was issued stating that the Draft Plan-EA was available for public comment during a 30-day comment period. Agency comments were then evaluated, and a letter of response was sent to each agency. All documentation is available in Appendix A.

Table 31: Distribution List

Agency	Position	Name	Address
Ames Diking and Drainage District			
Bureau of Reclamation, Nebraska-Kansas Area Manager			
City of Fremont			
City of North Bend			
City of Schuyler			
Colfax County			
Cotterell Diking and Drainage District			
Dodge County			
Elkhorn Township			
FEMA			
Fremont Leisure Lake 11			
Lower Elkhorn NRD			
Lower Platte North NRD			
National Park Service			
Nebraska Department of Environmental Energy			
Nebraska Department of Natural Resources			
Nebraska Department of Transportation			
Nebraska Game and Parks Commission			
Nebraska State Historic Preservation Office			
North Bend Drainage District			
Office of the Governor			

Omaha Public Power District			
Papio-Missouri River NR			
Platte Township			
Riverview Shores-North Bend			
Rod and Gun Club			
SID #3 - Lake Ventura			
SID #5 - Timberwood			
SID #5 - Timberwood			
United States Army Corps of Engineers			
US Environmental Protection Agency			
US Fish and Wildlife Service			
US Geological Survey			
USDA-NRCS Nebraska - State Office			
Village of Inglewood			
Willow wood Lakes			
Apache Tribe of Oklahoma			
Omaha Tribe of Nebraska			
Otoe-Missouria Tribe of Oklahoma			
Cheyenne Arapaho Tribes of Oklahoma			
Pawnee Nation of Oklahoma			
Ponca Tribe of Nebraska			
Ponca Tribe of Oklahoma			

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Nebraska Game and Parks Commission (NGPC)	45, 48, 100, 104, 121, 131
U.S. Fish and Wildlife Service (USFWS)	43, 45, 48, 97, 100, 104, 121, 131
U.S. Army Corps of Engineers (USACE)	32, 41, 43, 93, 94, 121, 128, 130

ABBREVIATIONS AND ACRONYMS

APE	Area of Potential Effect
ARA	Affected Resource Area
BRIC	Building Resilient Infrastructure and Communities
BUL	Biologically Unique Landscape
CEQ	Council on Environmental Quality
CERT	Conservation and Environmental Review Tool
CFS	Cubic feet per second
CLOMR	Conditional Letter of Map Revision
CPS	Conservation Practice Standard
CWA	Clean Water Act
EA	Environmental Assessment
EAP	Emergency Action Plan
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FFRMS	Federal Flood Risk Management Standard
FPPA	Farmland Protection Policy Act
FSA	Food Security Act
FWCA	Fish and Wildlife Coordination Act
FWOFI	Future Without Federal Investment
HAZUS	Hazard of the United States
HMGP	Hazard Mitigation Grant Program
HSG	Hydrologic Soil Group
IPaC	Information for Planning and Consultation
LOMR	Letter of Map Revision
LPNNRD	Lower Platte North Natural Resources District
MBTA	Migratory Bird Treaty Act
NDEE	Nebraska Department of Environment and Energy

NDEQ	Nebraska Department of Environmental Quality
NeDNR	Nebraska Department of Natural Resources
NEPA	National Environmental Policy Act
NESCA	Nongame and Endangered Species Act
NESCAP	Nebraska Stream Condition Assessment Procedure
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NISC	Nebraska Invasive Species Council
NOMM	National Operation and Maintenance Manual
NPDES	National Pollutant Discharge Elimination System
NQAAC	Nebraska Quality-Assessed Agrichemical Contaminant Database
NRCS	Natural Resources Conservation Service
NRD	Natural Resources District
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OM&R	Operation, Maintenance, and Replacement
P&G	Principles and Guidance
Plan-EA	Watershed Plan and Environmental Assessment
PR&G	Principles, Requirement, and Guidance for Water and Land Related Resources Implementation Studies
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
SLO	Sponsoring Local Organization
T&E	Threatened & Endangered Species
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WFPO	Watershed and Flood Prevention Operations

APPENDIX A: COMMENTS AND RESPONSES

LIST OF CORRESPONDENCE INCLUDED IN APPENDIX

Additional correspondence to be added as received.

- NRCS Scoping Letters – October 19, 2021
    - One form letter included as reference; letters sent to:
        - Nebraska State Historic Preservation Office
        - Apache Tribe of Oklahoma
        - Omaha Tribe of Nebraska
        - Otoe-Missouria Tribe of Indians, Oklahoma
        - Cheyenne & Arapaho Tribes of Oklahoma
        - Pawnee Nation of Oklahoma
- Pawnee Nation of Oklahoma Scoping Letter – December 8, 2021
- Nebraska Game and Parks Commission Scoping Letter – December 17, 2021
- NRCS Farmland Protection Consultation – December 1, 2023
- Fremont Municipal Airport Coordination – August 22, 2024

United States Department of Agriculture

USDA NRCS
Natural Resources Conservation Service
Nebraska State Office
Federal Building, Room 152
100 Centennial Mall North
Lincoln, NE 68508-3866
(402) 437-5300 http://www.ne.nrcs.usda.gov

SENT VIA USPS ELECTRONIC SIGNATURE CONFIRMATION

October 19, 2021

Ms. Jill Dolberg
Deputy State Historic Preservation Officer
History Nebraska
1500 R Street
Lincoln, NE 68508-1651

RE: Rawhide Creek Watershed Plan - Environmental Assessment (Plan-EA) Early NEPA Coordination and Initiation of NHPA Section 106 consultation, Dodge and Colfax Counties, Nebraska

Ms. Dolberg:

In compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act of 1966 (NHPA), the Natural Resources Conservation Service (NRCS) is initiating consultation with you regarding the development of a Watershed Plan-Environmental Assessment (Plan-EA) for the Rawhide Creek watershed in Dodge County, Nebraska. The watershed planning document is being prepared to fulfill NEPA responsibilities pertaining to federal financial assistance received through the NRCS's Watershed and Flood Prevention Operations (WFPO) Program. The WFPO program is authorized by Watershed Protection and Flood Prevention Act (PL 83-566), which directs NRCS to cooperate with state and local agencies in planning and carrying out works of improvement for soil conservation and flood risk reduction purposes. NRCS will fund the development of the watershed Plan-EA as well as the design and construction of the structures identified in the preferred alternative of the EA, which makes the Plan-EA a federal undertaking as defined in 36 CFR § 800.16(y) and a federal action as defined in 40 CFR § 1508.1(q).

NRCS is partnering with the Dodge County Joint Water Management Advisory Board (JWMAB) to conduct planning to address flooding in agricultural areas of the Rawhide Creek Watershed in Dodge County (see attached map). JEO Consulting Group, Inc. (JEO) has been retained by JWMAB to assist in developing the Plan-EA. The main purpose of the planning effort is to identify projects that will reduce flood risk to agricultural properties, homes, and businesses in the study area. The goal is to establish a recommended plan through an assessment of alternatives supported by public engagement and sponsor participation that follows the NEPA process. Potential projects to be evaluated may include, but are not limited to, stream restorations, detention cells, small or large dams, and/or wetland restoration. The Rawhide Creek watershed drains approximately 142,640 acres in Dodge and Colfax Counties, Nebraska (see enclosed map). The study area includes the entire watershed as depicted on the enclosed map, but the area of potential effect will be refined as the planning process progresses and potential project locations are identified.

NRCS would also like to invite you to participate in a discussion regarding resources of concern within the watershed planning area with federal, state, and local government agencies. NRCS and JWMAB will be hosting an agency scoping meeting to present information about the watershed Plan-EA on Thursday, November 18, 2021, from 2:00 p.m. – 4:00 p.m. via Microsoft Teams. Agencies are invited to provide

insight, present questions, and discuss project development with the project team. An in-person public meeting at a separate meeting facility will follow the agency meeting to obtain public feedback. Project information will be presented and personnel from the project team will be available to answer questions and receive comments during both meetings. Information on how to access the virtual agency scoping meeting, including call-in information is provided below:

Agency Meeting Details
Thursday, November 18, 2021
2:00 p.m. – 4:00 p.m.
Virtual Meeting via Microsoft Teams
Call In: +1 (531) 205-2205, 957302849#
Toll Free: (833) 798-7807, 957302849#
Conference ID: 957 302 849#

Please RSVP for the Rawhide Creek WFPO agency scoping meeting to Alyssa Tenorio by Friday, November 12, 2021 at atenorio@jeo.com if you would like to participate in the scoping meeting. She will provide a calendar invite with the virtual log-in information to help facilitate the meeting.

If you have any questions about the project, please contact Melissa Baier, NRCS Archaeologist, at 402.437.4065 or by email at melissa.baier@usda.gov. Thank you in advance for your consideration of this project.

Sincerely,

BRITT WEISER Digitally signed by BRITT WEISER Date: 2021.10.19 14:54:36 -05'00'

BRITT WEISER, Acting
State Resource Conservationist

JOHN WILSON
Acting State Conservationist

Enclosure: Project Area Map

CC:
Thomas Parker, Tribal Historic Preservation Officer, Omaha Tribe of Nebraska
Allen Gehring, State Conservation Engineer, NRCS State Office
Rich Vaughn, Watershed Program Coordinator, NRCS State Office
Melissa Baier, Archaeologist, NRCS State Office
Tom Smith, Director, Dodge County Emergency Management
Tom Mountford, Assistant Manager, Lower Platte North NRD
Adam Rupe, Environmental Planner, JEO Consulting Group

Pawnee Nation

Wednesday, December 08, 2021

Melissa Baier
Archaeologist
Nebraska State Office
Natural Resources Conservation Service
US Department of Agriculture

RE: Section 106 Consultation and Review on:
Rawhide Creek Watershed Plan - Environmental Assessment Plan
Dodge and Colfax counties, Nebraska

The Pawnee Nation Office of Historic Preservation has received the information and materials requested for our Section 106 Review and Consultation. Consultation with the Pawnee nation is required by Section 106 of the National Historic Preservation Act of 1966 (NHPA), and 36 CFR Part 800.

Given the information provided, you are hereby notified that the following proposed project/s encompasses at least one known Pawnee village site and two known archaeological sites and could affect the cultural landscape of the Pawnee Nation. We would like to be involved with any further planning on this project.

However, be advised that additional undiscovered properties could be encountered, and they must be immediately reported to us under both the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act regulations.

This information is provided to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Should you have questions, please do not hesitate to contact me at jreed@pawneenation.org or by phone at 918-762-2180 ext 220. Thank you for your time and consideration.

Sincerely,
Matt Reed
Historic Preservation Officer
Pawnee Nation of Oklahoma

Historic Preservation Office
Matt Reed
Phone: 918.762.2180
E-mail: jreed@pawneenation.org
P.O. Box 470
Pawnee, Oklahoma 74058

NEBRASKA
GAME PARKS

2200 N. 33rd St. • P.O. Box 30370 • Lincoln, NE 68503-0370 • Phone: 402-471-0641

December 17, 2021

John Peterson
JEO Consulting Group Inc
2000 Q Street | Suite 500
Lincoln, NE 68503

Re: Scoping Comments for the Rawhide Creek WFPO Watershed Plan – Environmental Assessment

Dear Mr. Peterson:

Please make reference to your letter dated October 29, 2021. This letter is in response to your request for scoping comments pursuant to the National Environmental Policy Act (NEPA) regarding the Rawhide Creek Watershed Plan – Environmental Assessment (Plan-EA), and the potential impacts it may have on endangered and threatened species and other natural resources. As we understand it, the Plan-EA is being developed to reduce flood risk to agricultural property, homes and businesses in Colfax and Dodge counties, Nebraska. Staff members of the Nebraska Game and Parks Commission (NGPC) have reviewed the information provided, and we offer the following comments.

ENDANGERED AND THREATENED SPECIES
The proposed study area falls within the range of the following state-listed endangered or threatened species:

Common Name	Scientific Name	State Status	Fed Status
Interior Least Tern	*Sternula antillarum athalassos*	Endangered	
Lake Sturgeon	*Acipenser fulvescens*	Threatened	
Northern Long-Eared Bat	*Myotis septentrionalis*	Threatened	Threatened
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered	Endangered
Piping Plover	*Charadrius melodus*	Threatened	Threatened
Sturgeon Chub	*Macrhybopsis gelida*	Endangered	
Western Massasauga	*Sistrurus tergeminus*	Threatened	
Whooping Crane	*Grus americana*	Endangered	Endangered

In general, adverse impacts on listed endangered and threatened species could result from changes in hydrology (including, but are not limited to, changes to the timing, frequency, duration, and magnitude of stream/river flow), streamflow depletions, altering groundwater and surface water connectivity, impacts on wetlands, work within or adjacent to the river

channel, culvert or road improvements/placement, construction-related activities (including, but not limited to, ground disturbance, tree-removal, clearing, dredging, placing fill, staging areas, stockpiling areas, disposal sites, etc.), and other flood damage reduction related activities.

Due to the cumulative effects of many water depletion projects in the Platte River basin, NGPC considers any depletion of flows (direct or indirect) to the Platte River system to be significant. It is recommended that the potential for instream flow depletions be addressed to determine what, if any, impacts the proposed actions may have on the lower Platte River system.

Surveys, construction timing restrictions, and avoidance, minimization and mitigation measures may be needed depending on the Project alternative that is selected. Additional information regarding these species and potentially applicable conservation measures is available upon request.

LOWER PLATTE RIVER BIOLOGICALLY UNIQUE LANDSCAPE (BUL)

Part of this watershed is located within the Lower Platte River BUL. The Nebraska Natural Legacy Project identifies BULs as priority landscapes that, if properly managed, would conserve the majority of Nebraska's biological diversity. These landscapes were selected based on known occurrences of at-risk species and natural communities. In addition to at-risk species, these landscapes support a broad array of common species.

The lower Platte River receives water from the Loup and Elkhorn rivers and has a more stable flow than the central Platte River. The lower Platte River is unique in that its sandbars support numerous colonies of federally and state listed piping plover and state-listed interior least tern. The construction of dikes and levees has constricted the natural channel in several places and eliminated or isolated most of the floodplain sloughs, backwaters and wetlands. The narrowing of the channel has resulted in higher flow stages after heavy rain events that wash away tern and plover nests. The lower Platte also supports many rare large river fish including the lake sturgeon, blue sucker, sturgeon chub, and pallid sturgeon.

Some of the stresses affecting lower Platte River species and habitats include:

- Alteration of natural flows that otherwise would maintain sandbars and fish habitat
- Dike and levee construction
- Armoring of stream-banks
- Stream flow depletions

We recommend that the project consider how the alternatives might impact the lower Platte River. Avoidance and minimization of impacts that could exacerbate existing stresses, as well as support for conservation related practices within the Lower Platte River BUL, will facilitate our mission as stewards of Nebraska's natural resources.

NGPC PROPERTY

Fremont Lakes State Recreation Area (SRA) is owned and managed by NGPC for public access and partially located within the study area. This SRA should not be negatively affected by any proposed alternative. NGPC staff expects separate coordination on any parts of this project if impacts would be anticipated to NGPC owned or managed properties.

WATERSHED PLAN-EA ALTERNATIVES

NGPC supports maintaining and restoring the natural hydrology of the Platte River system. Implementing natural solutions such as wetlands, floodplain restoration, stream meanders, riffles, and pools restoration, and agricultural conservation practices addresses the purpose of the Plan by providing stability in the watershed and improving flood resiliency. We understand that, ultimately, large river floodplain damage risk cannot be mitigated by implementing only natural flood reduction solutions in the adjacent watershed and must occur upstream and at a basin-wide scale. Because of this, there are rarely any practical long-term solutions to protecting infrastructure and agricultural properties in floodplains.

Reservoirs, levees, dams and other storage structures change the natural functions of streams, wetlands and floodplains, usually have detrimental impacts on native aquatic species and require regular maintenance (e.g., sediment removal) to retain structural and functional integrity. In general, we discourage using these methods to reduce flood risk and manage surface water resources because there are alternative methods for achieving these outcomes which have fewer impacts on stream, wetland and floodplain function. However, we understand structural options could be evaluated and ultimately carried forward. Therefore, we offer the following for consideration regarding such alternatives:

- Any studies should carefully consider how overall watershed stability will be affected by new infrastructure and potential changes in streamflow, including how the soils within this system are going to respond to new infrastructure and potentially new flow regimes, including anticipated minimum and maximum flows. More specifically, consider how alterations to the channel-forming discharge because of any alternative, or bankfull discharge, will impact the form and function of the stream.
- If a large reservoir is evaluated as an alternative, it should be designed so the watershed to reservoir surface area ratio is low. If the intent of any such reservoir is to provide a sustainable fishery, then at least 25% of the lake must be at least 15 feet deep. When a reservoir is too small for a watershed it will be subject to water quality issues, harmful algae blooms, and will not support a desired, sustainable fishery. Also, consider that any implemented dammed reservoirs will restrict native fish migration and greatly alter natural flow regimes.
- Proposed structural alternatives should not restrict the ability of the stream to meander, cause a pinch-point in the stream, cut the stream off from its floodplain, or fix the channel in place. These actions redirect erosive forces downstream and will result in further erosion/degradation of the downstream banks and streambed and impacts to fish and wildlife habitat.
- We recommend a combination of hard infrastructure and natural flood reduction solutions (i.e. floodplain/wetland creation for off-channel water storage) to help reduce

flood risk and protect both agricultural and natural resources in this watershed as well as resources downstream from this area.

These comments and recommendations are based on a review of the material you sent, and information presented during the agency scoping meeting on November 18, 2021. Please note this correspondence does not satisfy requirements of Neb. Rev. Stat. §37-807 (3) of the Nongame and Endangered Species Conservation Act. Under authority of Neb. Rev. Stat. §37-807 (3), all Nebraska state agencies are required to consult with the NGPC to ensure any actions authorized, funded or carried out by them do not jeopardize the continued existence of a state-listed species. This requirement would extend to any permit issued or authorized by a state agency.

We appreciate the opportunity to comment and look forward to further discussion on the Plan-EA as it progresses. We also welcome the opportunity to review modelling results and provide technical assistance during this process. If you have any questions or need additional information, please feel free to contact me at (402) 471-5554 or jessica.tapp@nebraska.gov.

Sincerely,

Jessica Tapp, CWB
Environmental Specialist III
Planning and Programming Division

ec: USFWS (Nebraska Field Office)
NGPC (Michelle Koch, Brett Roberg)
JWMAB (Tom Smith)
NRCS (Ritch Nelson, Rich Vaughn)

United States Department of Agriculture

USDA NRCS
Natural Resources Conservation Service
Nebraska State Office
Federal Building, Room 152
100 Centennial Mall North
Lincoln, NE 68508-3866
(402) 437-5300 http://www.ne.nrcs.usda.gov

Subject: LNU – Farmland Protection
Proposed Rawhide Creek WFPO Project
NEPA/FPPA Evaluation
Dodge County, Nebraska

Date: December 1, 2023

To: JEO Consulting Group
Attn: Dillon Vogt (dvogt@jeo.com)

File Code: 310

We have reviewed the information provided in your correspondence dated November 27, 2023, concerning the proposed flood control project located in Dodge County, Nebraska. This review is part of the National Environmental Policy Act (NEPA) evaluation for the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed site contains areas of Prime Farmland and we have completed the Farmland Conversion Impact Rating form (AD-1006) for the proposed site. The combined rating of the site is **159**. The FPPA law states that sites with a rating less than 160 will need no further consideration for protection and no additional evaluation is necessary. We encourage the use of accepted erosion control methods during the construction of this project.

If you have further questions, please contact Elizabeth Gray at 402.437.4068 or by email at Elizabeth.gray@usda.gov (preferred).

Sincerely,

ELIZABETH GRAY

Digitally signed by ELIZABETH GRAY
Date: 2023.12.01 15:39:34 -06'00'

ELIZABETH GRAY
USDA-NRCS Nebraska Assistant State Soil Scientist

Attachment: Rawhide Creek WFPO_NE053

CITY OF
FREMONT
NEBRASKA

400 East Military Avenue, Fremont, NE 68025-5141

August 22, 2024

Rawhide Creek WFPO Project Sponsors
c/o Thomas Smith
Dodge County Emergency Management Director
435 N Park Ave STE 101B
Fremont, NE 68025

Dear Project Sponsors,

The Airport Advisory Board for the Fremont Municipal Airport is aware of the potential project proposed within the ongoing Rawhide Creek WFPO Plan-EA. It is our understanding that two connected stormwater detention cells are proposed to be located to the west and north of the Airport. It is also our understanding that these detention cells would not permanently detain water, would fill only during heavy rainfall events, and would drain within two to three days.

The City's Engineering Department staff has reviewed the potential projects in relation to FAA guidance, City requirements, and overall project need with the Airport Advisory Board at its March 15, 2024. Based upon the information shared with us at that time, it is our conclusion that the projects proposed within the Rawhide Creek WFPO Plan-EA are acceptable regarding airport compatibility.

As final design is being completed, please locate any potential wetland mitigation needs as far west as possible within the detention cell areas so as not to increase potential for wildlife within the flight paths of the airport. Please keep us informed of project progress, including any potential changes to the proposed plan or if new information becomes available.

Respectfully,

Jody J. Sanders

Jody J. Sanders
City Administrator

EQUAL HOUSING OPPORTUNITY

CITY OF FREMONT NEBRASKA

AIRPORT ADVISORY COMMITTEE

Meeting Minutes: March 15th, 2024

1. Meeting called to order with Open Meetings Act announcement.

   Meeting was called to order at 8:16 A.M. Open Meeting Act is posted on the wall of the Airport Terminal, the Act Poster was pointed out to those in attendance.

2. Roll call.

   Board Members Present: Alison Adams, Jeff Peterson, Eric Johnson, Dave Mitchell, Kirk Diers, Robert Steenblock, Levi Entz, and Vic Roeder. Absent member: Bill Dugan.

3. Approval of the February 16th, 2024 meeting minutes.

   Motion by Kirk Diers and seconded by Vic Roeder to approve. Motion passed by vote of members: Alison Adams, Jeff Peterson, Kirk Diers, Eric Johnson, Dave Mitchell, Robert Steenblock, Levi Entz, and Vic Roeder. Absent member: Bill Dugan.

4. Update on Runway Rehab Project

   a. The preconstruction meeting was completed last week. Construction will begin at 8:00 A.M. on March 18th, 2024. Construction will last approximately four months and be complete near mid-July.
   b. Discussion point on how many weather delays could be expected.

5. Discussion of Rawhide WFPO Drainage Project.

   a. Dodge County, NRD, and City of Fremont are part of a grant funded program to reduce flooding by the Rawhide Creek. The funds will be used to create two large detention cells and necessary ditch work. The detention cells would be 0.5 miles to a mile from the airport.
   b. A Zoom meeting is scheduled with Dodge County, NRD, and City of Fremont Public Works for Monday March 19th, 2024, and the invitation will be sent out to all AAC members able to attend.
   c. The FAA typically prefers 10,000 feet between airports and major waterways that

could be major bird habitats. Also, should contact USDA to discuss bird strikes.

6. Discussion of Library Storytime at the Airport.

   d. Discussion point on the airport being a location for a summer Library Storytime.

7. Spring Hangar Walk Through Scheduled.

   a. Will take place April 2nd, 2024, and letters have been mailed out to all tenants.

8. Action Items to Discuss - None.

   a. Discussion point on the Street Department doing minor surface repairs and sealing of areas not involved in rehab project during the runway closure.

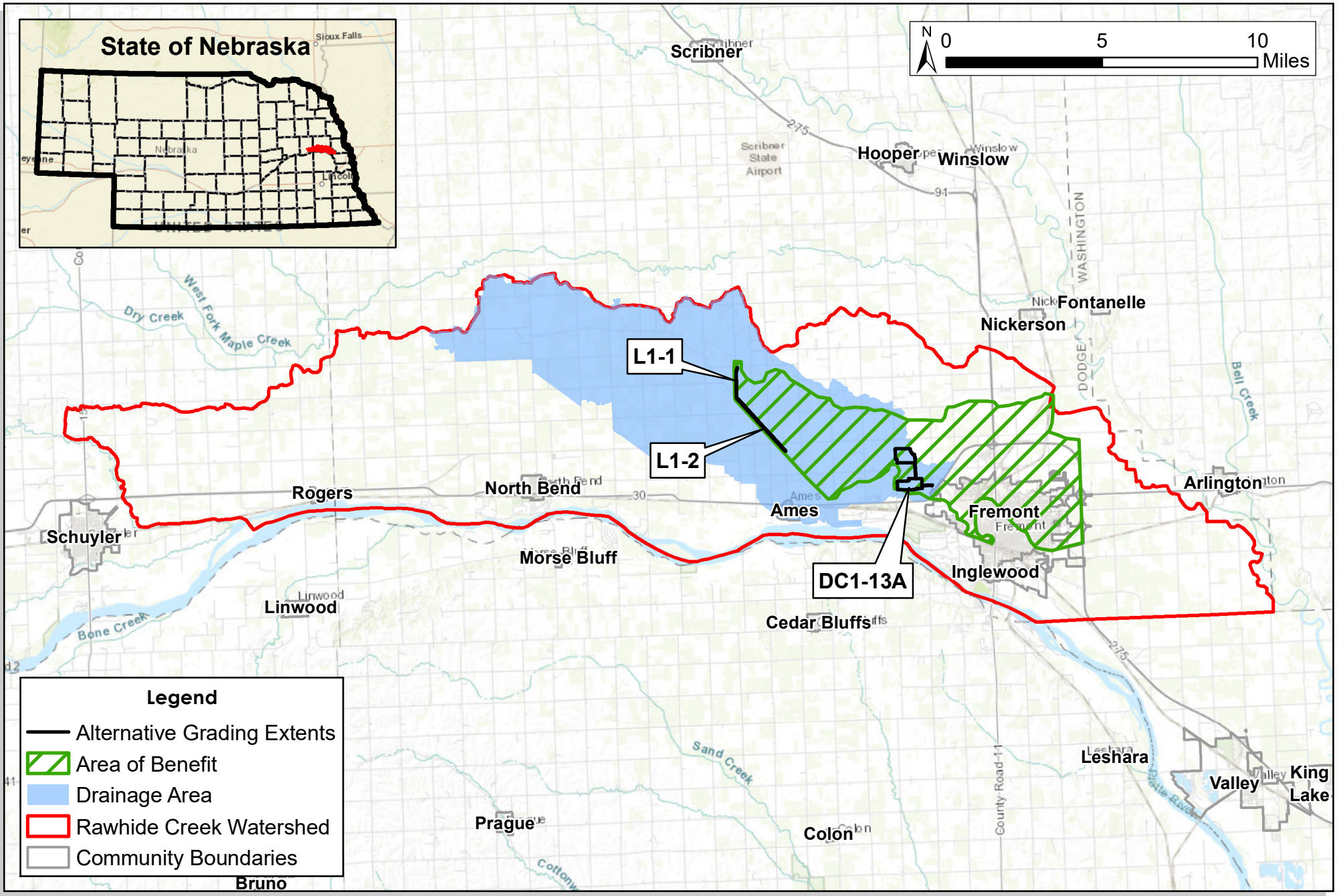
9. Discussion of Maintenance Items.

   a. Plan to discuss concrete work around the hangars.
   b. Cable and boot replacement is being done as budget allows. Converting to straps for overheads would require an entirely new door set-up.
   c. The south apron patio column is cracking and sinking.

10. Adjournment.

    Motion by Jeff Peterson and seconded by Alison Adams to adjourn. Motion passed by vote of members: Alison Adams, Kirk Diers, Jeff Peterson, Dave Mitchell, Eric Johnson, Levi Entz, Vic Roeder, and Robert Steenblock. Absent member: Bill Dugan. Meeting adjourned at 8:45 A.M.

APPENDIX B: PROJECT MAP



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Project Map

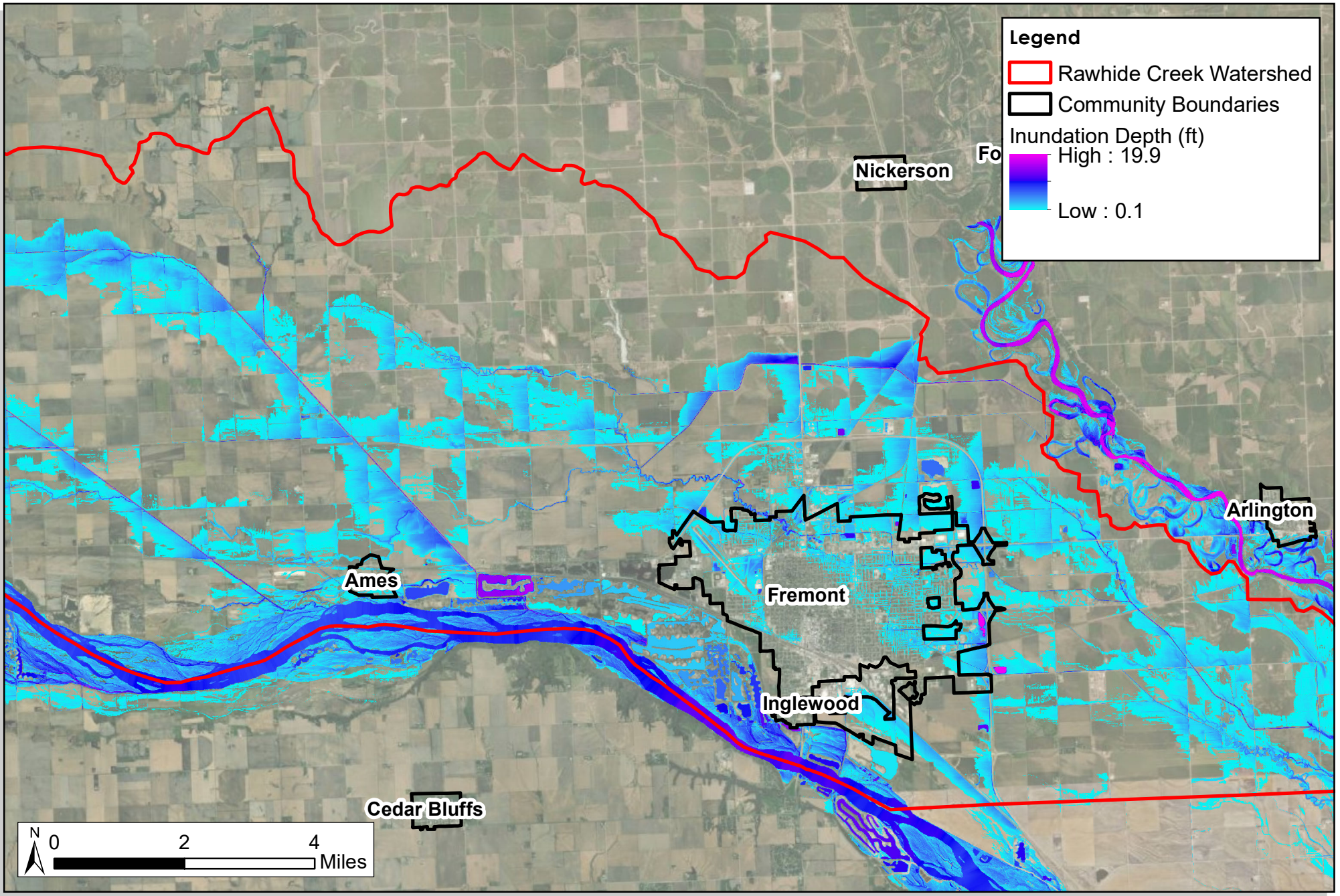
Rawhide Creek WFPO Plan-EA

JEO CONSULTING GROUP INC

APPENDIX C: SUPPORT MAPS

LIST OF MAPS INCLUDED

- Pre-project and post project flooding depth and extent maps
    - 100-year and 500-year flooding events
- Breach Analysis Map
- Affected Resource Area map
- Area of Potential Effect map
- Scientific Resources Map
- Concept plans



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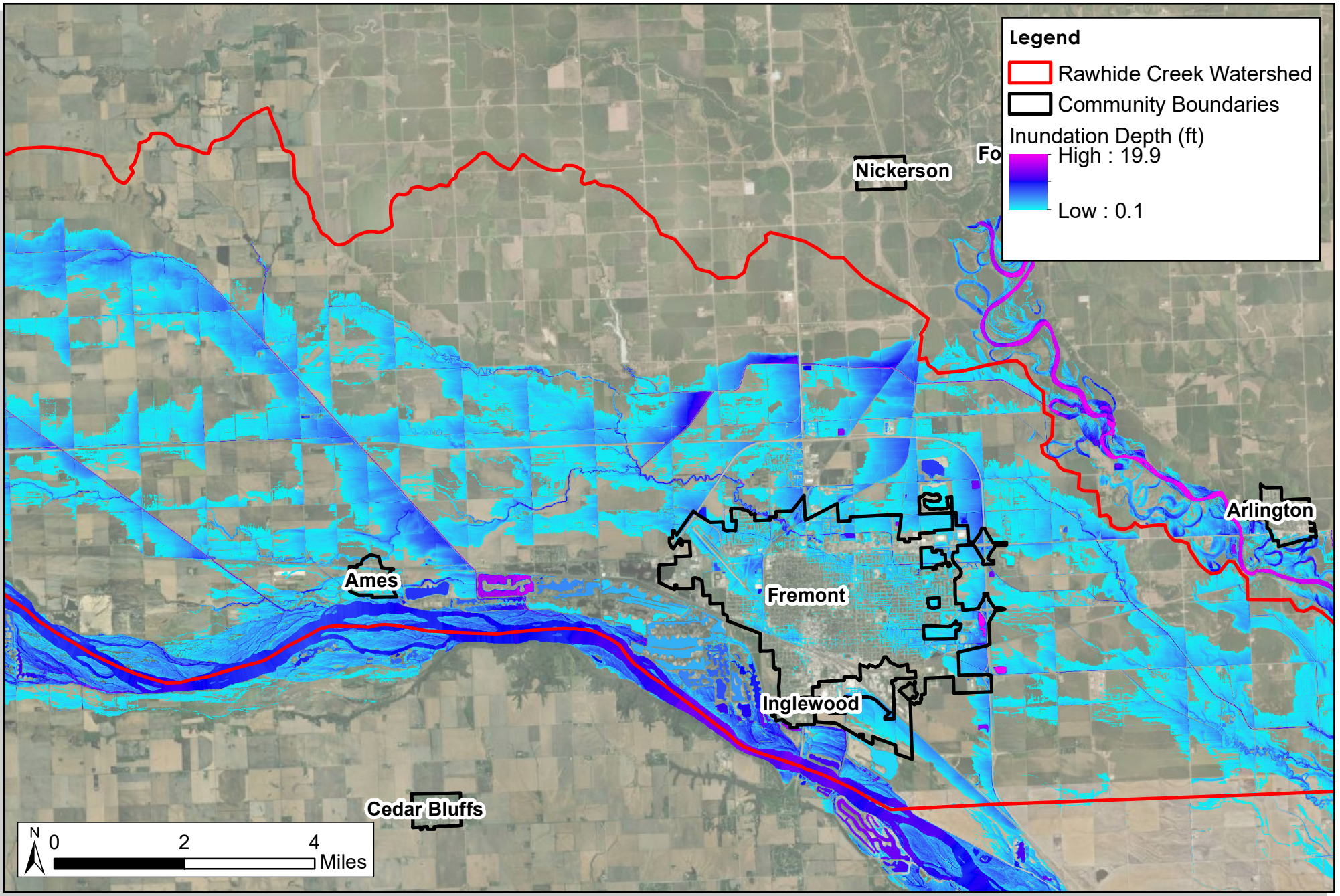
100-Yr Existing Flood Extents

Rawhide Creek WFPO Plan & EA

JEO CONSULTING GROUP INC



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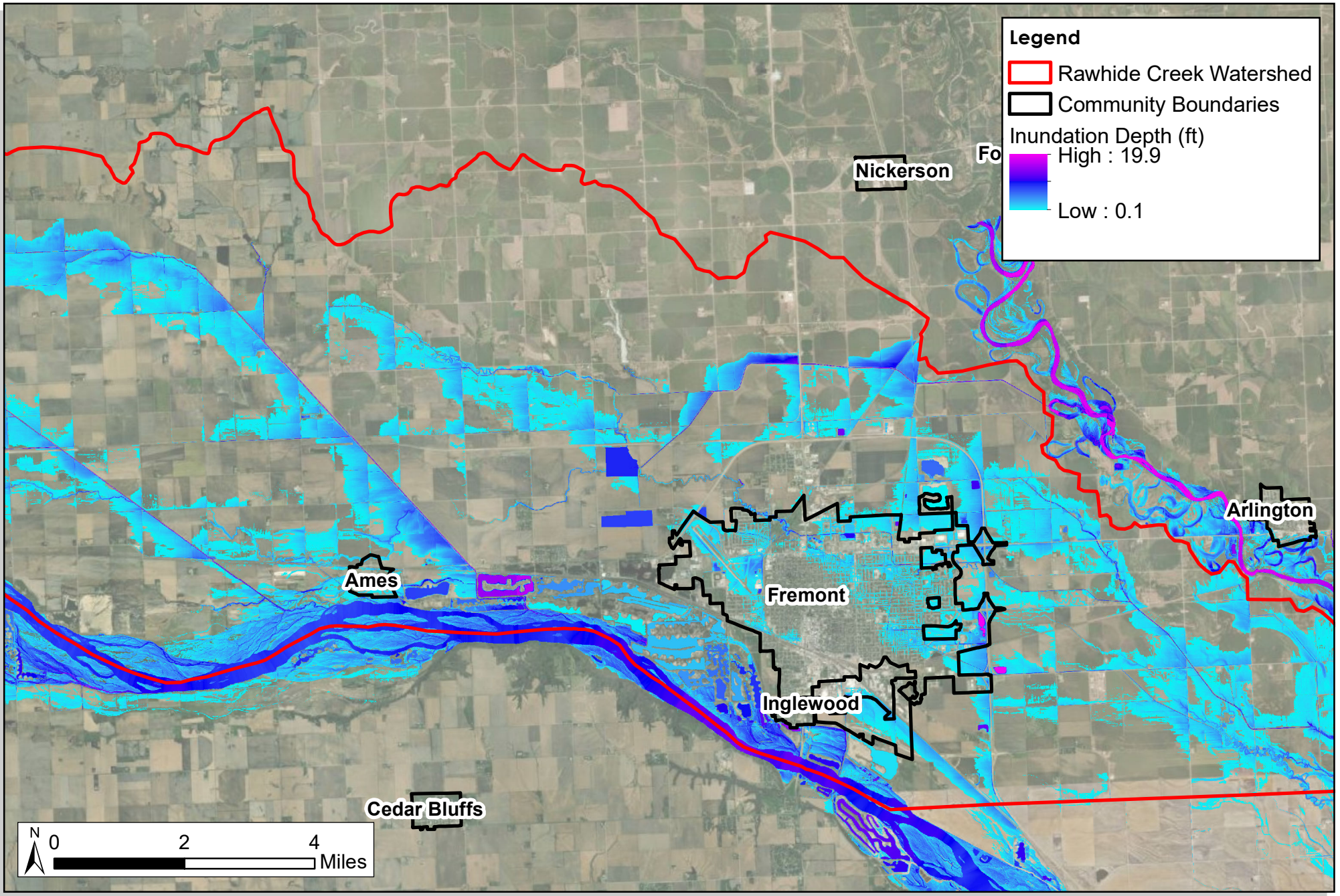
500-Yr Existing Flood Extents

Rawhide Creek WFPO Plan & EA

JEO CONSULTING GROUP INC



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100-Yr Proposed Flood Extents

Rawhide Creek WFPO Plan & EA

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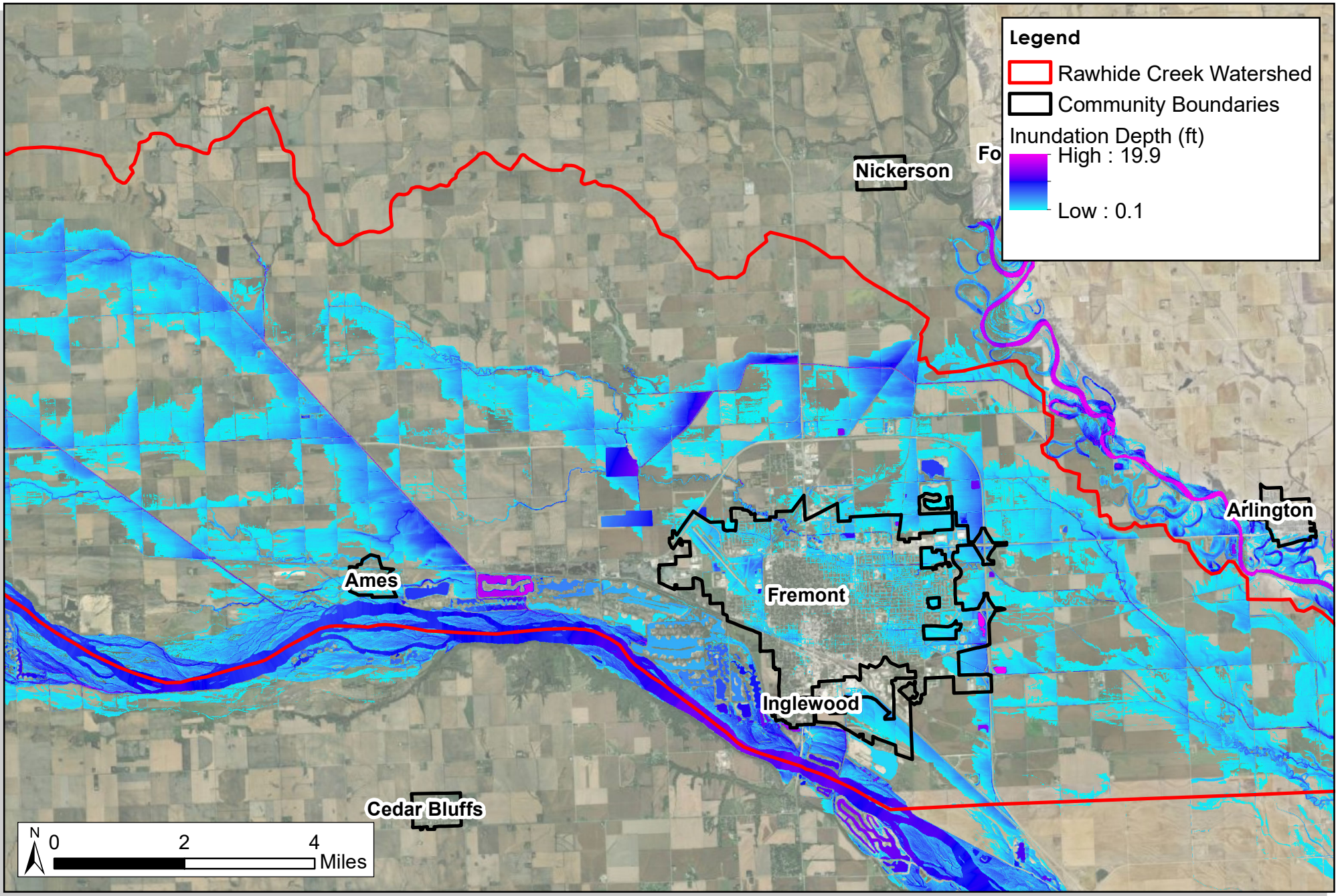

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500-Yr Proposed Flood Extents

Rawhide Creek WFPO Plan & EA

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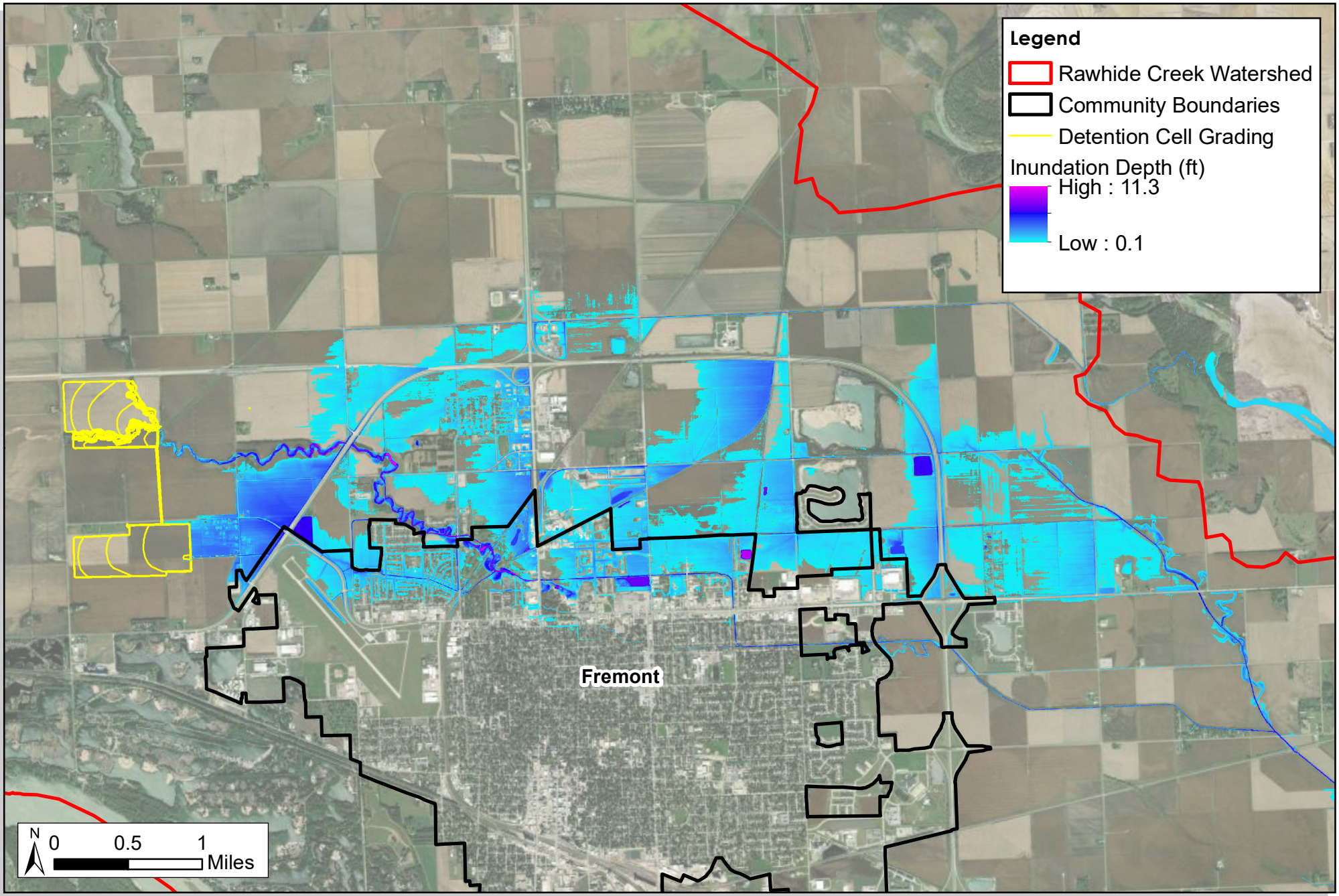

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DC1-13A Breach Analysis

Rawhide Creek WFPO Plan & EA

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Affected Resource Area

Rawhide Creek WFPO Plan-EA

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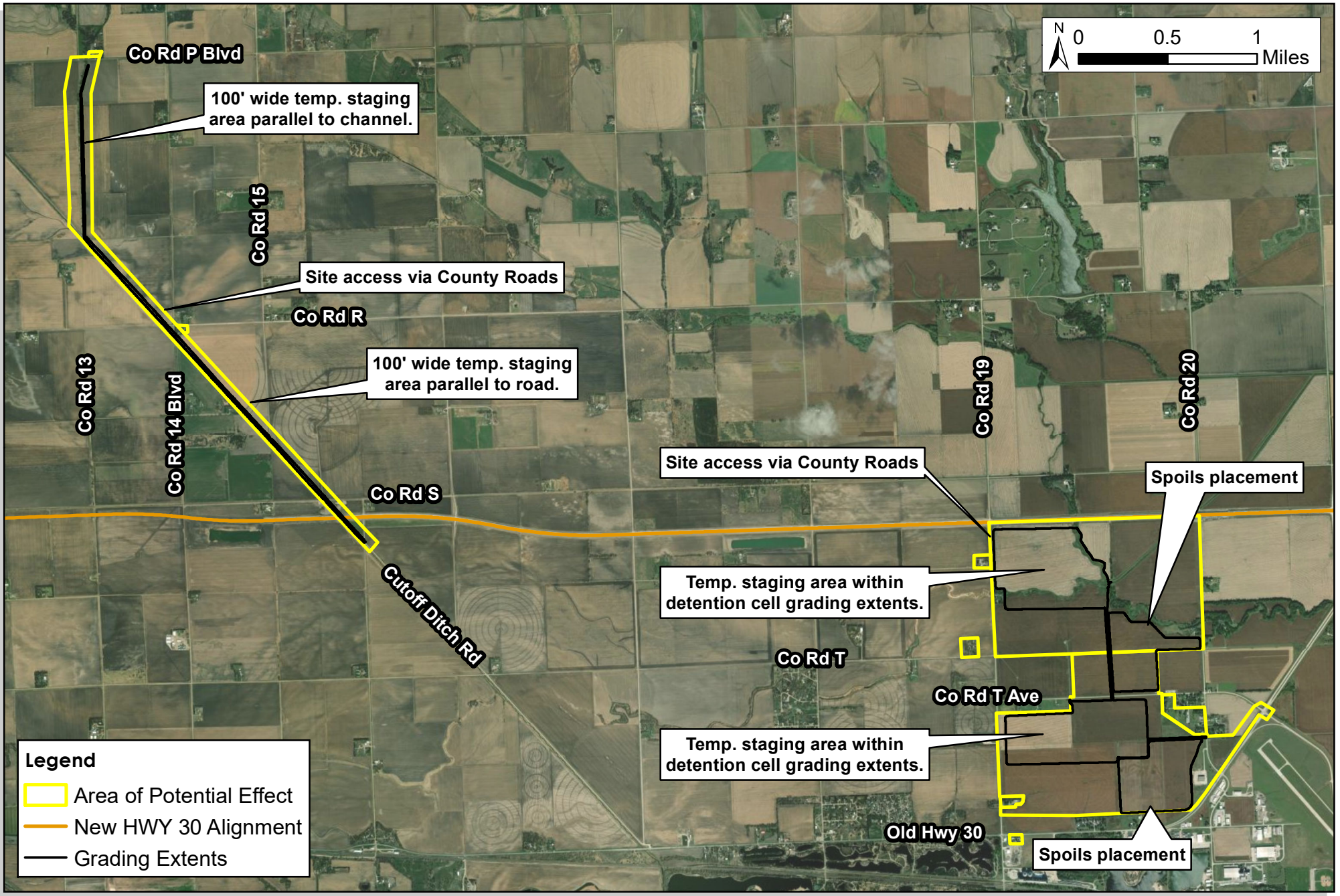

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Area of Potential Effect

Rawhide Creek WFPO Plan-EA

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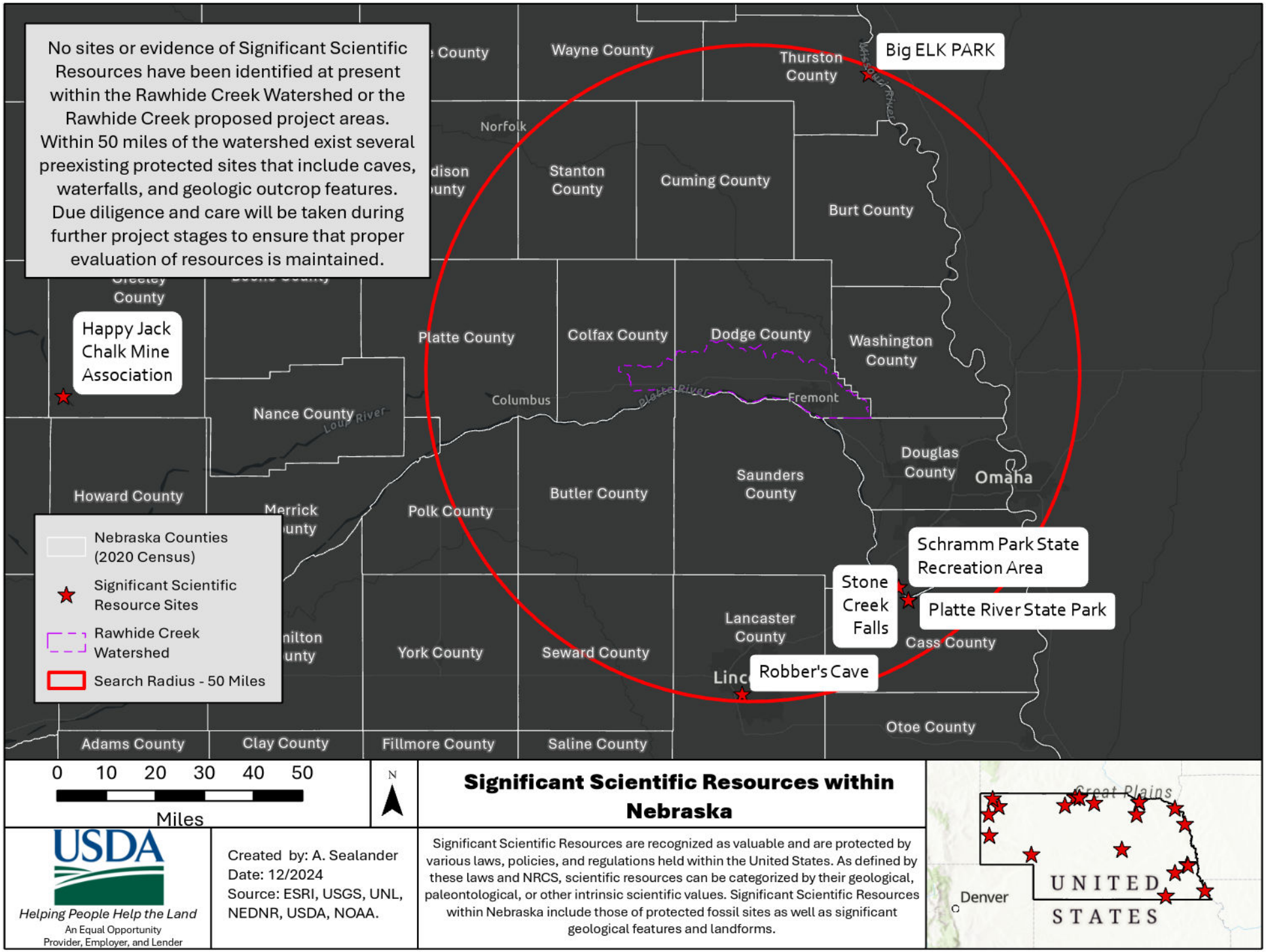

USDA
Helping People Help the Land
An Equal Opportunity Provider, Employer, and Lender

Created by: A. Sealander
Date: 12/2024
Source: ESRI, USGS, UNL, NEDNR, USDA, NOAA.

Significant Scientific Resources are recognized as valuable and are protected by various laws, policies, and regulations held within the United States. As defined by these laws and NRCS, scientific resources can be categorized by their geological, paleontological, or other intrinsic scientific values. Significant Scientific Resources within Nebraska include those of protected fossil sites as well as significant geological features and landforms.

GRAPHIC SCALE

0 150 300 600

UNIT OF MEASURE IS FEET

JEO CONSULTING GROUP
1-800-728-8567

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

PROJECT VICINITY MAP

BRUSH CREEK AREA

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
12/5/2023

PROJECT NO.	200881.00
DATE	12/5/2023
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FIELD CREW	N/A
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REVISIONS	

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RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

PROJECT VICINITY MAP

CUTOFF ROAD AREA

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BRUSH CREEK BERM EARTHWORK	
CUT	FILL
570 CY	28,960 CY

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

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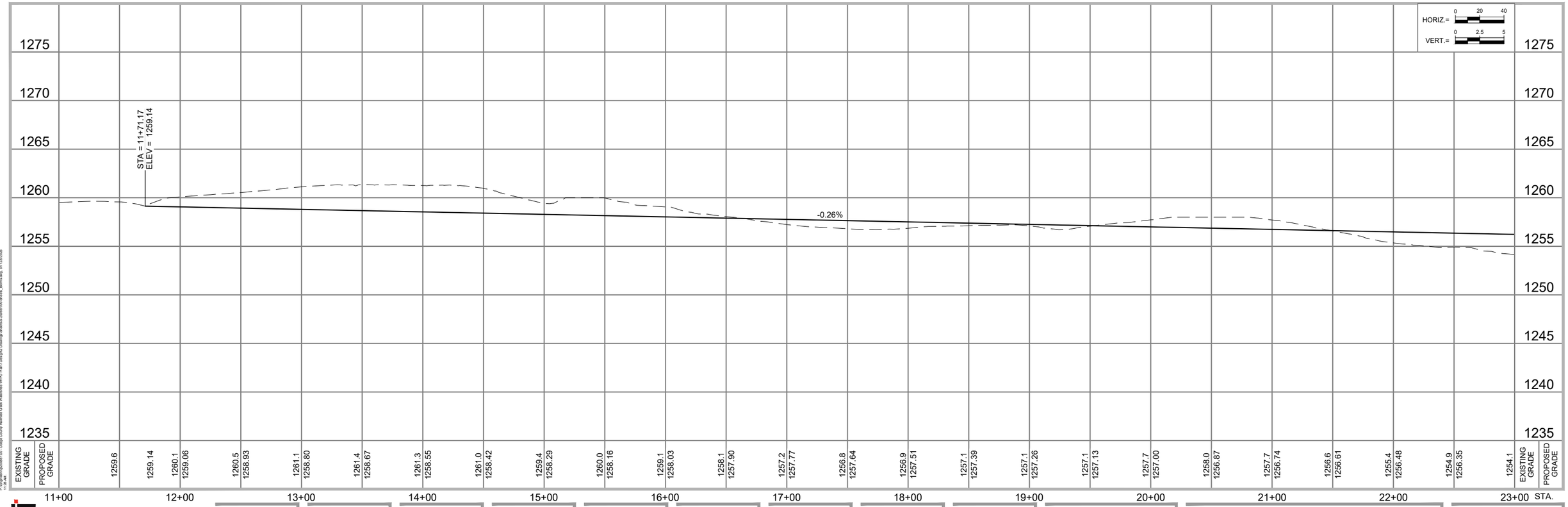

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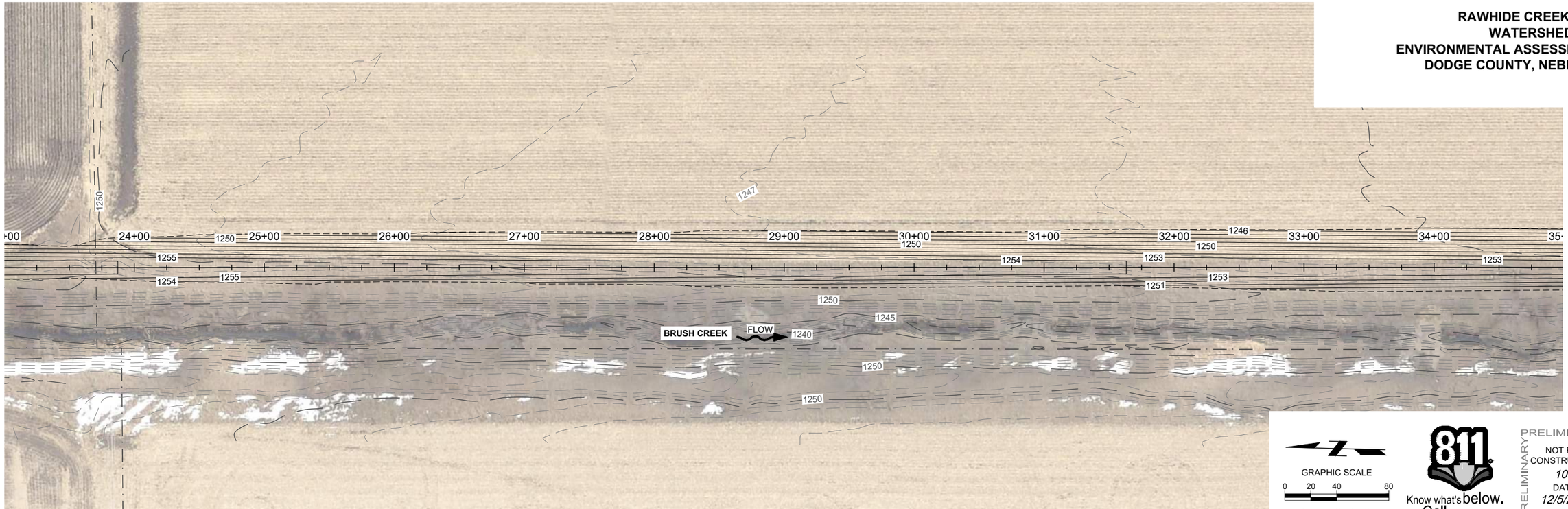
RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



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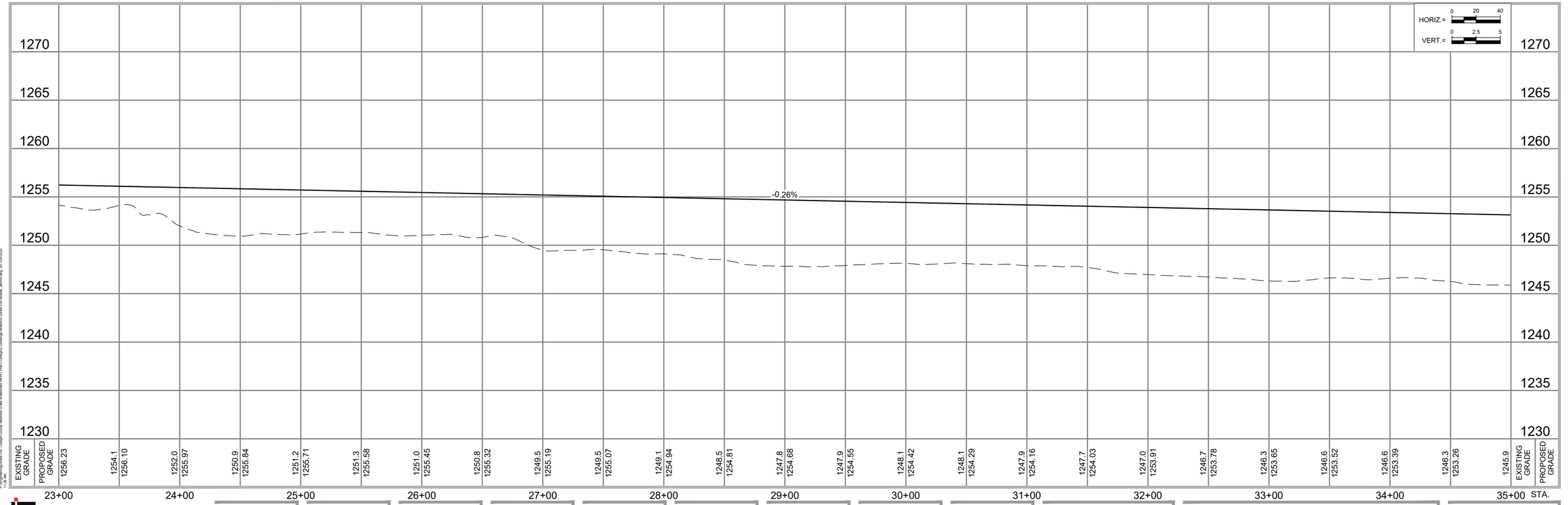

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JEO CONSULTING GROUP

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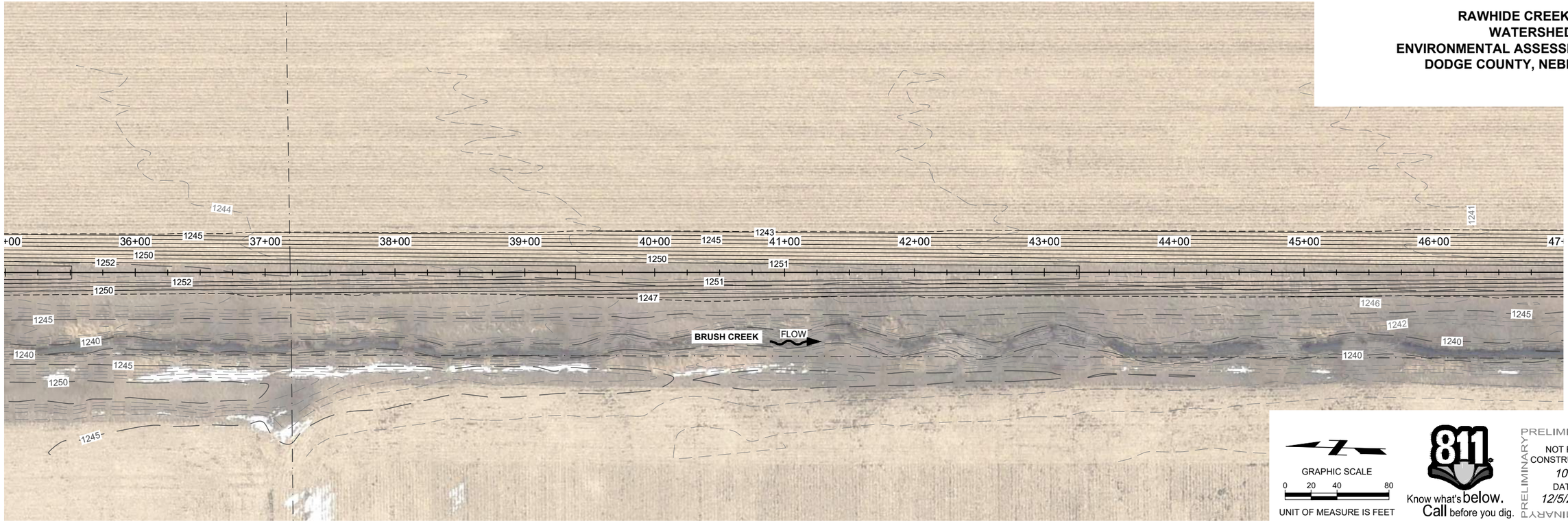
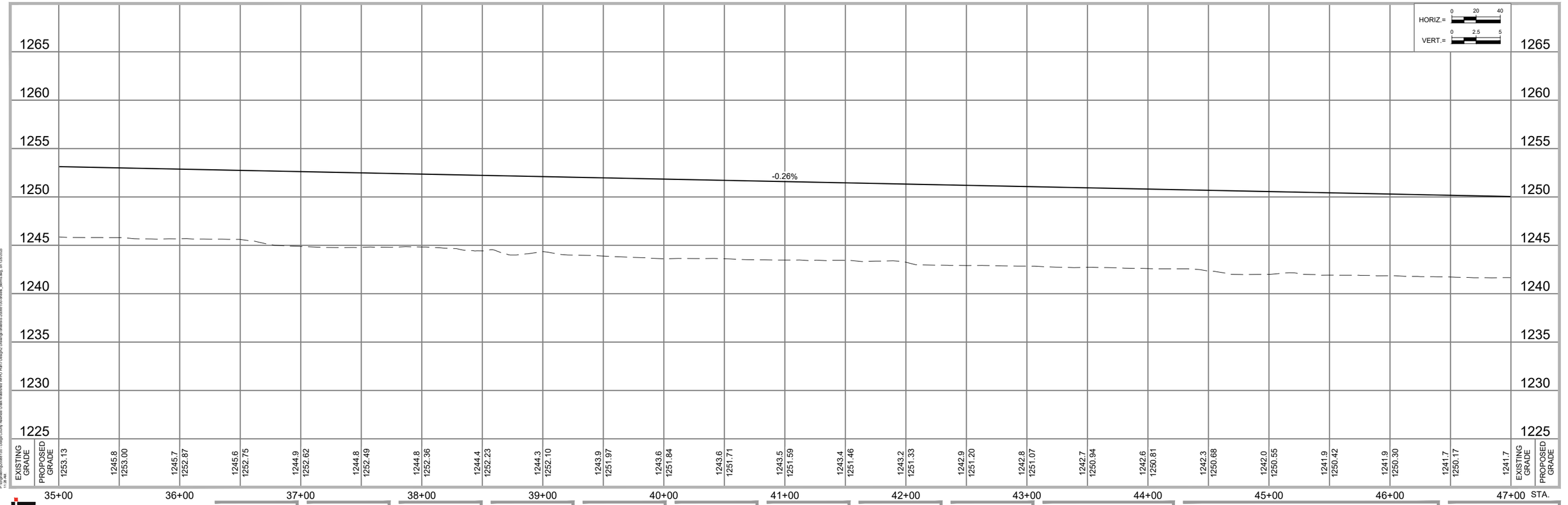
PLAN AND PROFILE **PP1.2**

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA





JEO CONSULTING GROUP

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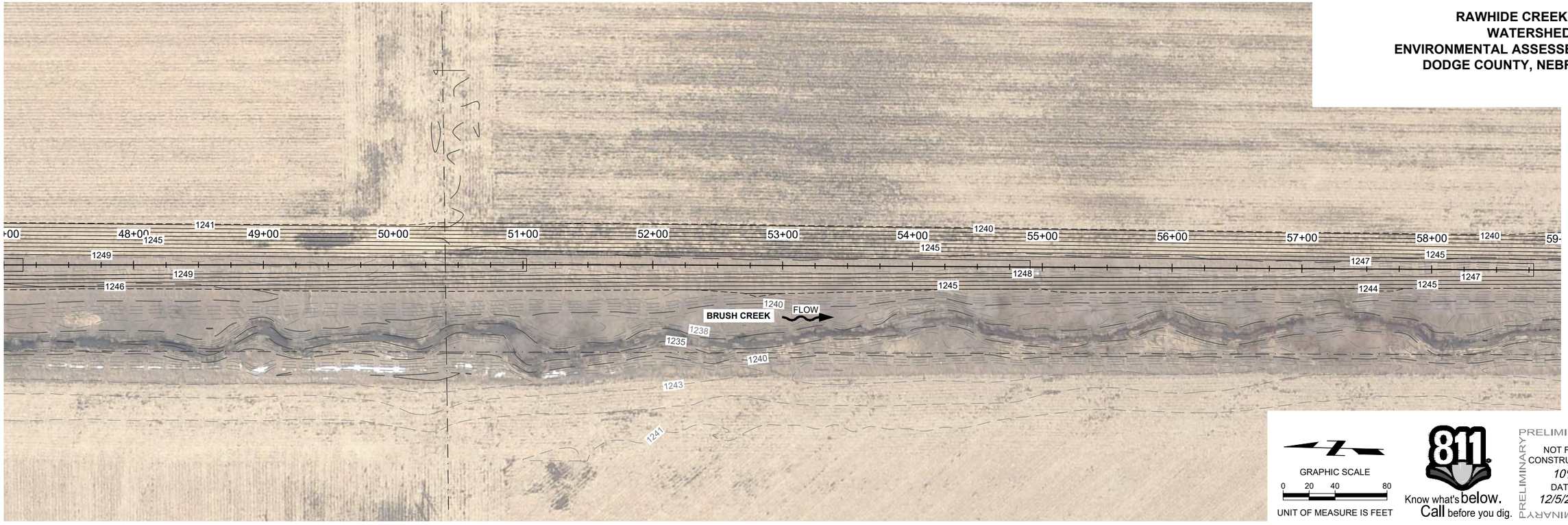
PLAN AND PROFILE

PP1.3

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



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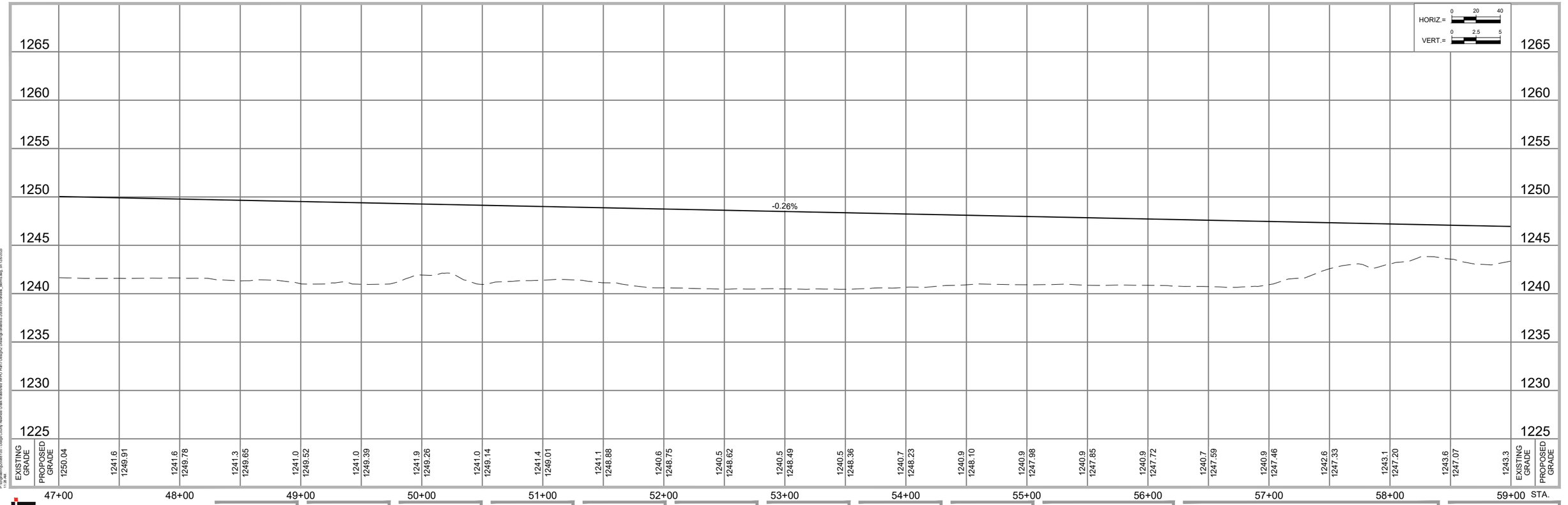

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PROPOSED GRADE		1249.91	1249.78	1249.65	1249.52	1249.39	1249.26	1249.14	1249.01	1248.88	1248.75	1248.62	1248.49
EXISTING GRADE	1240.5	1240.7	1240.9	1240.9	1240.9	1240.7	1240.9	1242.6	1243.1	1243.6	1243.3		
PROPOSED GRADE	1248.36	1248.23	1248.10	1247.98	1247.85	1247.72	1247.59	1247.46	1247.33	1247.20	1247.07		

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JEO CONSULTING GROUP

PLAN AND PROFILE **PP1.4**

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RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

GRAPHIC SCALE
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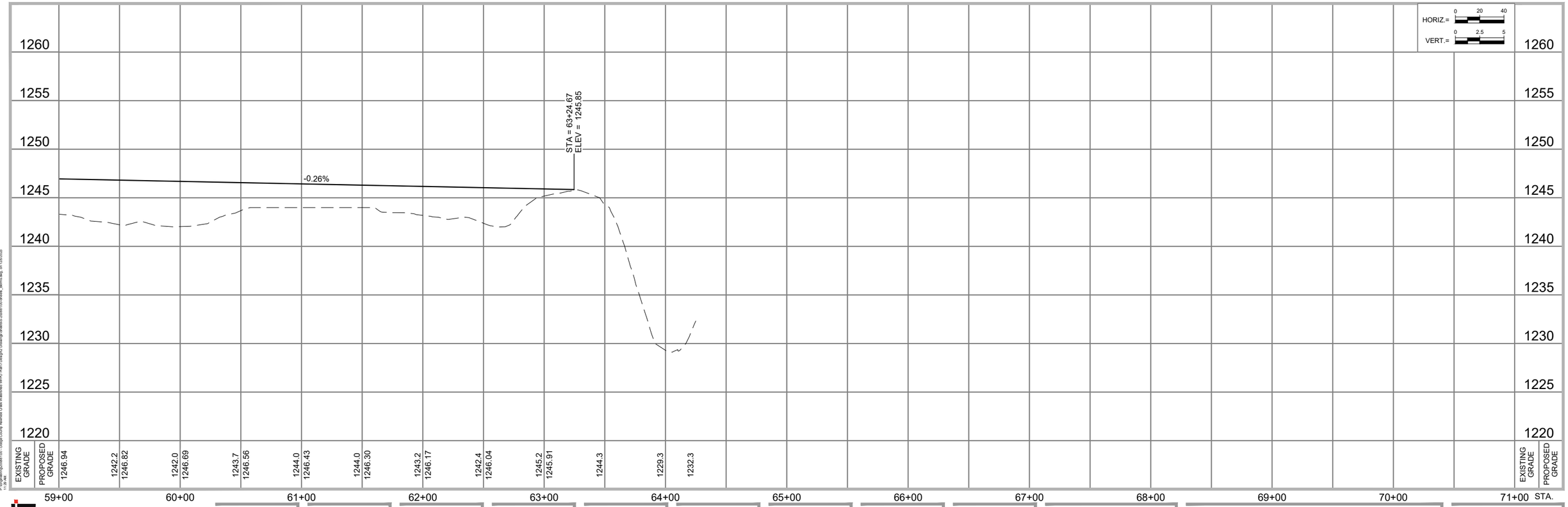
DATE:
12/5/2023



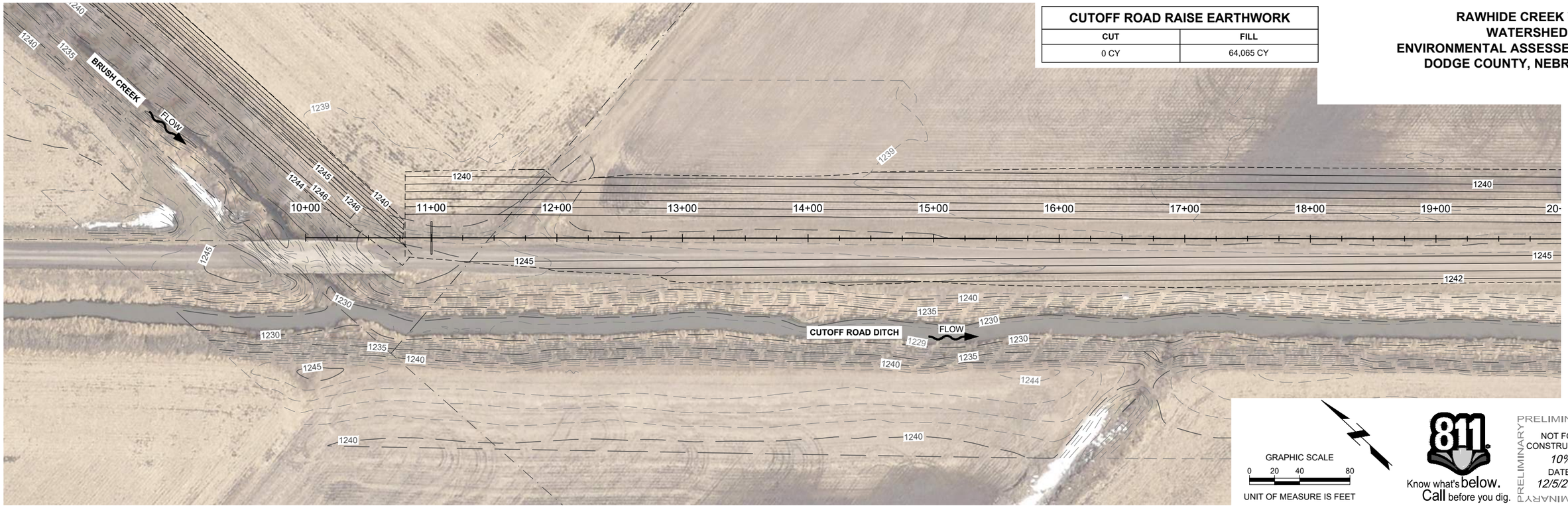
P:\Projects\200881100 - Dodge County Rawhide Creek Watershed WFPO Plan\Timing\02 Drawings\Sheets\200881100-Sheets_Berms.dwg, on 12/5/2023 by Mark

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME		
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg	**PLAN AND PROFILE**	**PP1.5**

JEO CONSULTING GROUP

CUTOFF ROAD RAISE EARTHWORK	
CUT	FILL
0 CY	64,065 CY

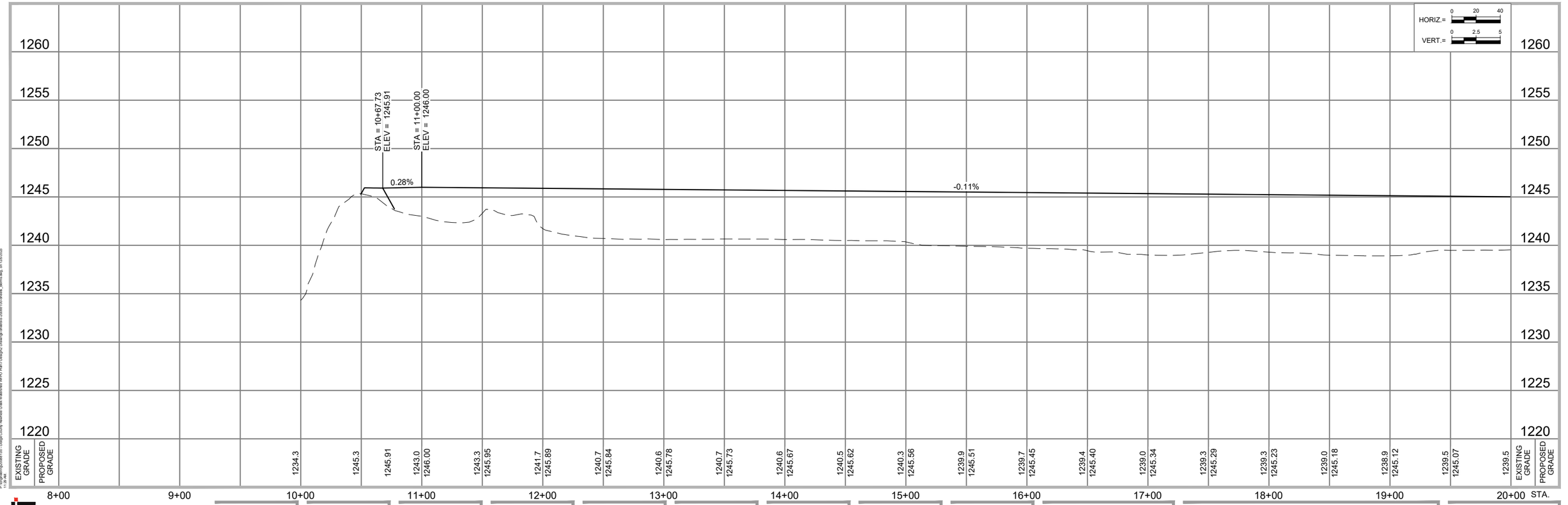
RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

Know what's below. Call before you dig.

PRELIMINARY NOT FOR CONSTRUCTION 10% DATE: 12/5/2023



P:\Projects\200881100 - Dodge County Rawhide Creek Watershed WFPO Plan\Timing\02 Drawings\Sheets\200881100-Sheets_Berms.dwg, on 12/5/2023 by Matt

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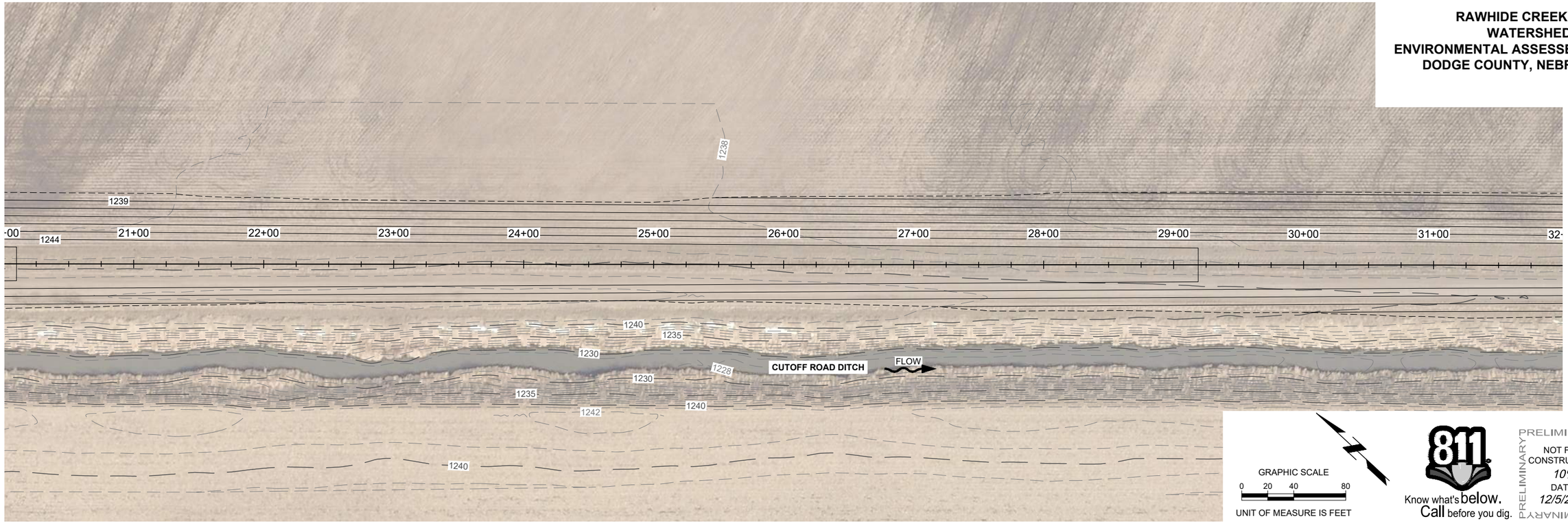
REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg

PLAN AND PROFILE **PP2.1**

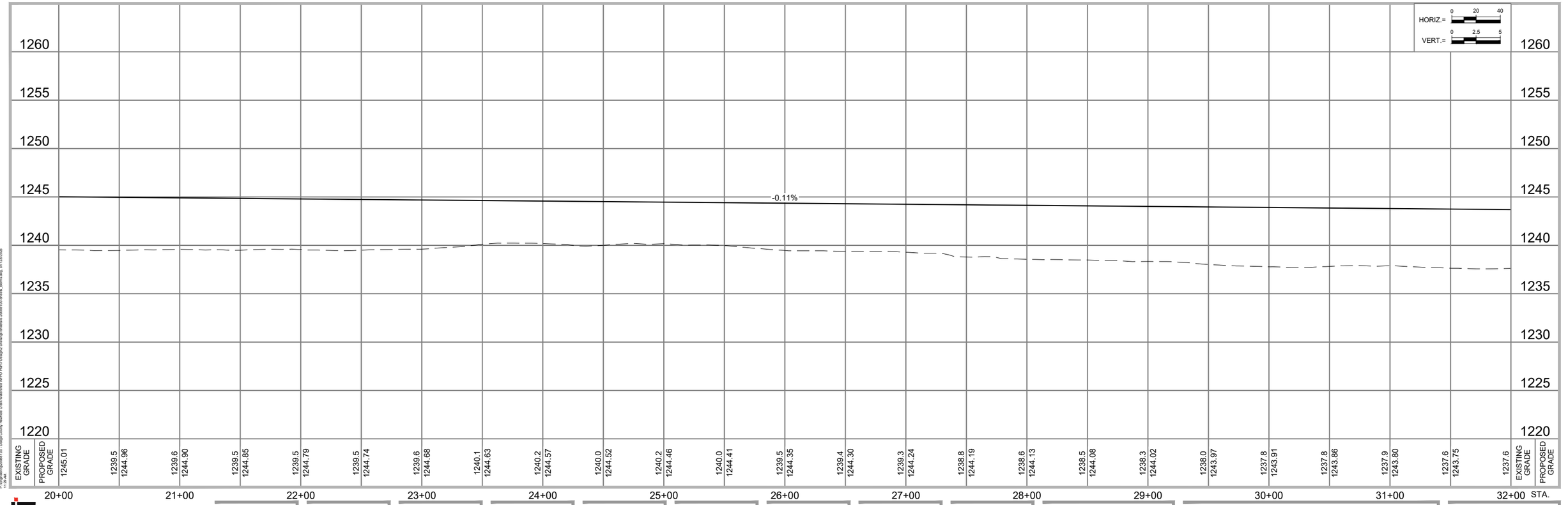
RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
12/5/2023



	20+00	21+00	22+00	23+00	24+00	25+00	26+00	27+00	28+00	29+00	30+00	31+00	32+00	STA.
EXISTING GRADE	1245.01	1239.5	1239.6	1239.5	1239.5	1239.5	1239.6	1240.1	1240.2	1240.0	1240.2	1240.0	1239.5	1239.4	1239.3	1238.8	1238.6	1238.5	1238.3	1238.0	1237.8	1237.8	1237.9	1237.6	1237.6	EXISTING GRADE
PROPOSED GRADE		1244.96	1244.90	1244.85	1244.79	1244.74	1244.68	1244.63	1244.57	1244.52	1244.46	1244.41	1244.35	1244.30	1244.24	1244.19	1244.13	1244.08	1244.02	1243.97	1243.91	1243.86	1243.80	1243.75		PROPOSED GRADE

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REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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PLAN AND PROFILE **PP2.2**

P:\Projects\200881\00 - Dodge County Rawhide Creek Watershed WFPO Plan\Timing\02 Drawings\Sheets\S-200881.00-Sheets_Berms.dwg, on 12/5/2023 by Mark

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

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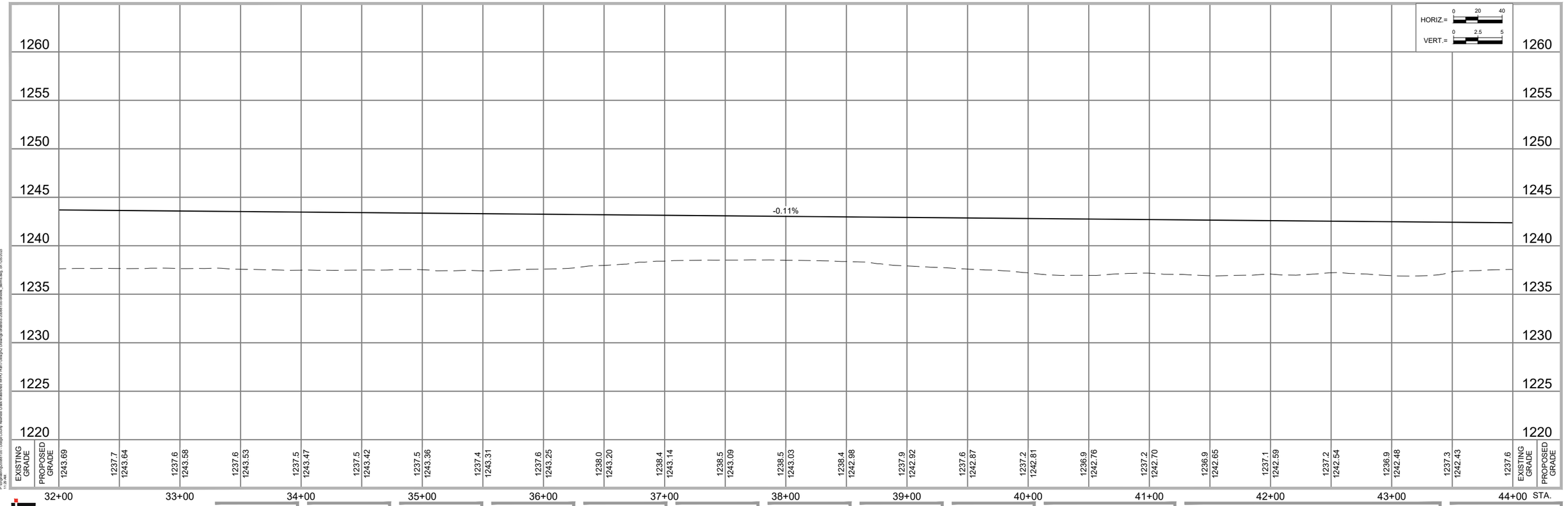
PRELIMINARY NOT FOR CONSTRUCTION 10% DATE: 12/5/2023



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REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg

PLAN AND PROFILE **PP2.3**

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

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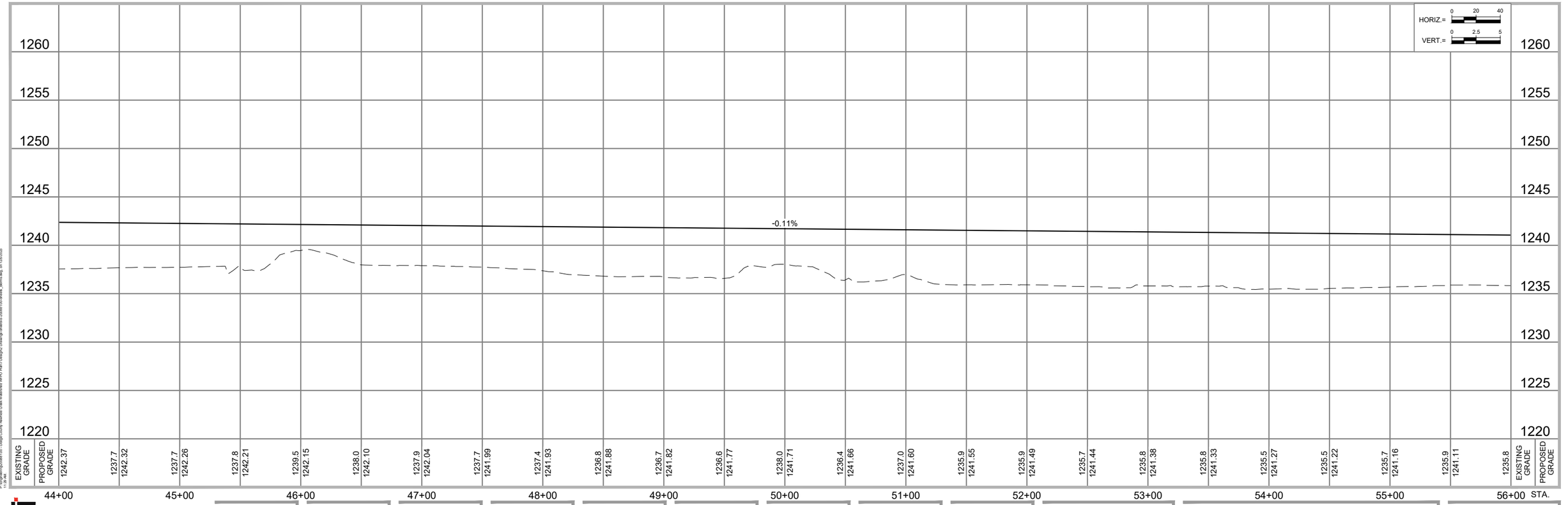
PRELIMINARY NOT FOR CONSTRUCTION 10% DATE: 12/5/2023



STA.	44+00	45+00	46+00	47+00	48+00	49+00	50+00	51+00	52+00	53+00	54+00	55+00	56+00
EXISTING GRADE		1237.7	1237.7	1237.8	1239.5	1238.0	1237.9	1237.7	1237.4	1236.8	1236.7	1236.6	1238.0
PROPOSED GRADE		1242.32	1242.26	1242.21	1242.15	1242.10	1242.04	1241.99	1241.93	1241.88	1241.82	1241.77	1241.71
EXISTING GRADE	1242.37	1237.7	1237.7	1237.8	1239.5	1238.0	1237.9	1237.7	1237.4	1236.8	1236.7	1236.6	1238.0
PROPOSED GRADE	1242.37	1242.32	1242.26	1242.21	1242.15	1242.10	1242.04	1241.99	1241.93	1241.88	1241.82	1241.77	1241.71

STA.	56+00
EXISTING GRADE	1235.8
PROPOSED GRADE	1241.11

STA.	44+00	45+00	46+00	47+00	48+00	49+00	50+00	51+00	52+00	53+00	54+00	55+00	56+00
EXISTING GRADE		1237.7	1237.7	1237.8	1239.5	1238.0	1237.9	1237.7	1237.4	1236.8	1236.7	1236.6	1238.0
PROPOSED GRADE		1242.32	1242.26	1242.21	1242.15	1242.10	1242.04	1241.99	1241.93	1241.88	1241.82	1241.77	1241.71
EXISTING GRADE	1242.37	1237.7	1237.7	1237.8	1239.5	1238.0	1237.9	1237.7	1237.4	1236.8	1236.7	1236.6	1238.0
PROPOSED GRADE	1242.37	1242.32	1242.26	1242.21	1242.15	1242.10	1242.04	1241.99	1241.93	1241.88	1241.82	1241.77	1241.71

STA.	56+00
EXISTING GRADE	1235.8
PROPOSED GRADE	1241.11

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REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg

PLAN AND PROFILE **PP2.4**

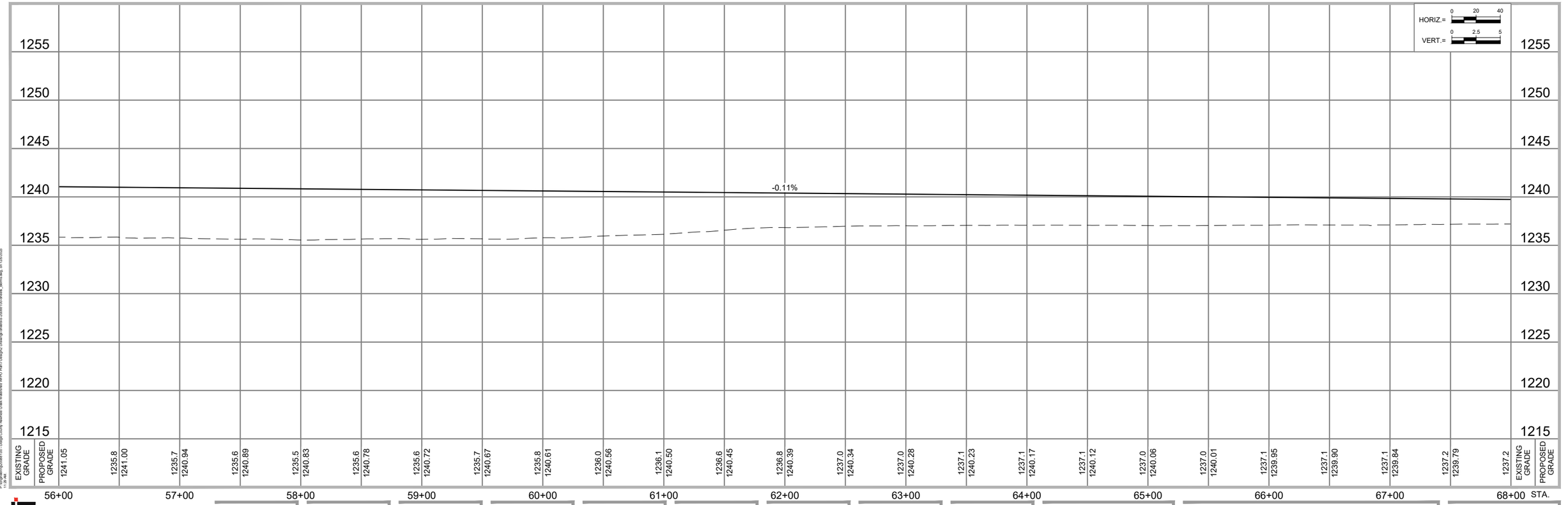
P:\Projects\200881.00 - Dodge County Rawhide Creek Watershed WFPO Plan\Timelight2 Drawings\Sheets\S-200881.00-Sheets_Berms.dwg, on 12/5/2023 10:46:4

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

Know what's below. Call before you dig.

PRELIMINARY NOT FOR CONSTRUCTION 10% DATE: 12/5/2023 PRELIMINARY



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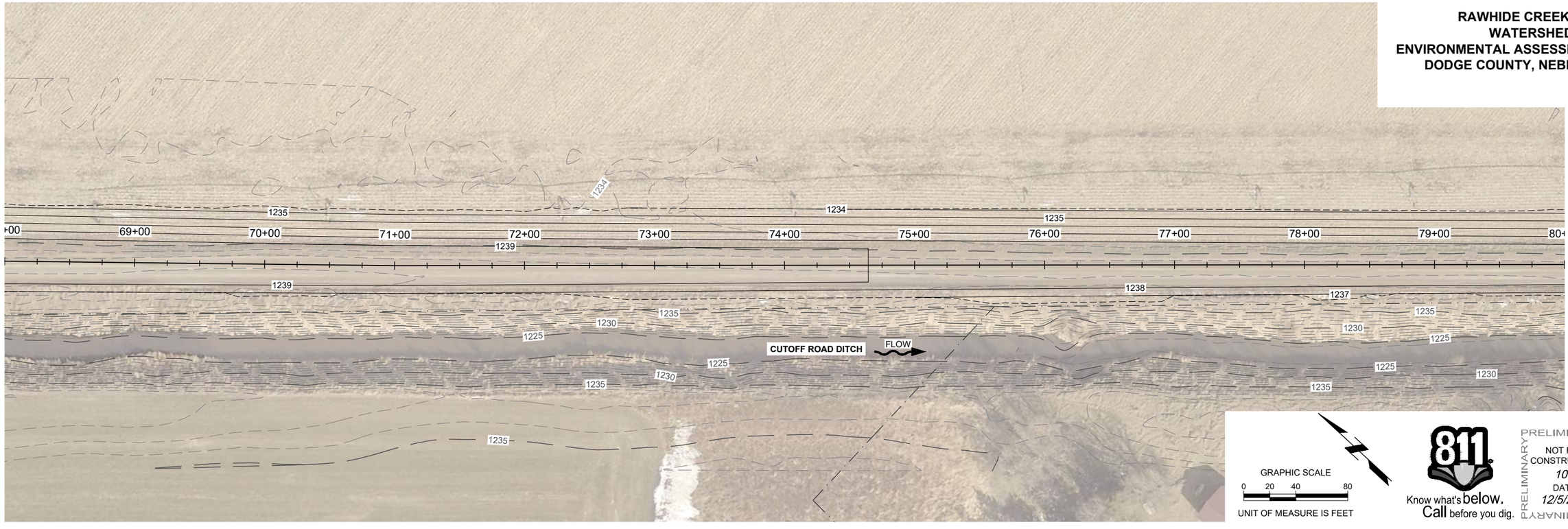
JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME		
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg	**PLAN AND PROFILE**	**PP2.5**

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



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REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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PLAN AND PROFILE

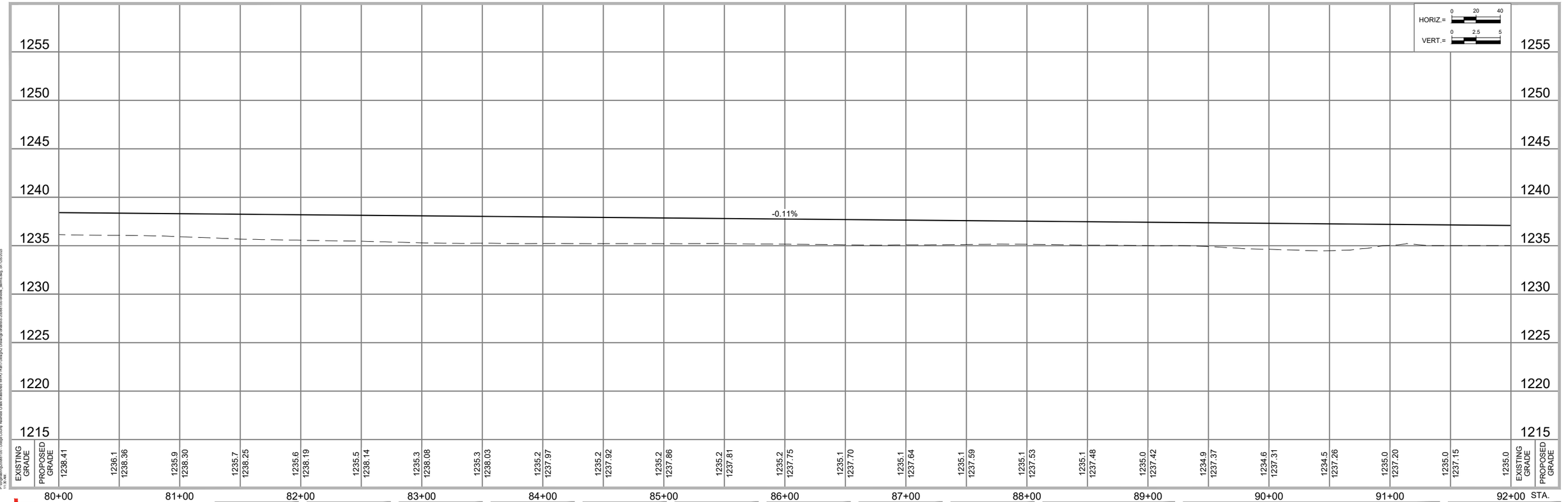
PP2.6

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

Know what's **below.** **Call** before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
12/5/2023



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PLAN AND PROFILE

PP2.7

P:\Projects\200881100 - Dodge County Rawhide Creek Watershed WFPO Plan\Timing\02 Drawings\Sheets\S-200881100-Sheets_Berms.dwg, on 12/5/2023 by Mark

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg

PLAN AND PROFILE

PP2.8

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

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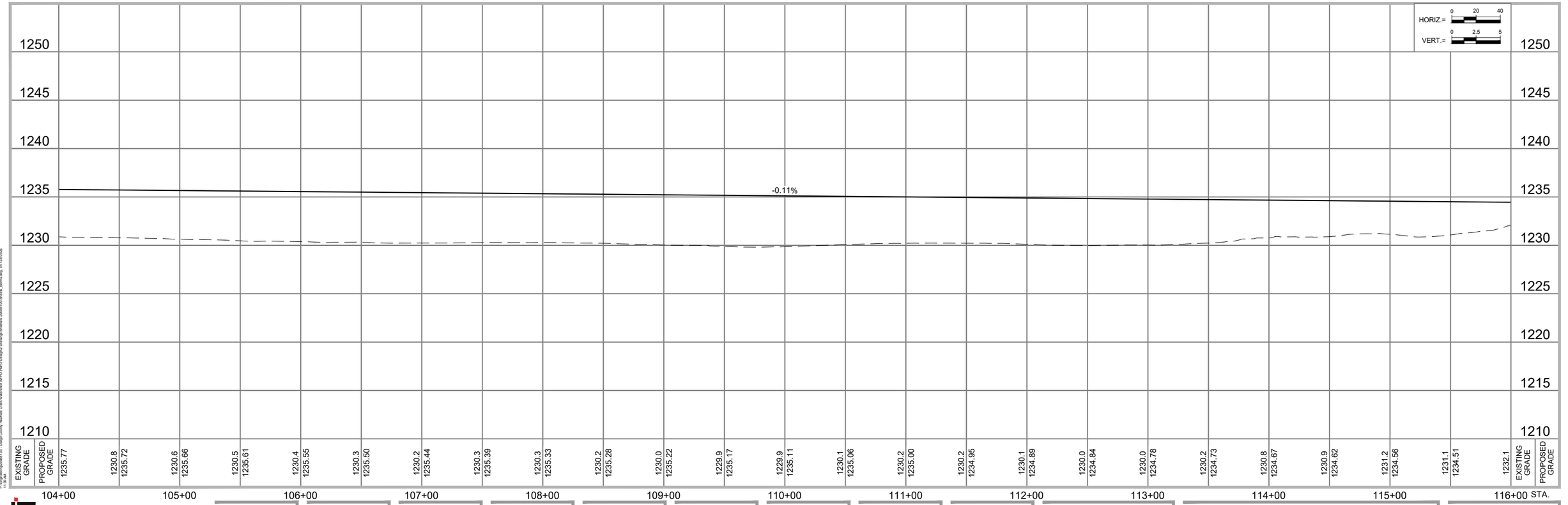
PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
12/5/2023



	104+00	105+00	106+00	107+00	108+00	109+00	110+00	111+00	112+00	113+00	114+00	115+00	116+00 STA.
EXISTING GRADE		1230.8	1230.6	1230.5	1230.4	1230.3	1230.2	1230.3	1230.3	1230.2	1230.0	1229.9	1229.9	1230.1	1230.2	1230.2	1230.1	1230.0	1230.0	1230.2	1230.8	1230.9	1231.2	1231.1	1232.1	EXISTING GRADE
PROPOSED GRADE	1235.77	1235.72	1235.66	1235.61	1235.55	1235.50	1235.44	1235.39	1235.33	1235.28	1235.22	1235.17	1235.11	1235.06	1235.00	1234.95	1234.89	1234.84	1234.78	1234.73	1234.67	1234.62	1234.56	1234.51		PROPOSED GRADE

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	12/5/2023	200881.00	S-200881.00-Sheets_Berms.dwg

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PLAN AND PROFILE

PP2.9

P:\Projects\200881\00 - Dodge County Rawhide Creek Watershed WFPO Plan\Timelg\02 Drawings\Sheets\S-200881.00-Sheets_Berms.dwg, on 12/5/2023 by Mike

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

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REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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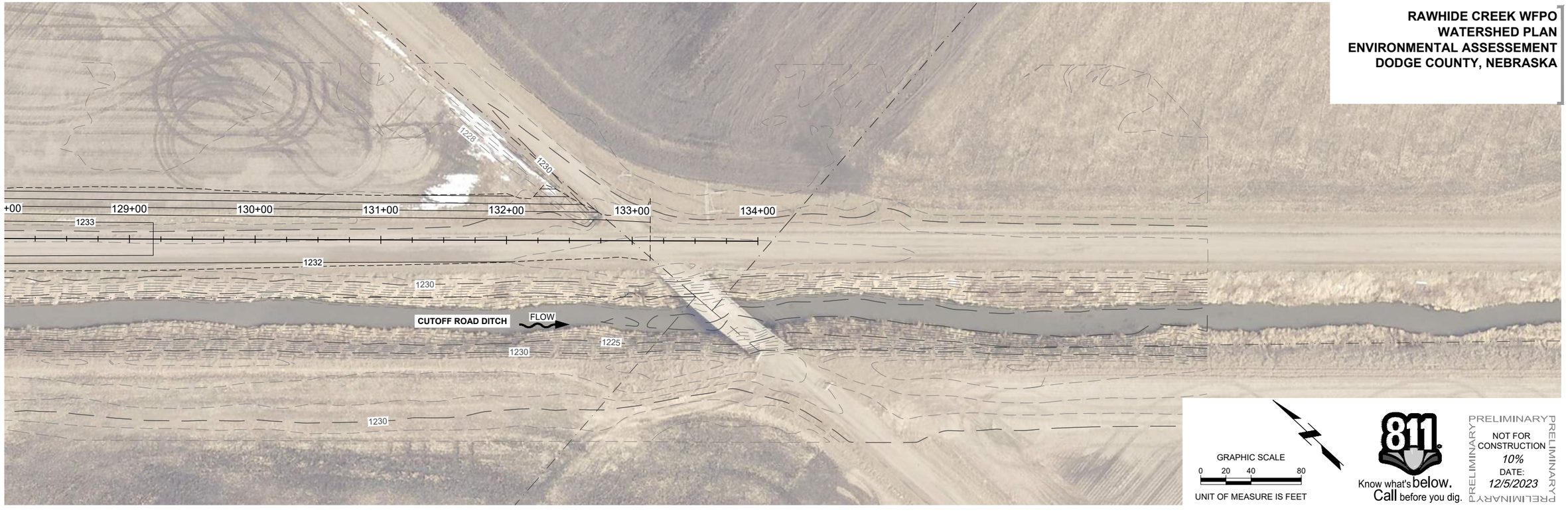
PLAN AND PROFILE

PP2.10

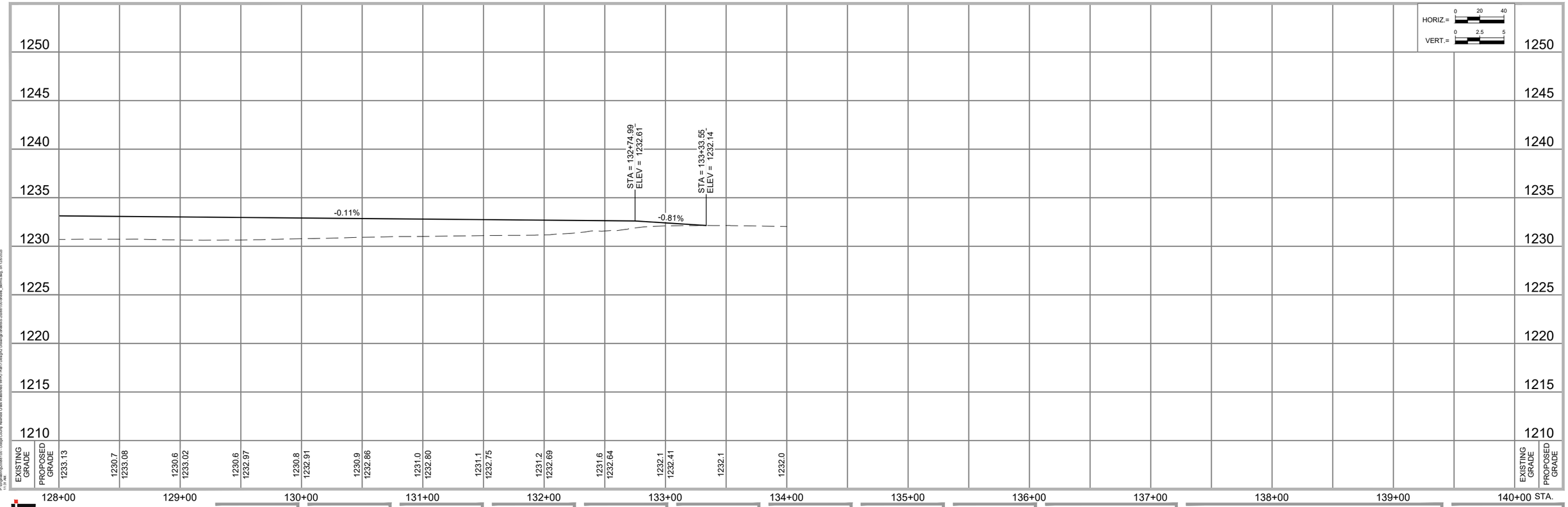
RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
12/5/2023



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REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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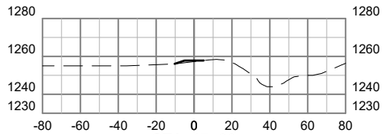
PLAN AND PROFILE **PP2.11**



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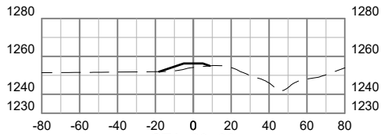

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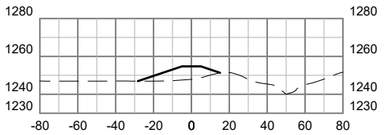

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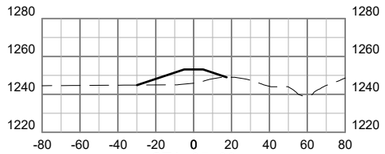

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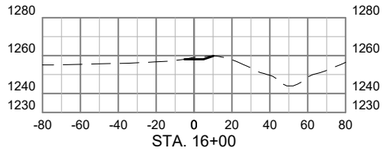

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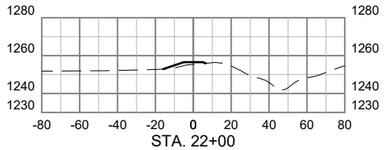

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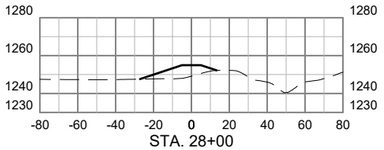

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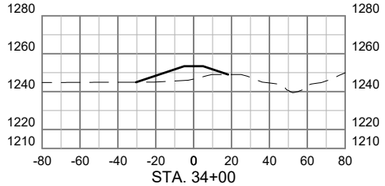

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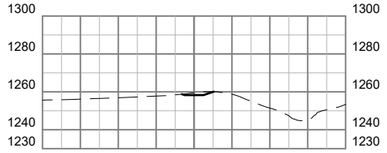

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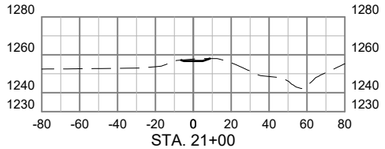

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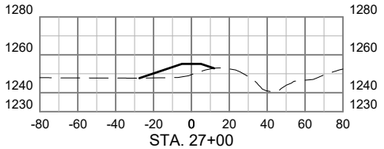

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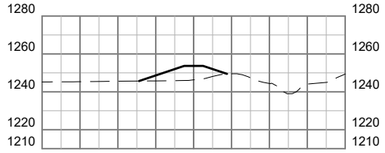

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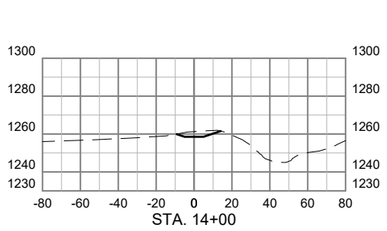

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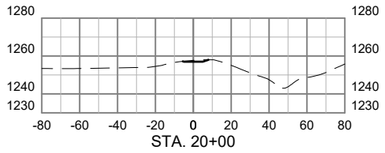

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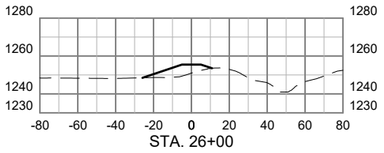

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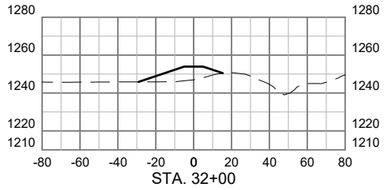

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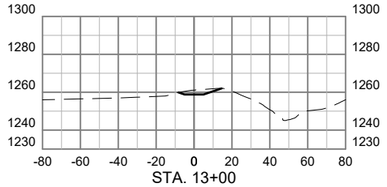

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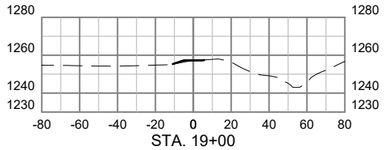

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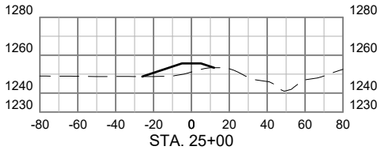

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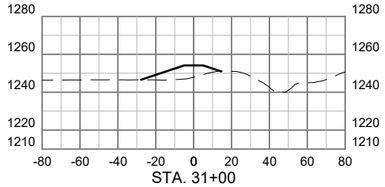

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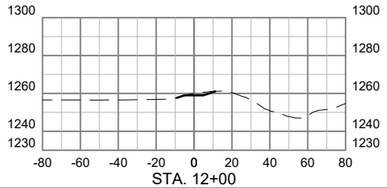

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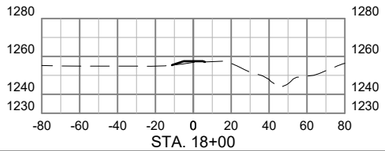

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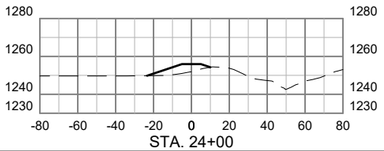

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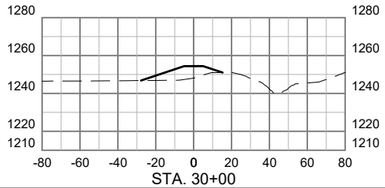

STA. 30+00

PRELIMINARY
NOT FOR CONSTRUCTION
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DATE:
8/30/2023

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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CROSS SECTIONS

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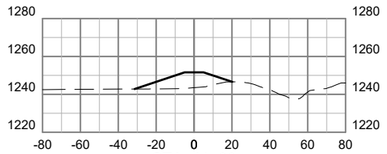

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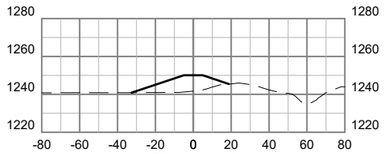

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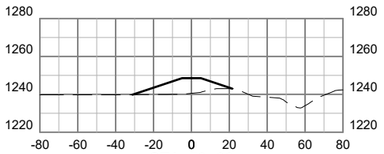

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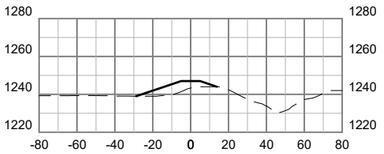

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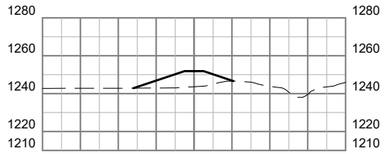

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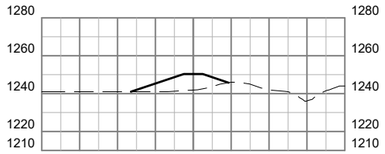

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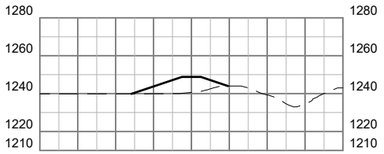

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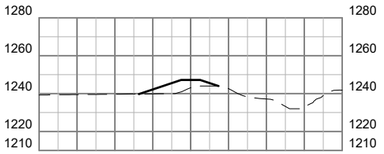

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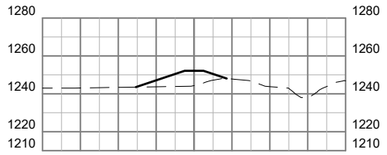

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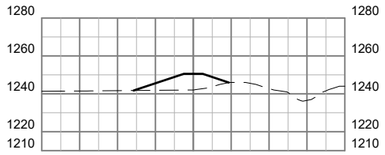

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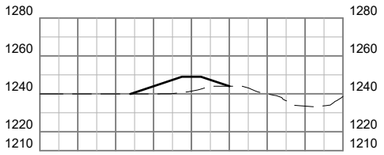

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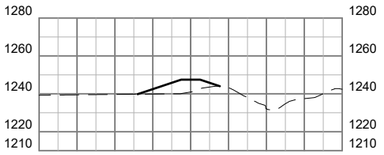

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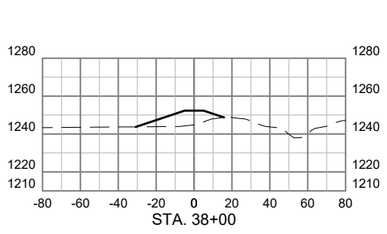

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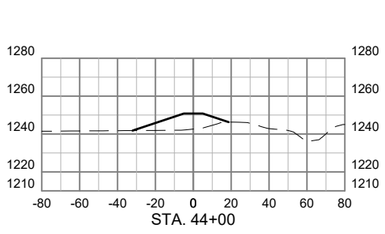

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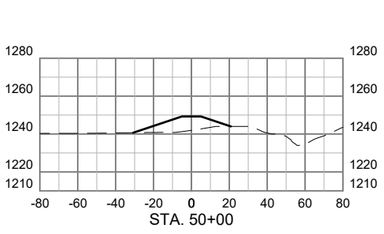

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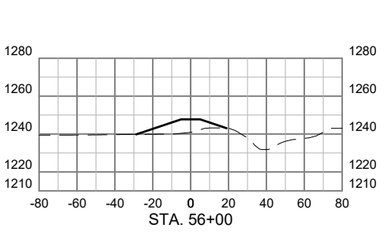

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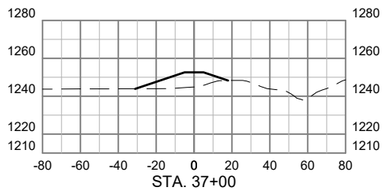

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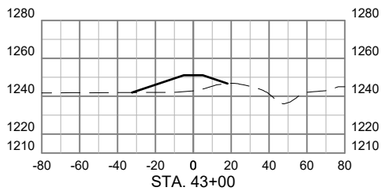

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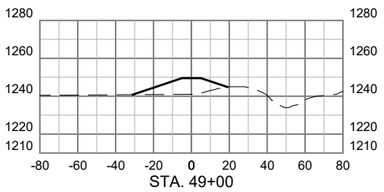

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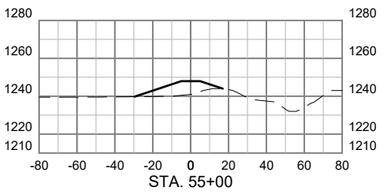

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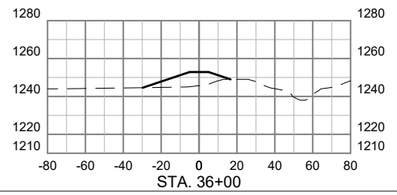

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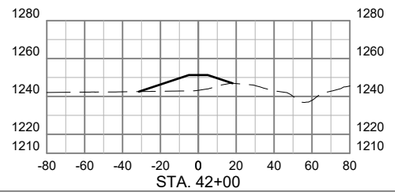

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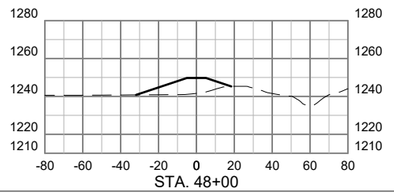

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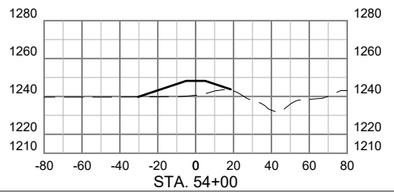

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8/30/2023

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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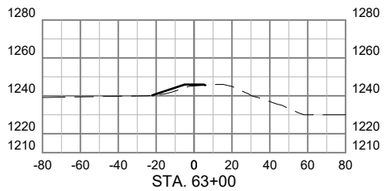
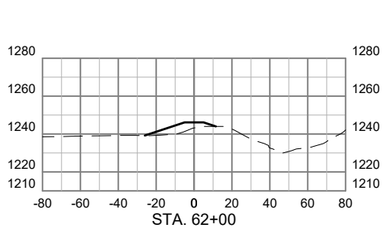


STA. 63+00



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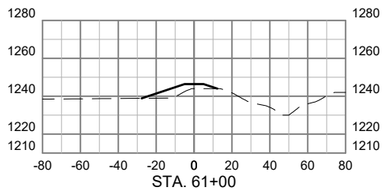

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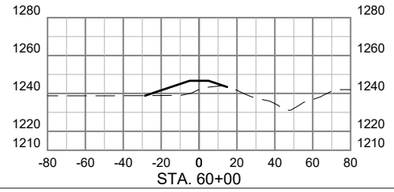

STA. 60+00

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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CROSS SECTIONS

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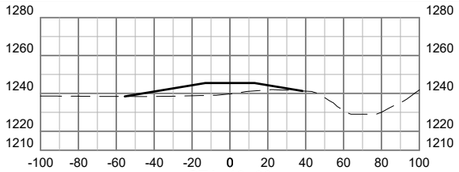

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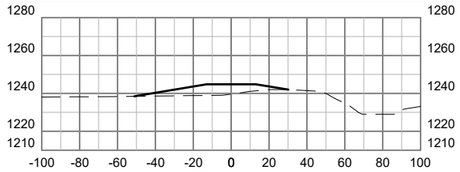

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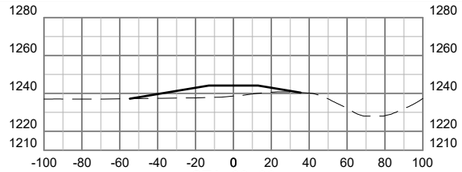

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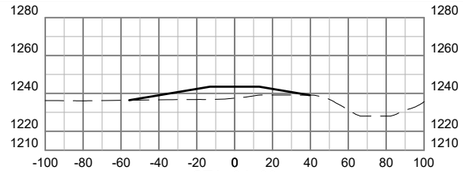

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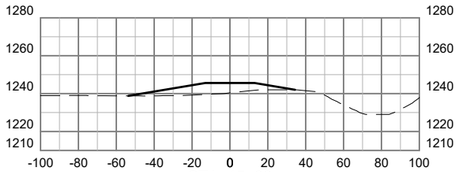

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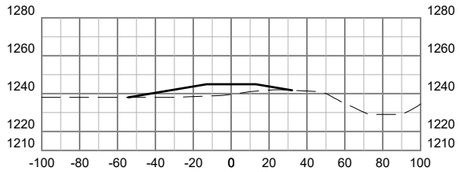

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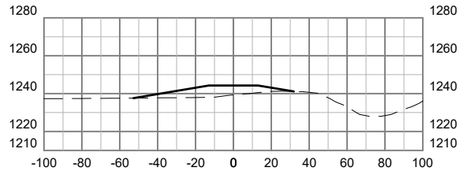

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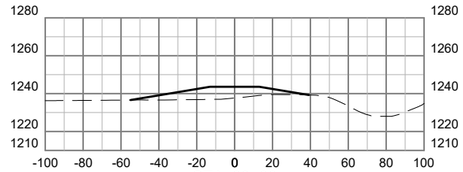

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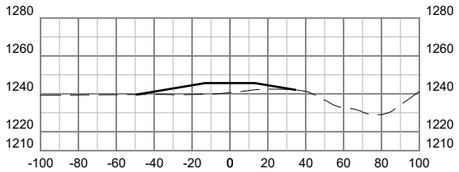

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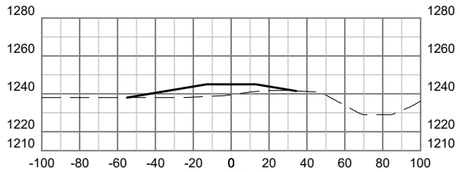

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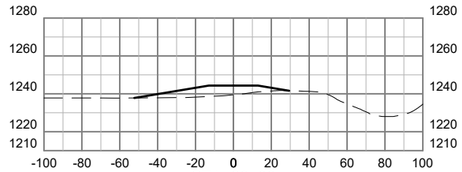

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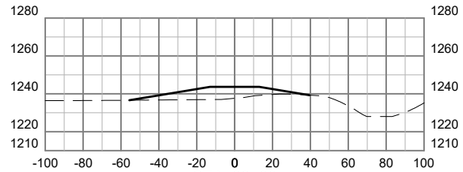

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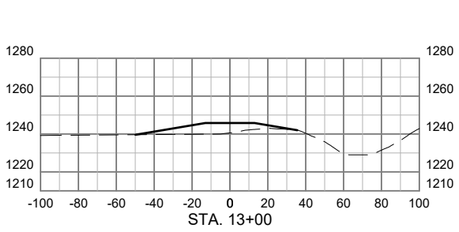

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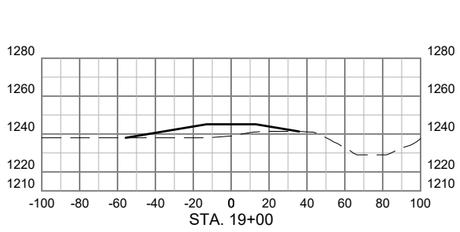

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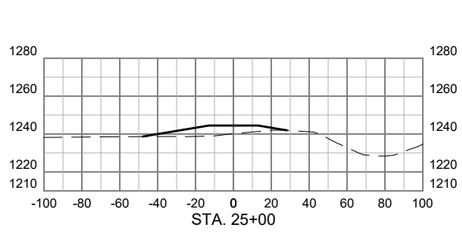

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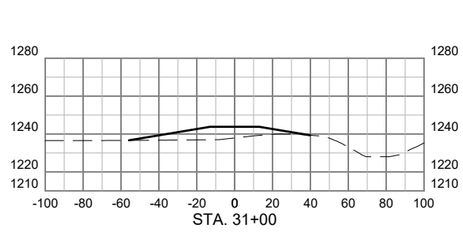

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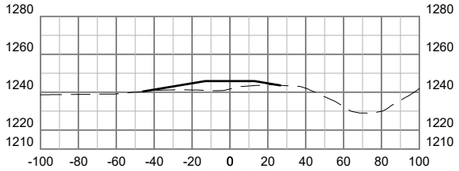

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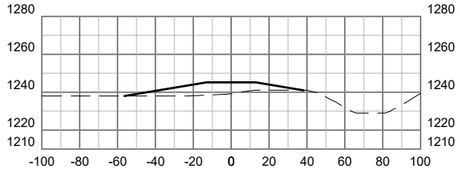

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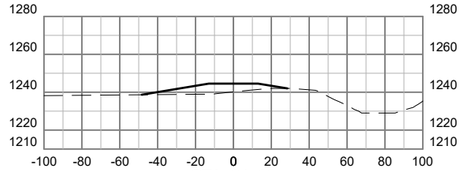

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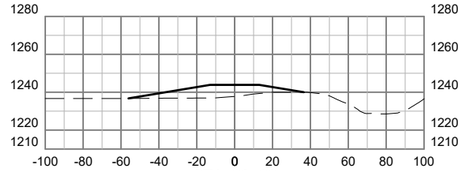

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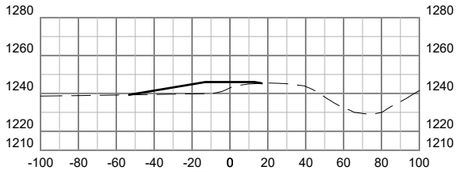

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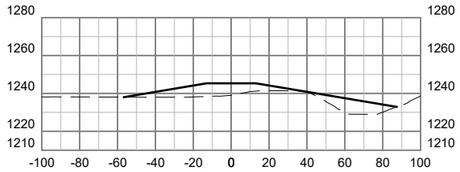

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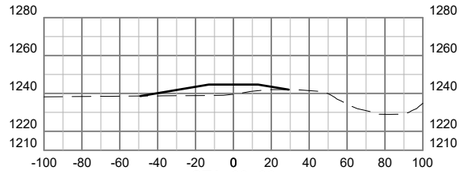

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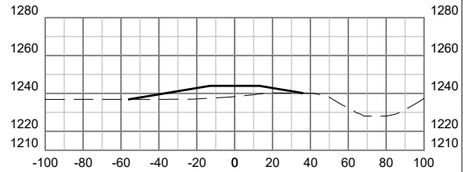

STA. 29+00

PRELIMINARY
NOT FOR CONSTRUCTION
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8/30/2023

HORIZ.= 0 10 20

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	8/30/2023	200881.00	S-200881.00-Sheets_Berms.dwg

CROSS SECTIONS

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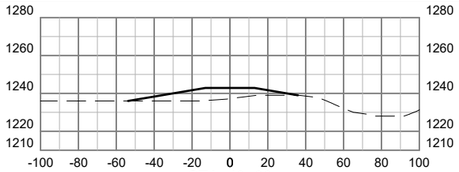

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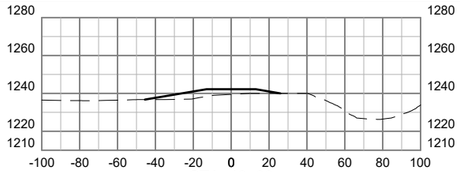

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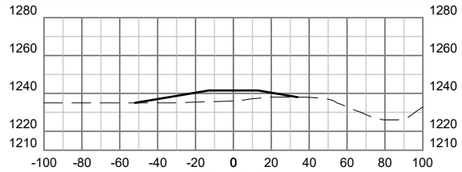

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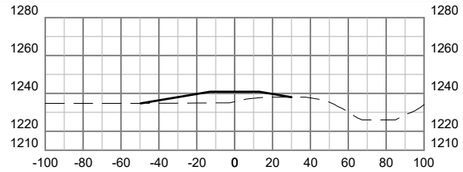

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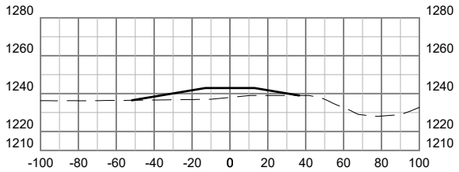

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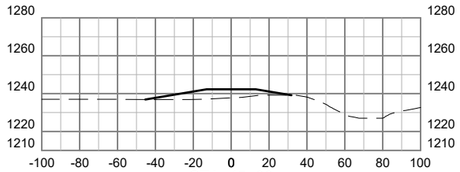

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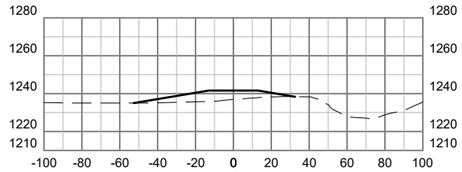

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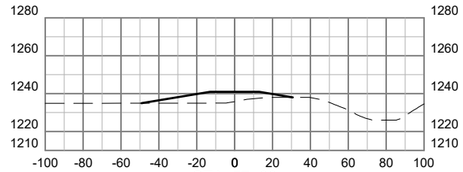

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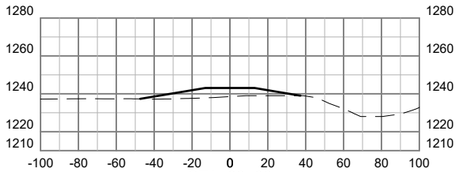

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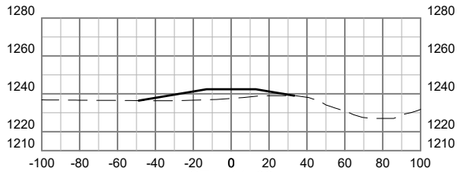

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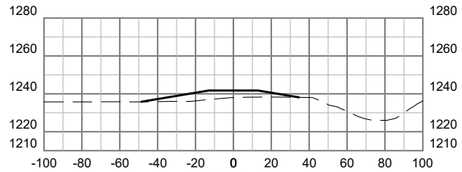

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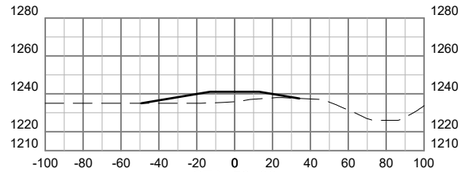

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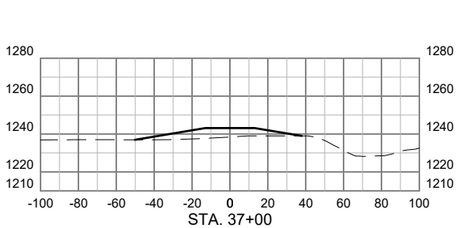

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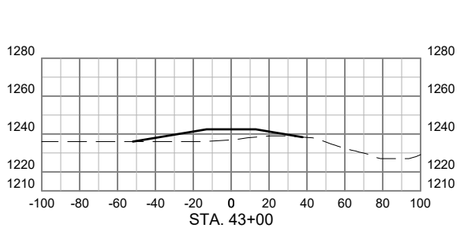

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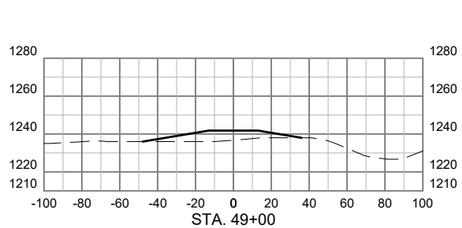

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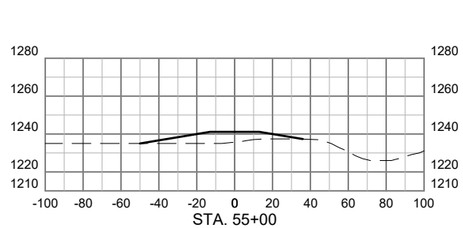

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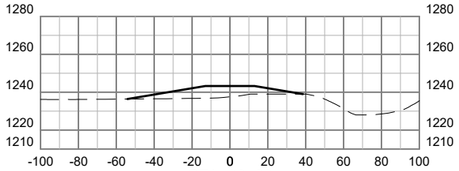

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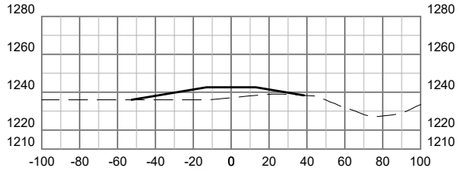

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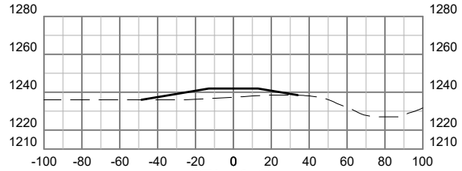

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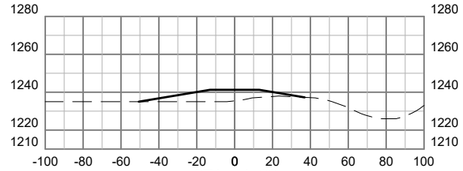

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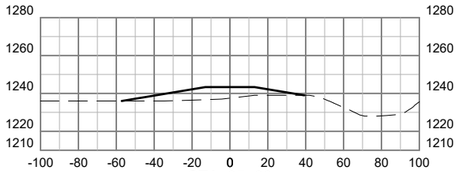

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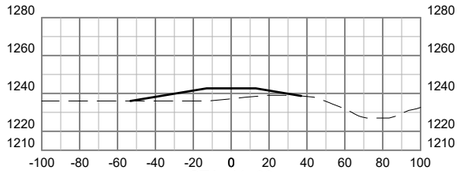

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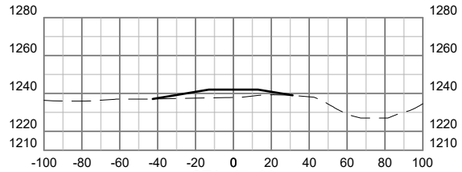

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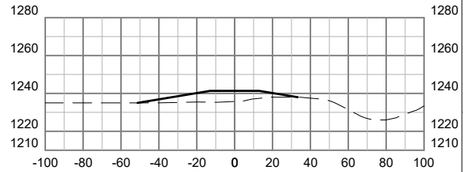

STA. 53+00

PRELIMINARY
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8/30/2023

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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CROSS SECTIONS

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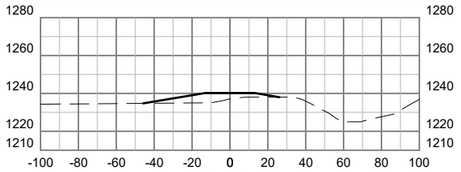

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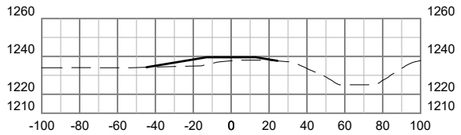

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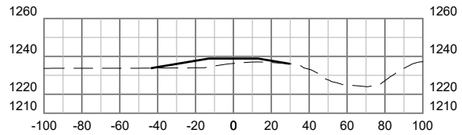

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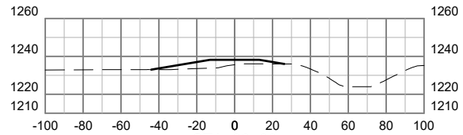
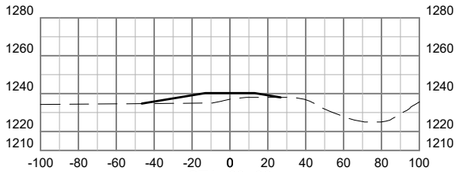


STA. 82+00



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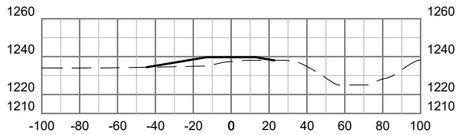

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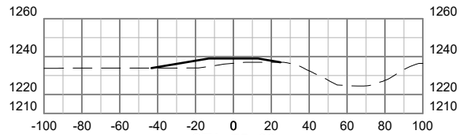

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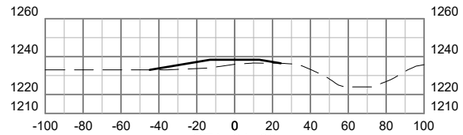

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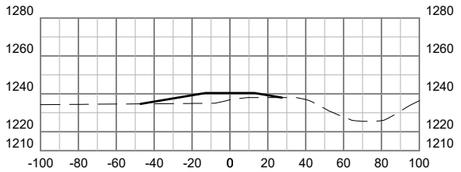

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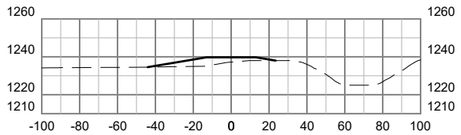

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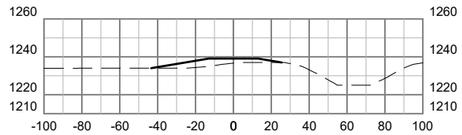

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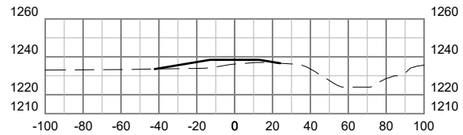

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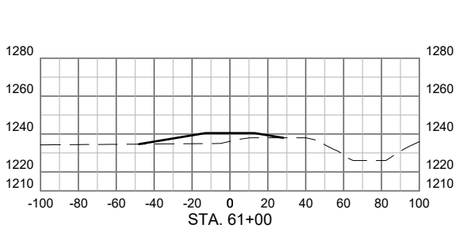

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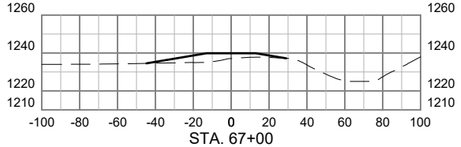

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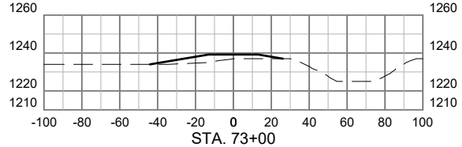

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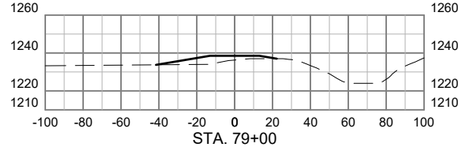

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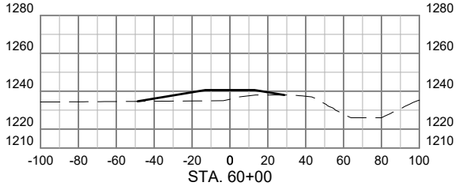

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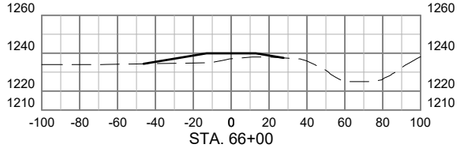

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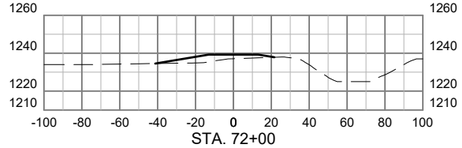

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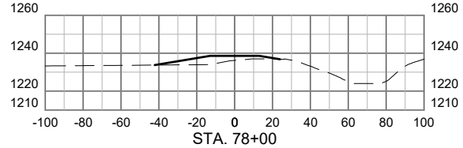

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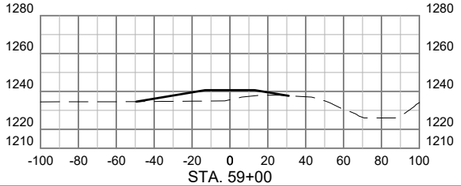

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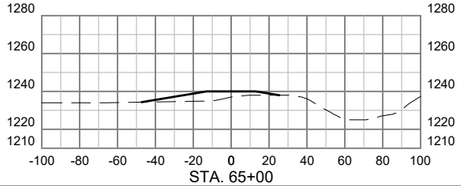

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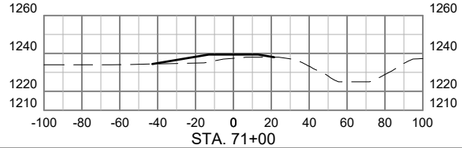

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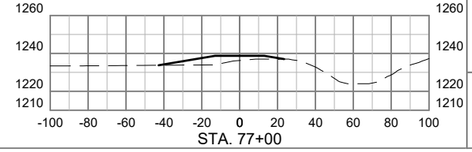

STA. 77+00

PRELIMINARY
NOT FOR CONSTRUCTION
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DATE:
8/30/2023

HORIZ.= 0 10 20
VERT.= 0 5 10

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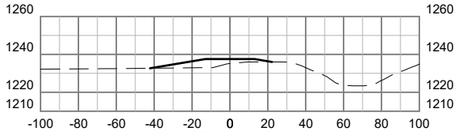
JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			DRAWN BY	8/30/2023	200881.00	S-200881.00-Sheets_Berms.dwg

CROSS SECTIONS

XS2.3



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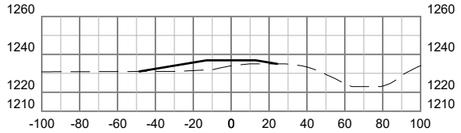

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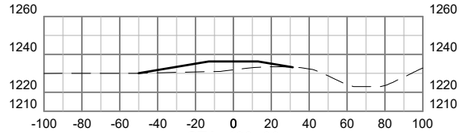

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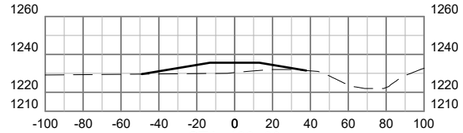

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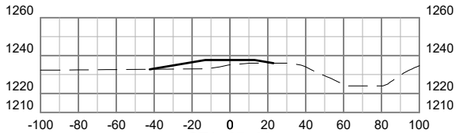

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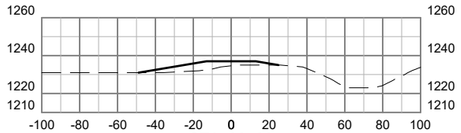

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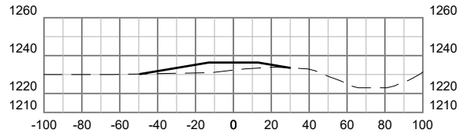

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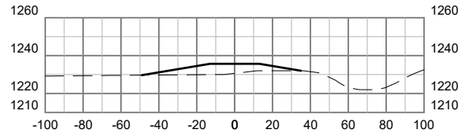

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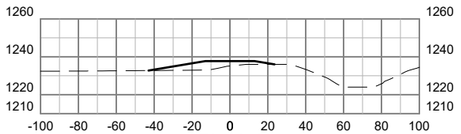

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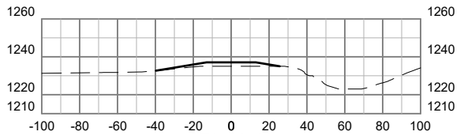

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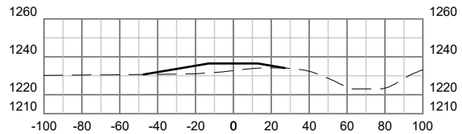

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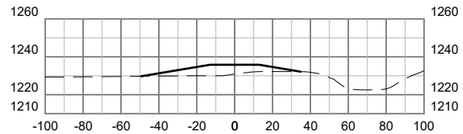

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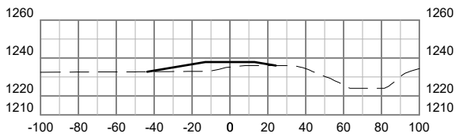

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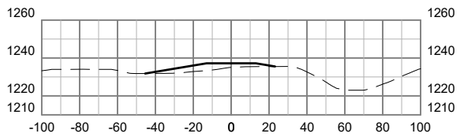

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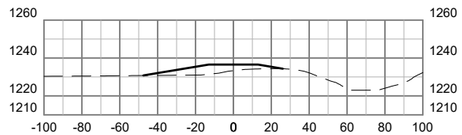

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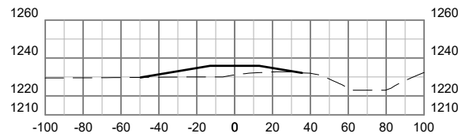

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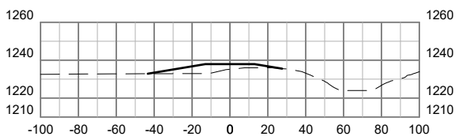

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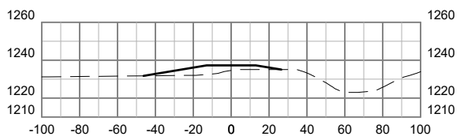

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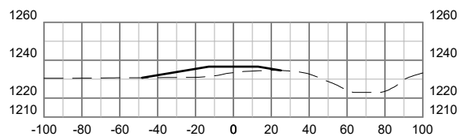

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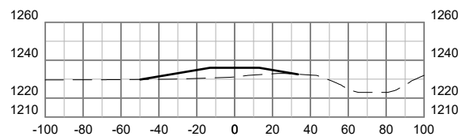

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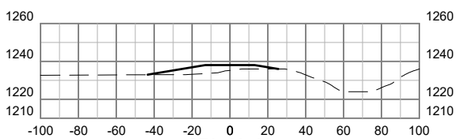

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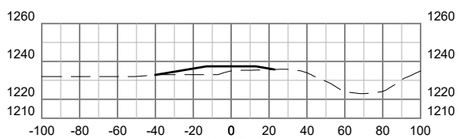

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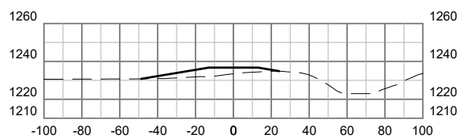

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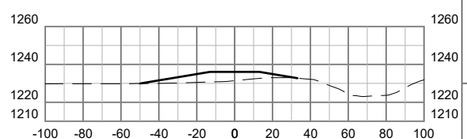

STA. 101+00

PRELIMINARY
NOT FOR CONSTRUCTION
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DATE:
8/30/2023

HORIZ.= 0 10 20
VERT.= 0 5 10

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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CROSS SECTIONS

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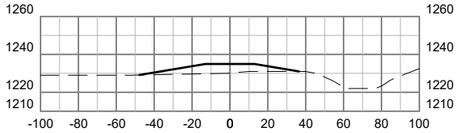

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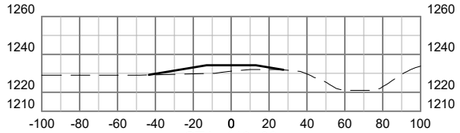

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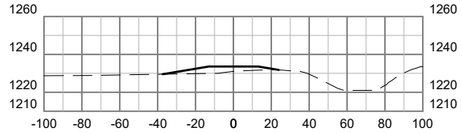

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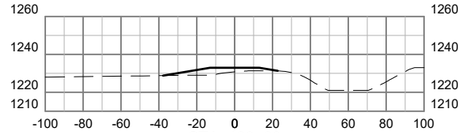
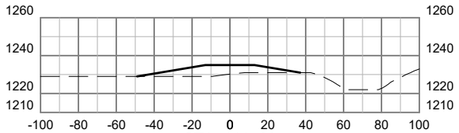


STA. 130+00



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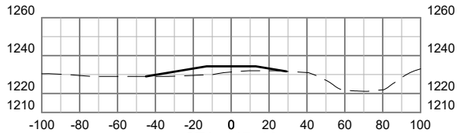

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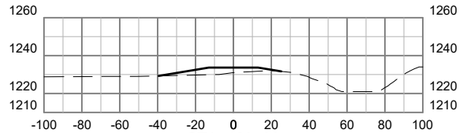

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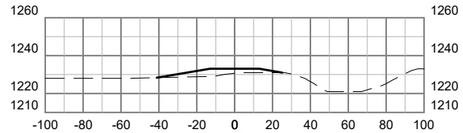

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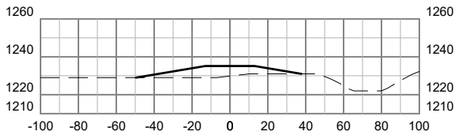

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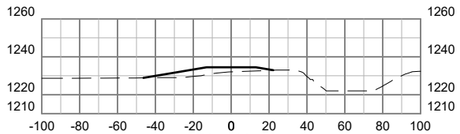

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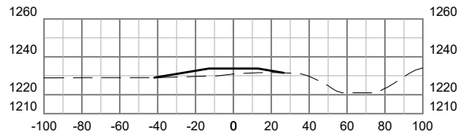

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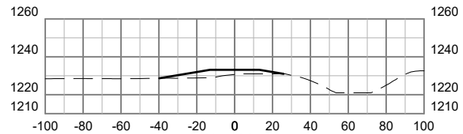

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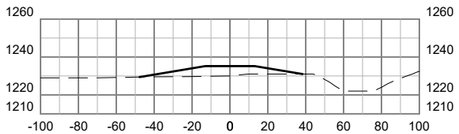

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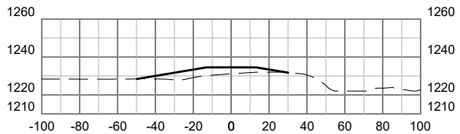

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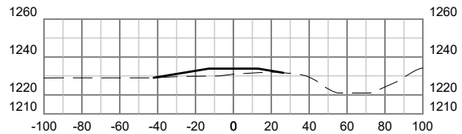

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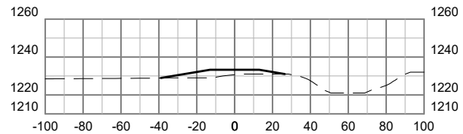

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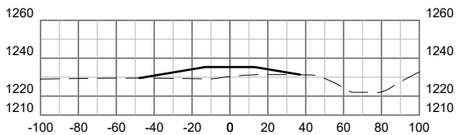

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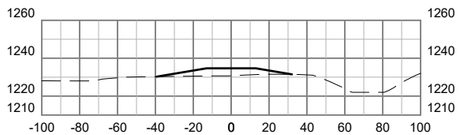

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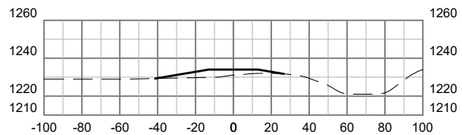

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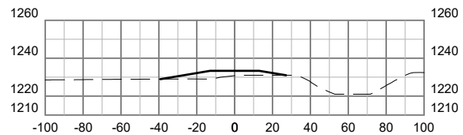

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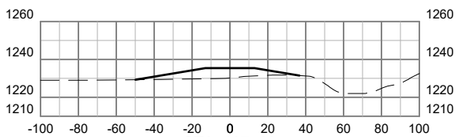

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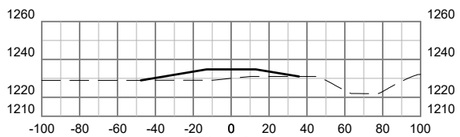

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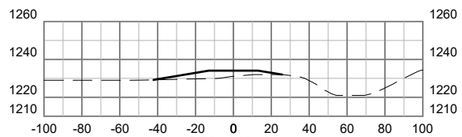

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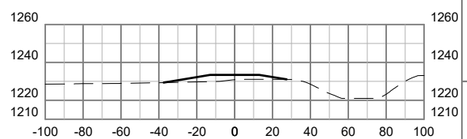

STA. 125+00

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
8/30/2023

HORIZ.= 0 10 20
VERT.= 0 5 10

P:\Projects\200881\00 - Dodge County Rawhide Creek Watershed WFPO Part F\Design\2 Drawings\Sheets\S-200881.00-Sheets_Berms.dwg, on 8/31/2023 12:31 PM

JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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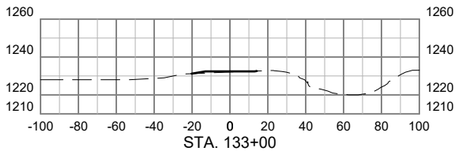
CROSS SECTIONS

XS2.5



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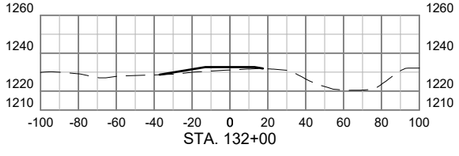

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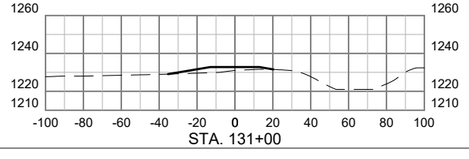

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PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
8/30/2023

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JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME		
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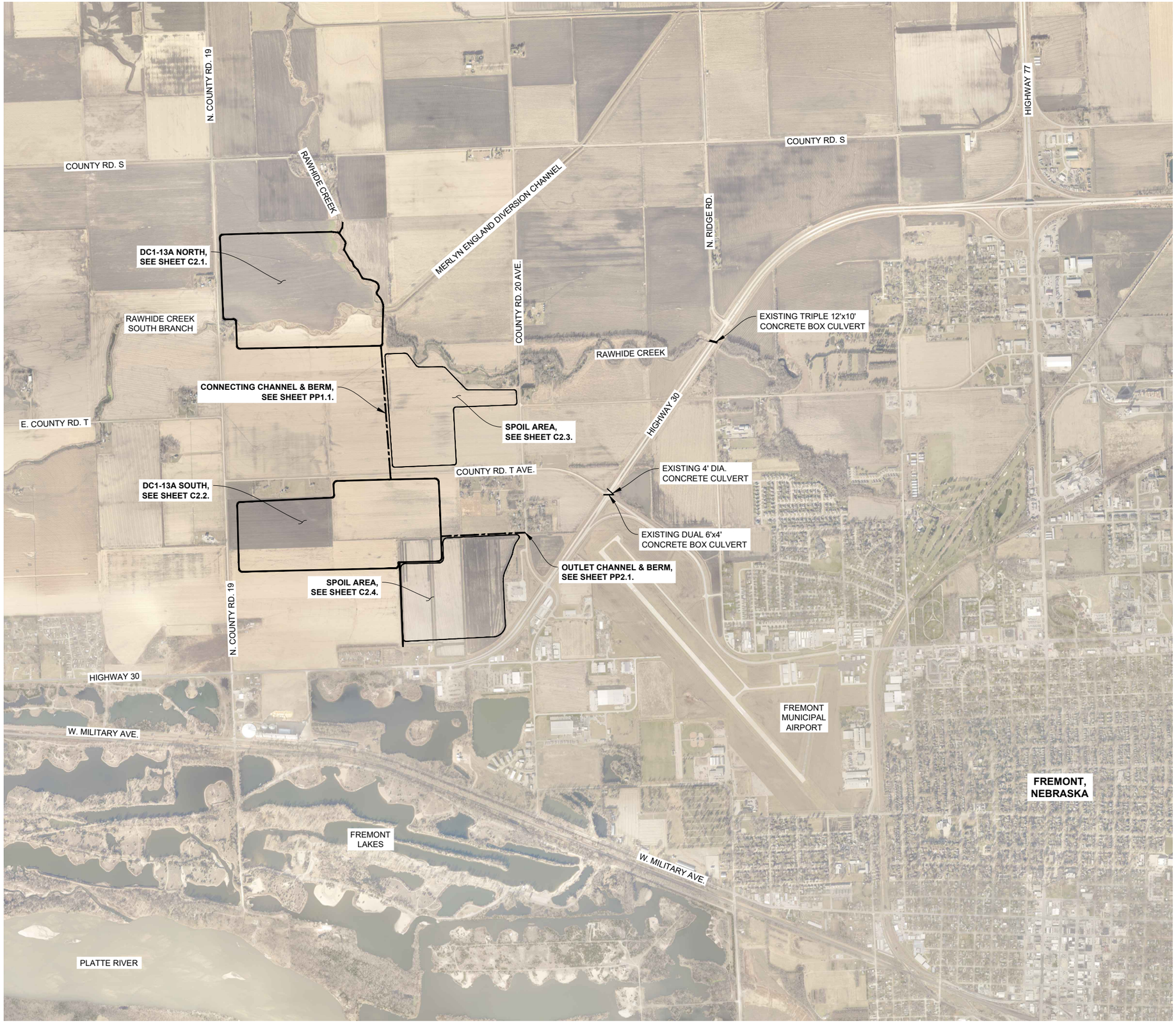


GRAPHIC SCALE

0 500 1,000 2,000

UNIT OF MEASURE IS FEET

JEO CONSULTING GROUP
1-800-728-8567

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

OVERALL PROJECT VICINITY MAP

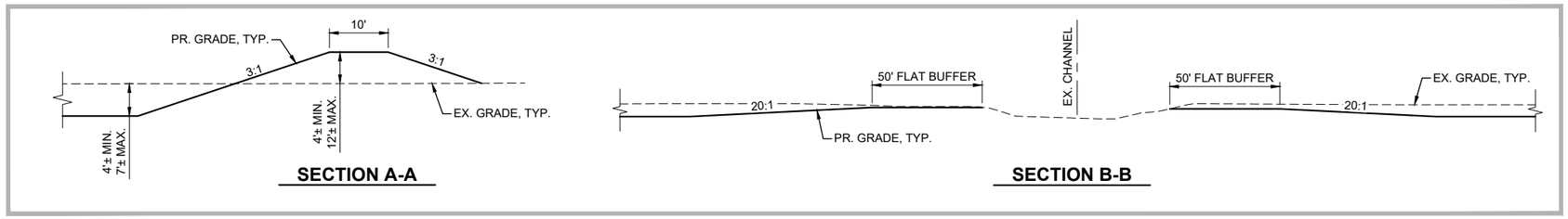
PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025

PROJECT NO.	200881.00
DATE	2/21/2025
DRAWN BY	T.R.W.
FILE NAME	S-200881.00-Sheets.dwg
FIELD BOOK	N/A
FIELD CREW	N/A
SURVEY FILE NO.	N/A
PLAN IN HAND INITIALS / DATE	
70 PERCENT REVIEW INITIALS / DATE	
95 PERCENT REVIEW INITIALS / DATE	
REVISIONS	

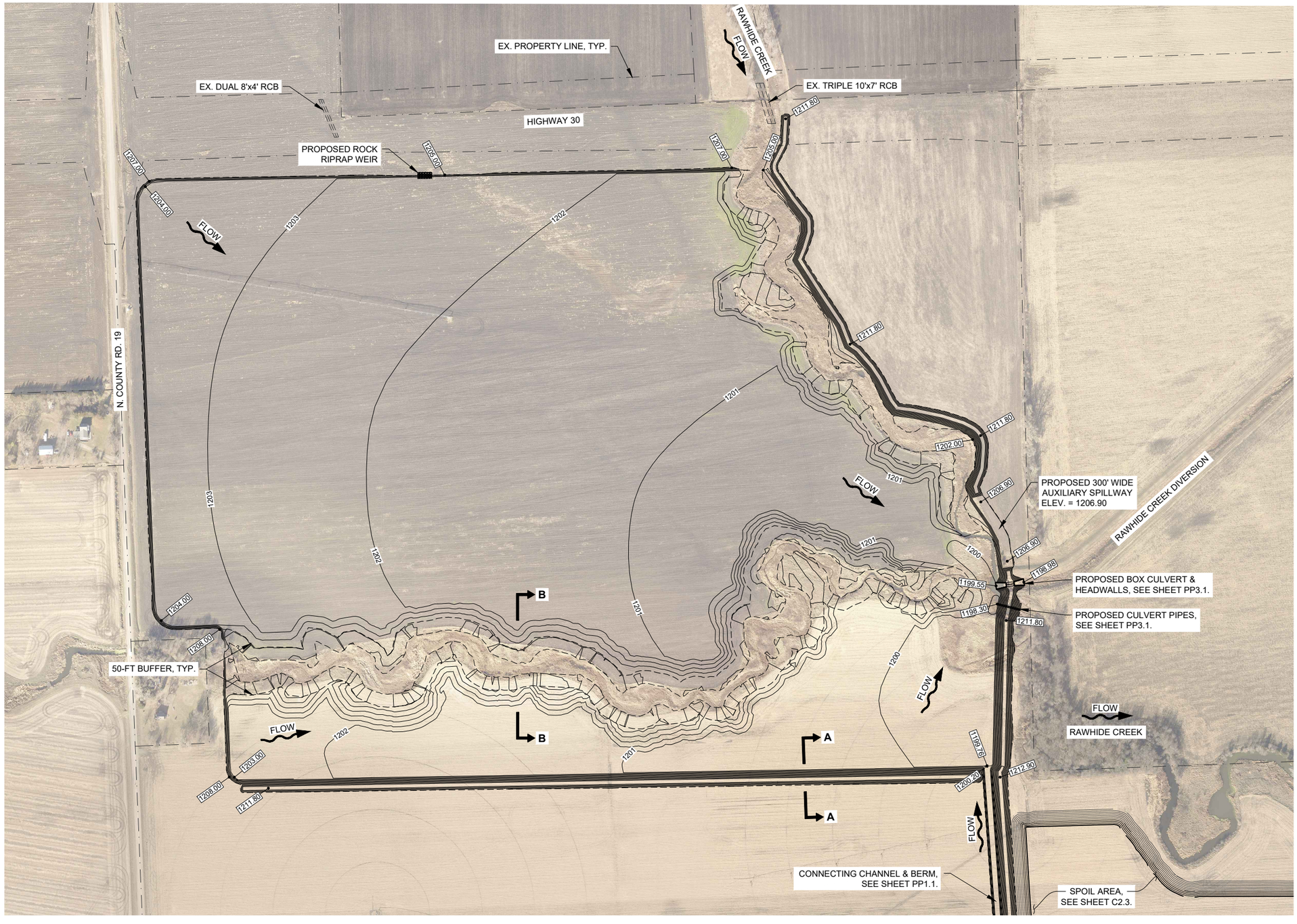
C1.1

811 Know what's below. Call before you dig.

\\jeo-data\Projects\200881.00 - Dodge County Rawhide Creek Watershed WFPO Plan\7 Design\2 Drawings\Rawhide\S-200881.00-Sheets.dwg, on: 2/21/2025 11:02 AM



DC1-13A NORTH EARTHWORK	
CUT	FILL
1,057,195 CY	32,320 CY
VOLUME BELOW WSE (EL. 1208.80)	
1,615,115 CY	



GRAPHIC SCALE

0 100 200 400

UNIT OF MEASURE IS FEET

JEO CONSULTING GROUP
1-800-723-8567

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

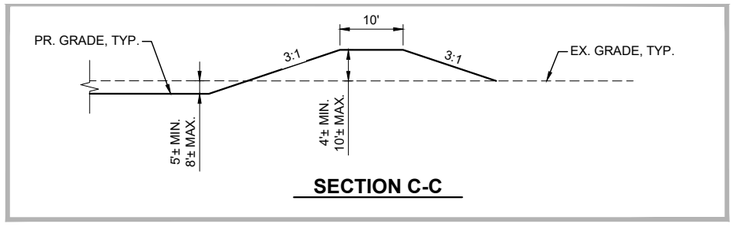
PROPOSED SITE PLAN
DC1-13A NORTH

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025

PROJECT NO.	200881.00
DATE	2/21/2025
DRAWN BY	T.R.W.
FILE NAME	S-200881.00-Sheets.dwg
FIELD BOOK	N/A
FIELD CREW	N/A
SURVEY FILE NO.	N/A
PLAN IN HAND INITIALS DATE	
70 PERCENT REVIEW INITIALS DATE	
95 PERCENT REVIEW INITIALS DATE	
REVISIONS	

811 Know what's below. Call before you dig.

C2.1



SECTION C-C

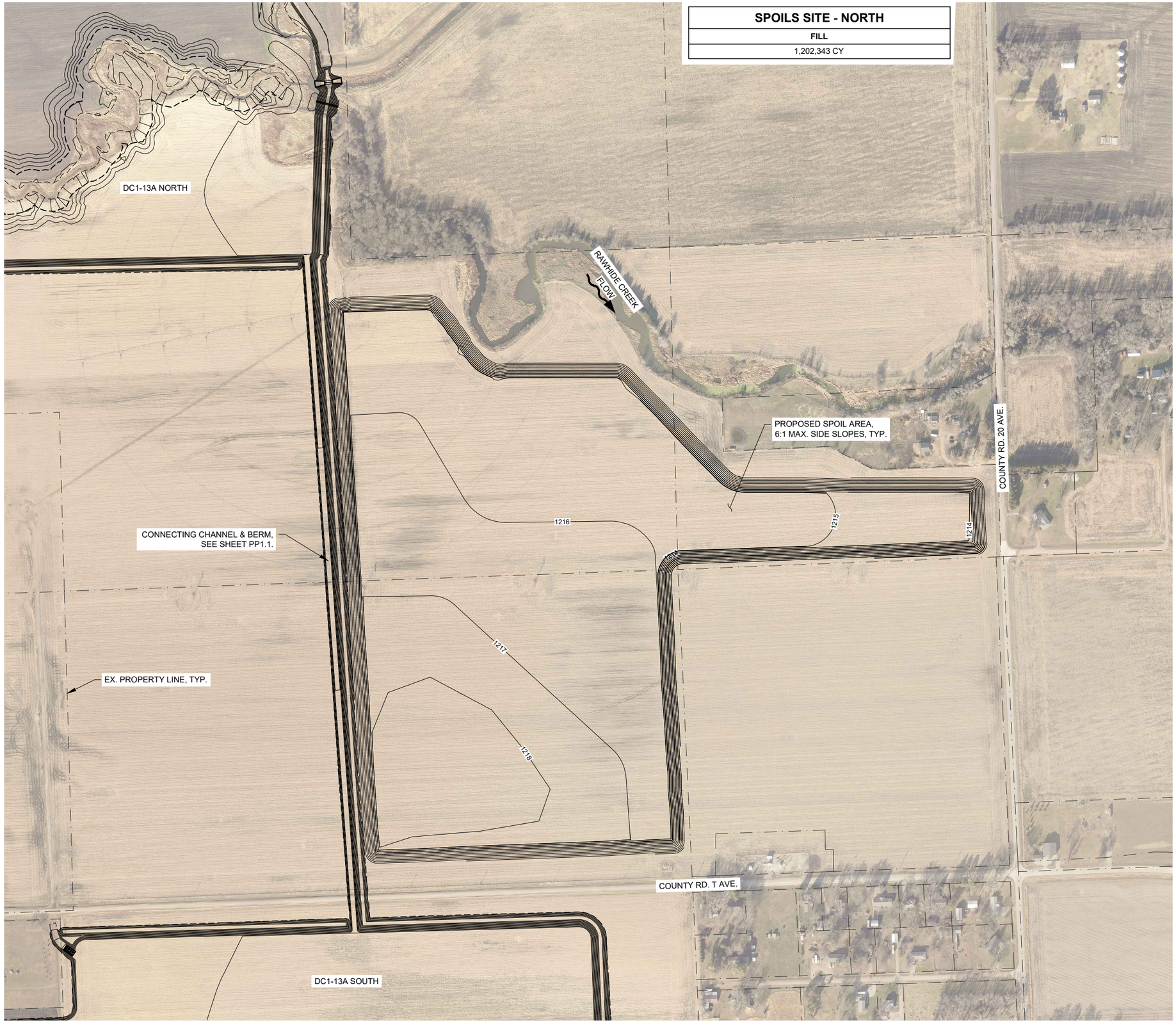
DC1-13A SOUTH EARTHWORK	
CUT	FILL
1,305,465 CY	40,785 CY
VOLUME BELOW WSE (EL. 1209.90)	
1,843,116 CY	

GRAPHIC SCALE

0 100 200 400

UNIT OF MEASURE IS FEET

EX. PROPERTY LINE, TYP.
W. COUNTY RD. T AVE.
PROPOSED ROCK RIPRAP WEIR
CONNECTING CHANNEL & BERM, SEE SHEET PP1.1.
SPOIL AREA, SEE SHEET C2.3.
W. COUNTY RD. T AVE.
OUTLET CHANNEL & BERM, SEE SHEET PP2.1.
SPOIL AREA, SEE SHEET C2.4.
FLOW
1212.90
1212.90
1212.90



GRAPHIC SCALE

0 100 200 400

UNIT OF MEASURE IS FEET

JEO CONSULTING GROUP
1-800-723-8567

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

PROPOSED SITE PLAN
SPOIL AREA

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025

PROJECT NO.	200881.00
DATE	2/21/2025
DRAWN BY	T.R.W.
FILE NAME	S-200881.00-Sheets.dwg
FIELD BOOK	N/A
FIELD CREW	N/A
SURVEY FILE NO.	N/A
PLAN IN HAND INITIALS DATE	
70 PERCENT REVIEW INITIALS DATE	
95 PERCENT REVIEW INITIALS DATE	
REVISIONS	

811
Know what's below.
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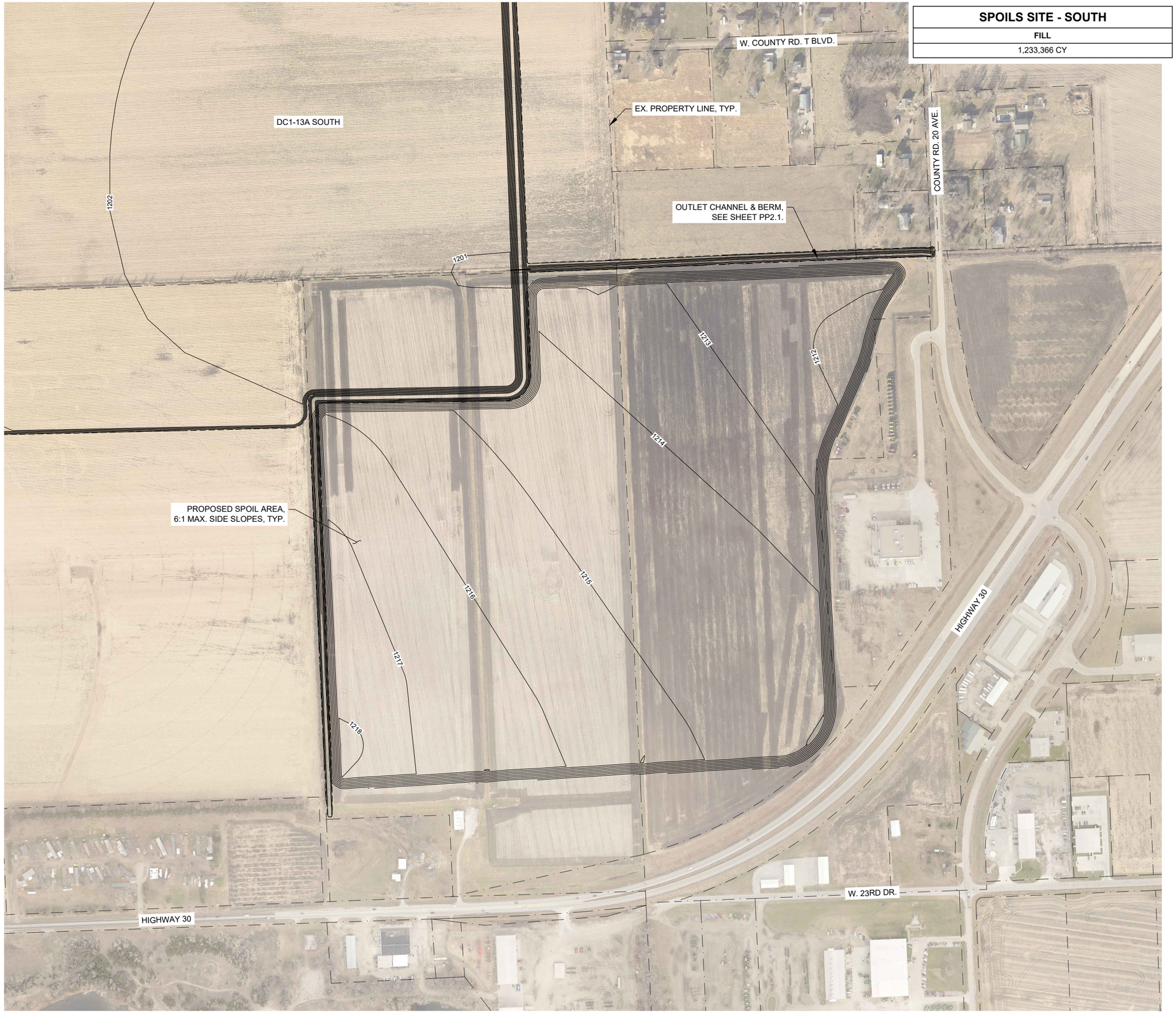
C2.3



SPOILS SITE - SOUTH
FILL
1,233,366 CY

GRAPHIC SCALE

0 100 200 400

UNIT OF MEASURE IS FEET

811 Know what's below. Call before you dig.

JEO CONSULTING GROUP
1-800-723-8567

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

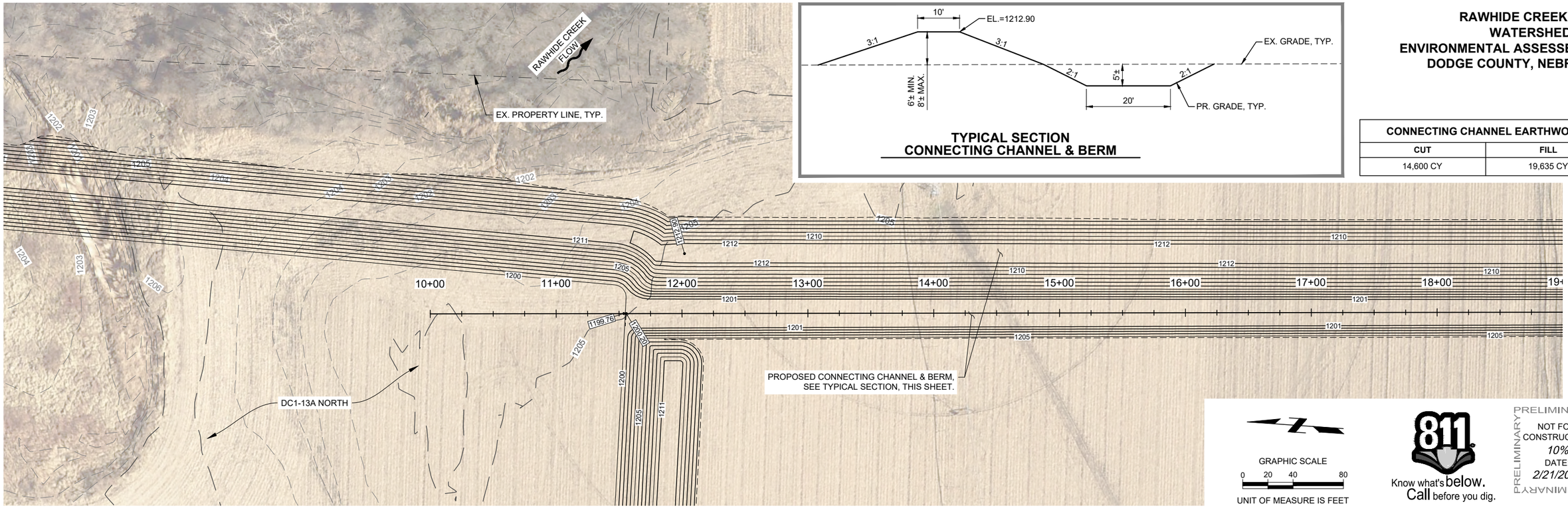
PROPOSED SITE PLAN
SPOIL AREA

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025

PROJECT NO.	200881.00
DATE	2/21/2025
DRAWN BY	T.R.W.
FILE NAME	S-200881.00-Sheets.dwg
FIELD BOOK	N/A
FIELD CREW	N/A
SURVEY FILE NO.	N/A
PLAN IN HAND INITIALS DATE	
70 PERCENT REVIEW INITIALS DATE	
95 PERCENT REVIEW INITIALS DATE	
REVISIONS	

C2.4

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

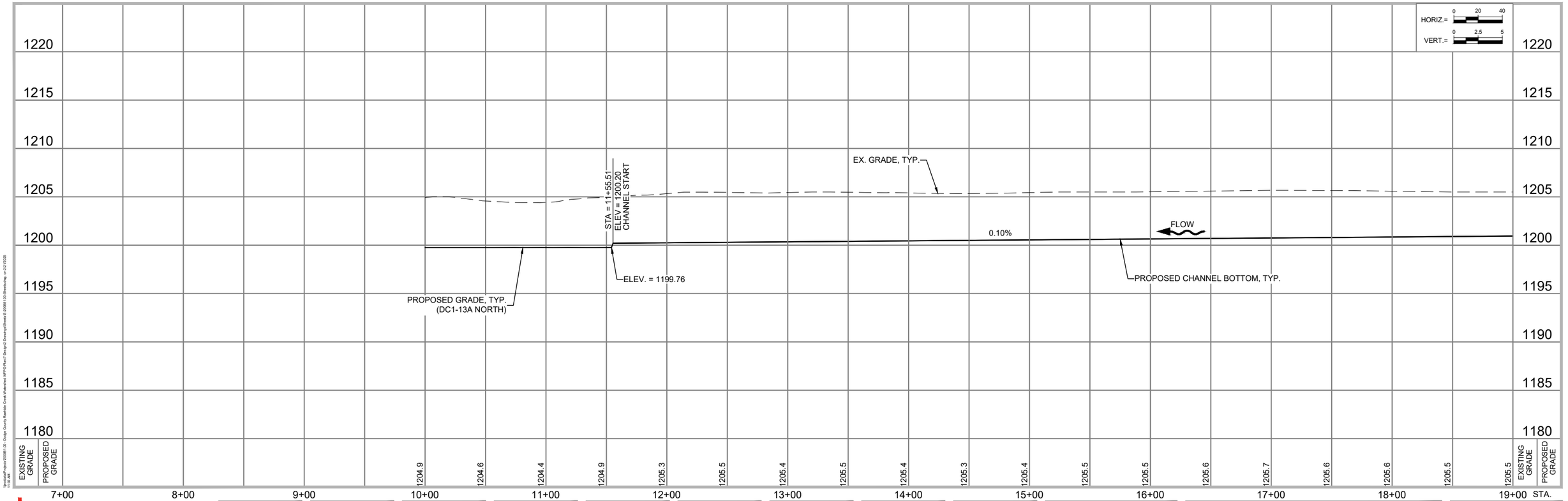


TYPICAL SECTION
CONNECTING CHANNEL & BERM

CONNECTING CHANNEL EARTHWORK	
CUT	FILL
14,600 CY	19,635 CY

811 Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025



JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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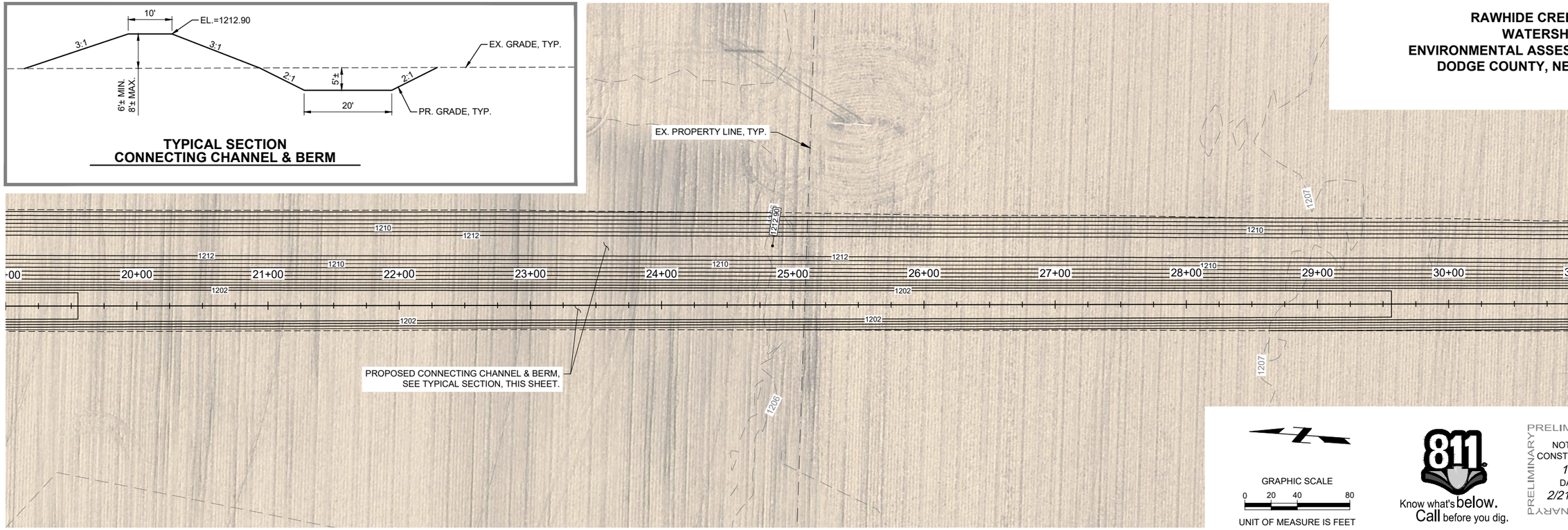
PLAN AND PROFILE

PP1.1

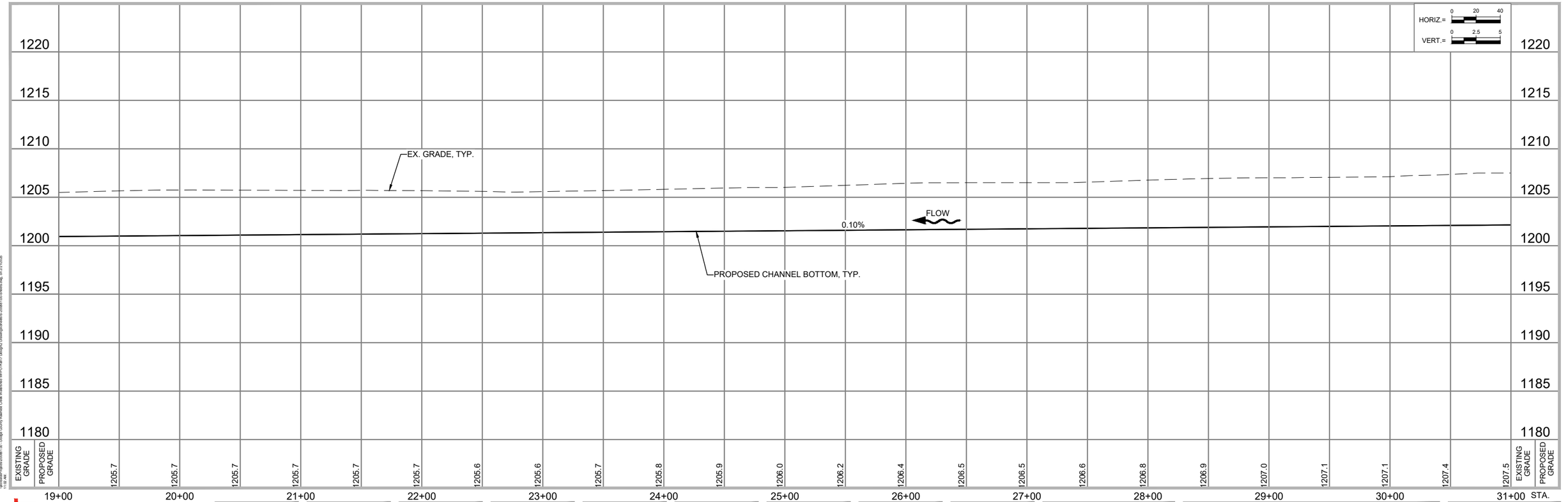
RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

TYPICAL SECTION
CONNECTING CHANNEL & BERM



811 Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025



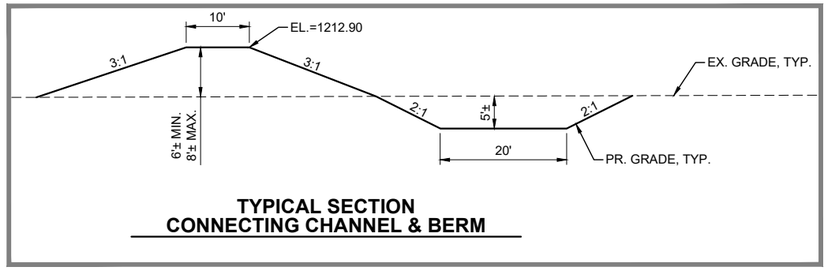
JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			T.R.W.	2/21/2025	200881.00	S-200881.00-Sheets.dwg

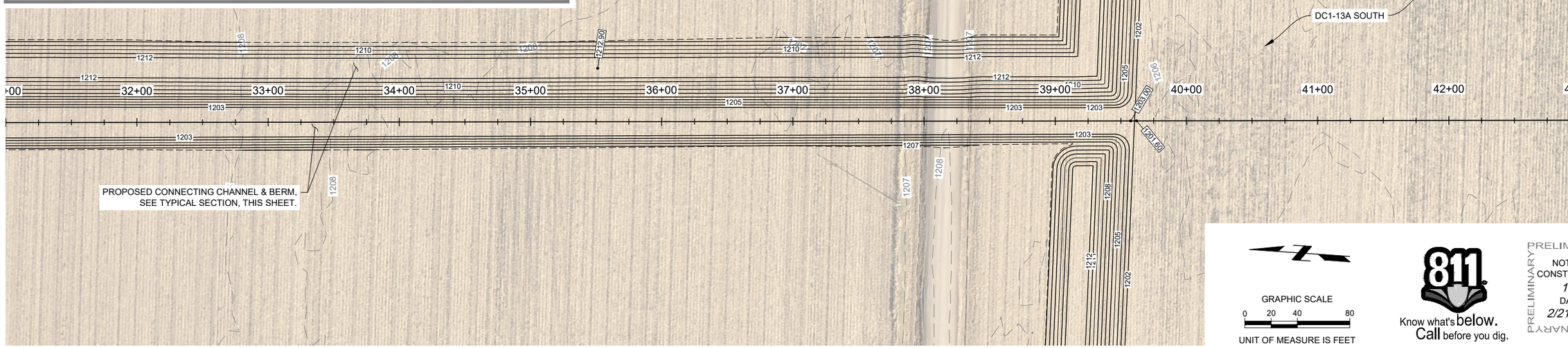
PLAN AND PROFILE

PP1.2

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



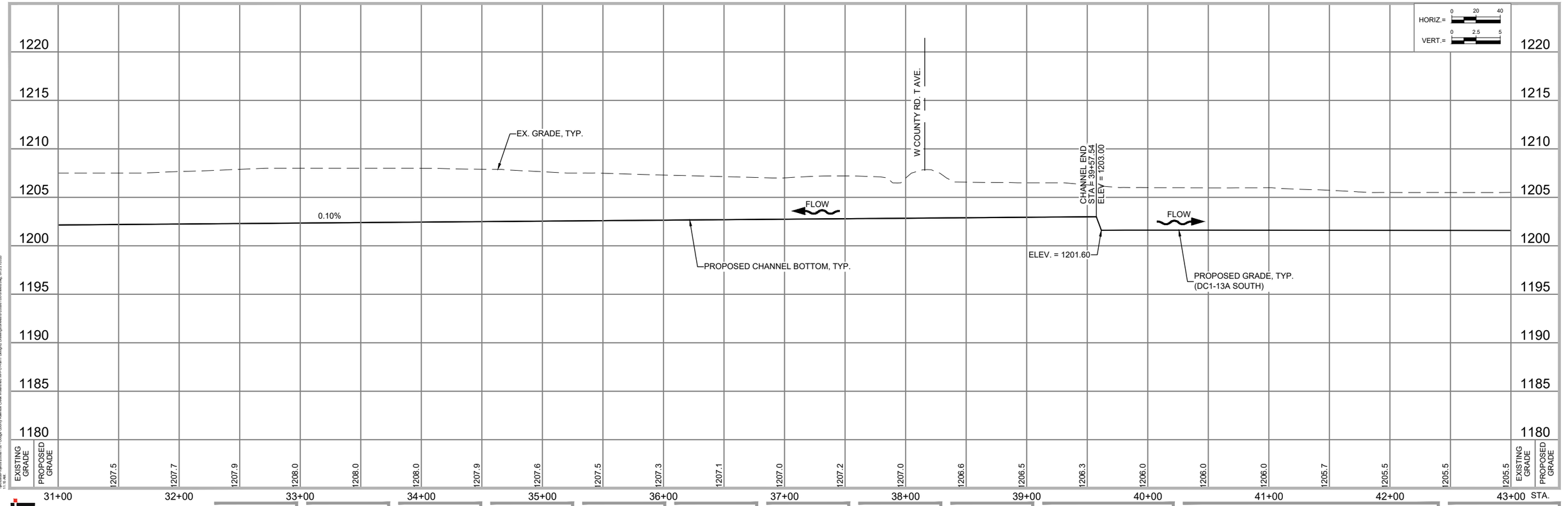
TYPICAL SECTION
CONNECTING CHANNEL & BERM



GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

811
Know what's below.
Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025



JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
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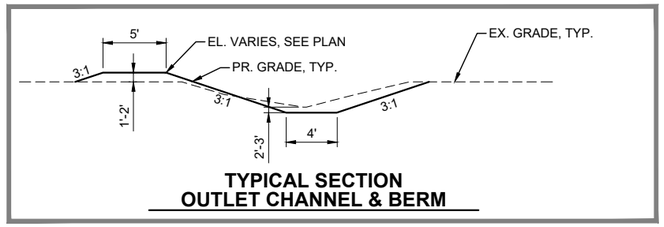
PLAN AND PROFILE

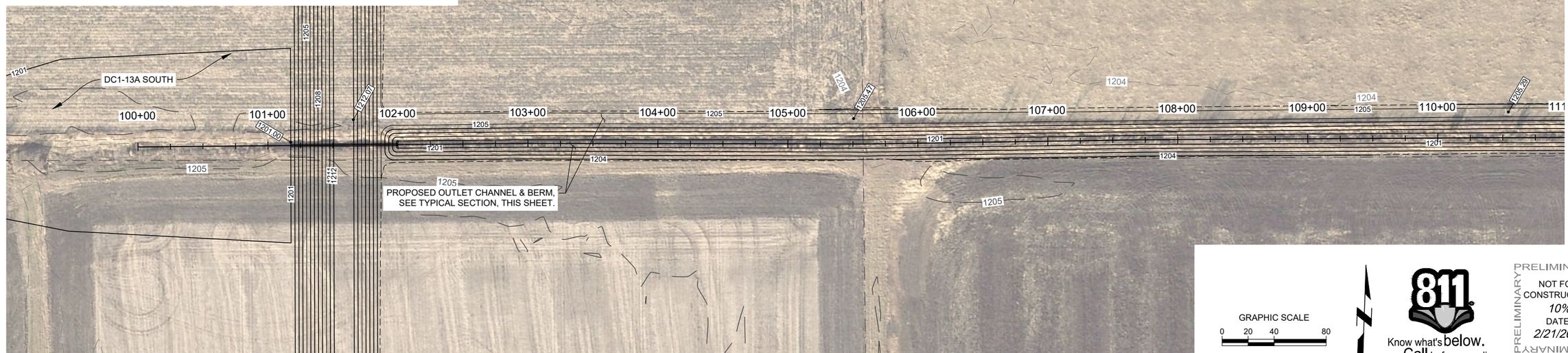
PP1.3

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA



TYPICAL SECTION
OUTLET CHANNEL & BERM

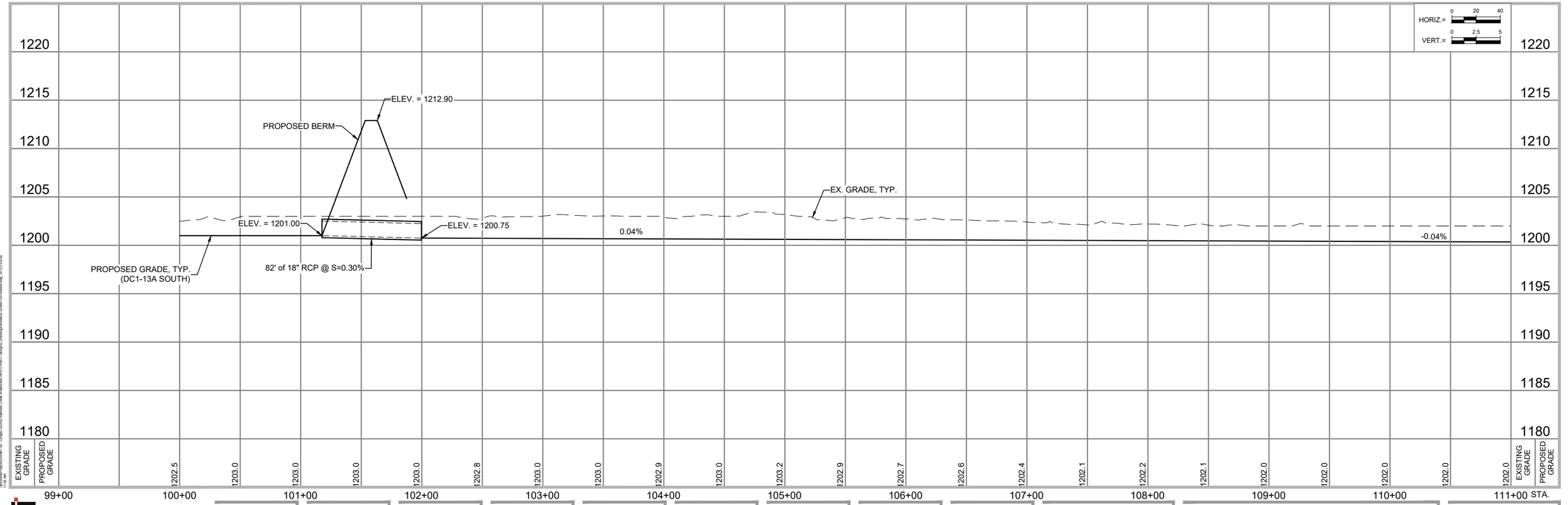
AIRPORT OUTFALL EARTHWORK	
CUT	FILL
1,895 CY	920 CY



GRAPHIC SCALE
0 20 40 80
UNIT OF MEASURE IS FEET

Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025



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EXISTING GRADE	PROPOSED GRADE	REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
				N/A	N/A			T.R.W.	2/21/2025	200881.00	S-200881.00-Sheets.dwg

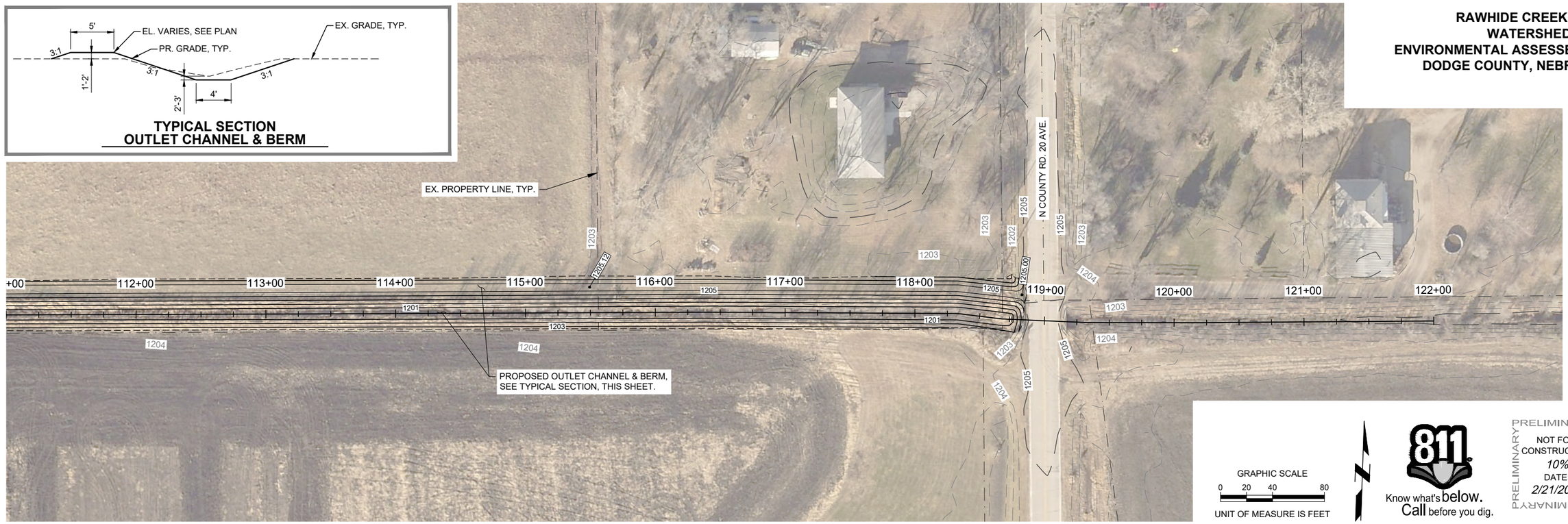
JEO CONSULTING GROUP

PLAN AND PROFILE

PP2.1

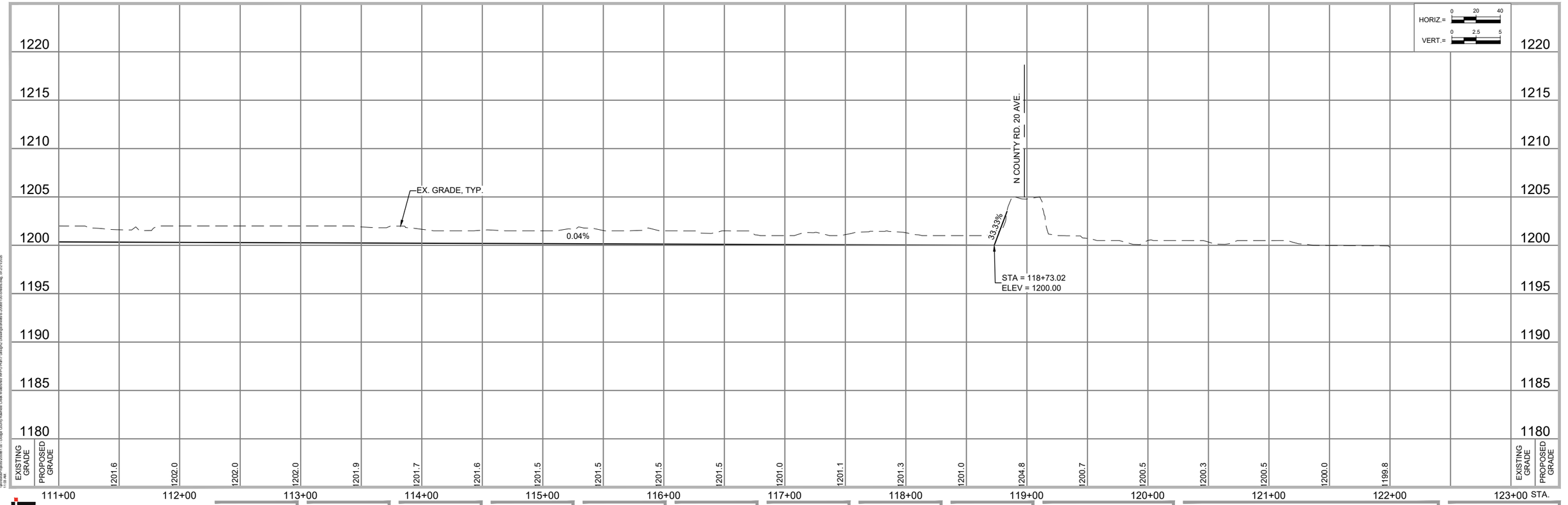
RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA

TYPICAL SECTION
OUTLET CHANNEL & BERM



811 Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION
10%
DATE:
2/21/2025



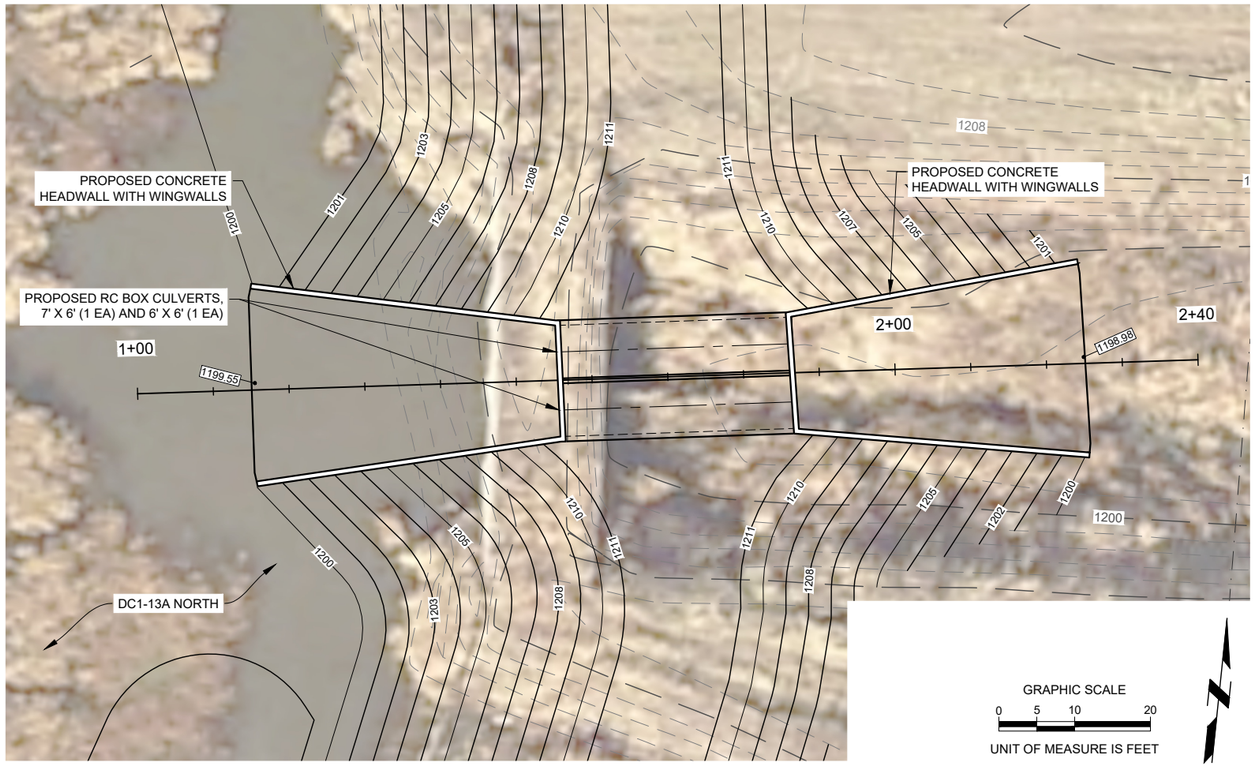
JEO CONSULTING GROUP

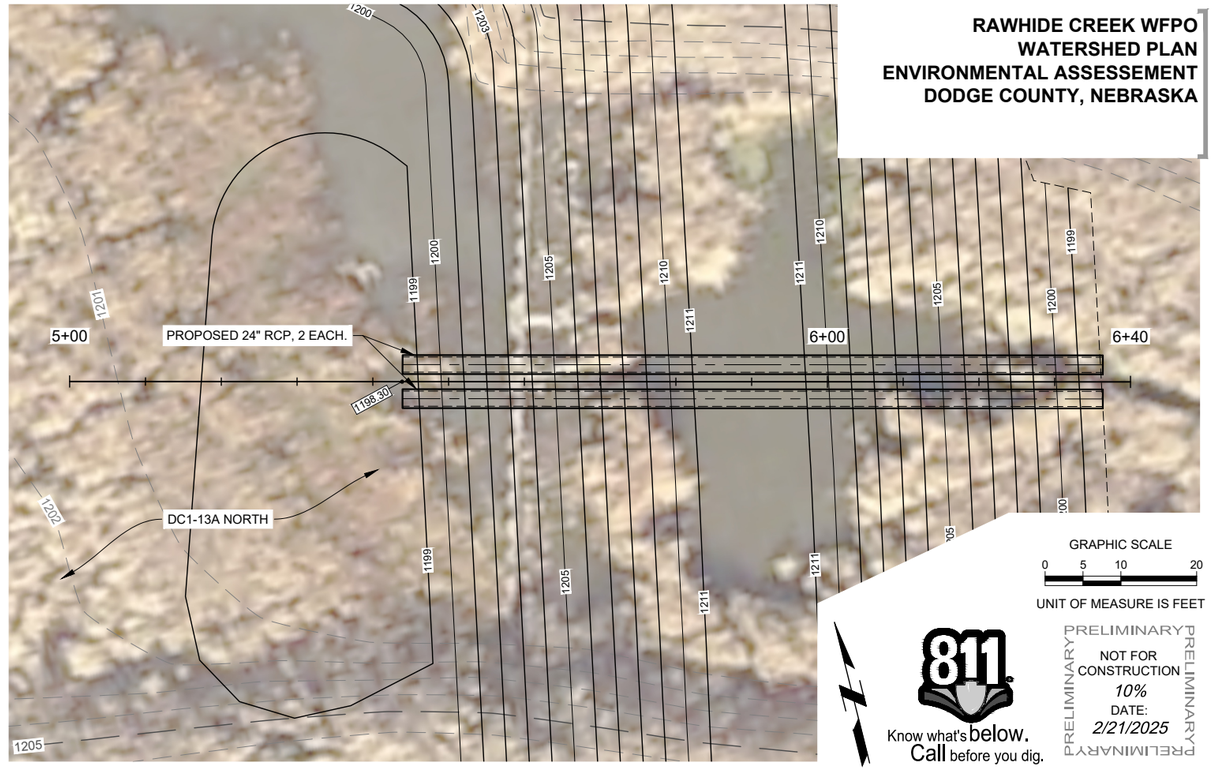
REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME
		N/A	N/A			T.R.W.	2/21/2025	200881.00	S-200881.00-Sheets.dwg

PLAN AND PROFILE

PP2.2

RAWHIDE CREEK WFPO
WATERSHED PLAN
ENVIRONMENTAL ASSESSEMENT
DODGE COUNTY, NEBRASKA





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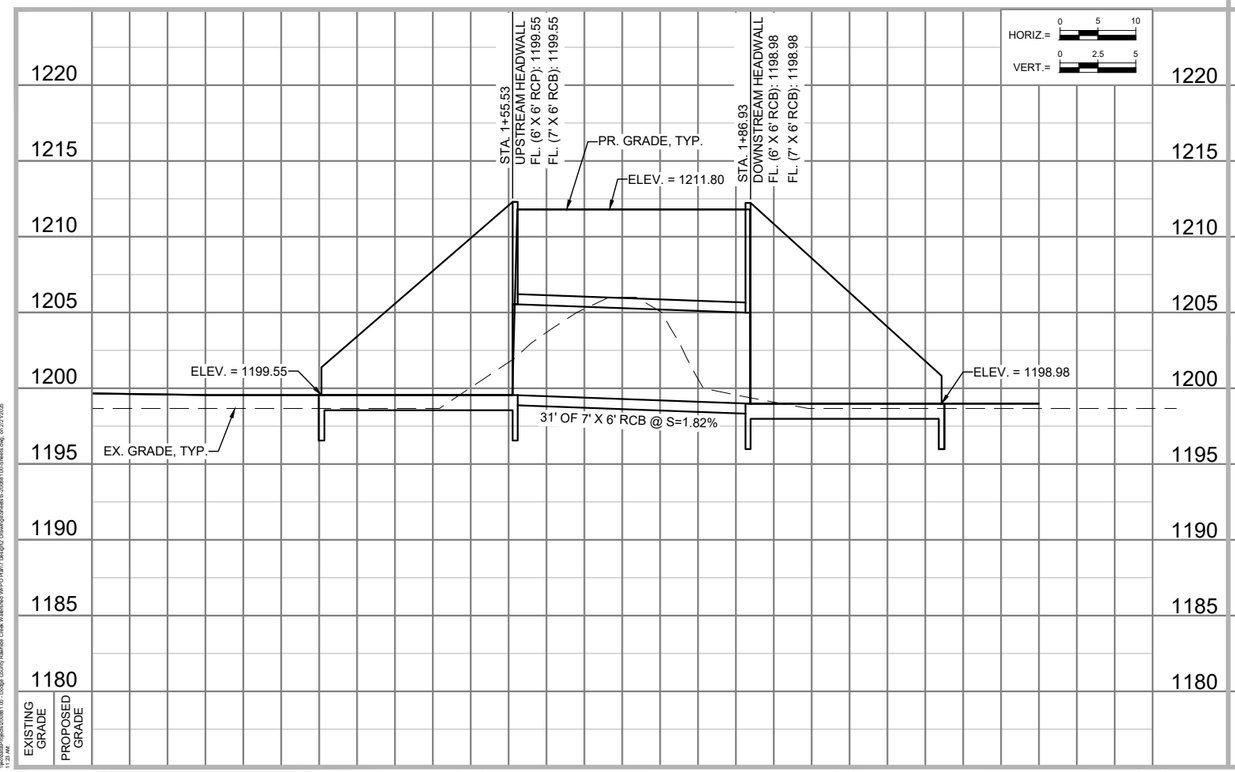

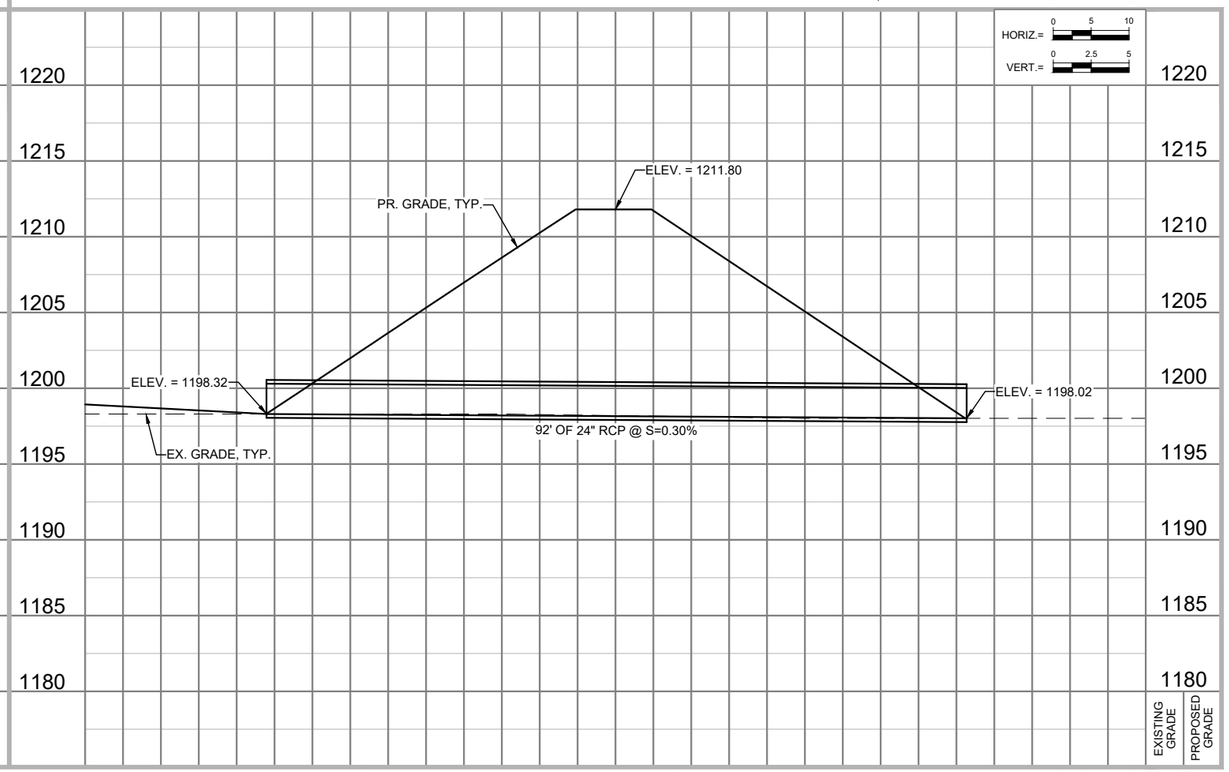

JEO CONSULTING GROUP

REVISION	REVISION	FIELD BOOK	FIELD CREW	REVIEW BY	REVIEW DATE	DRAWN BY	DATE	PROJECT NO.	FILE NAME	
		N/A	N/A			T.R.W.	2/21/2025	200881.00	S-200881.00-Sheets.dwg	PLAN AND PROFILE

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APPENDIX D: INVESTIGATION AND ANALYSIS

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D 1. INTRODUCTION

This appendix presents information that supports the formulation, evaluation, and conclusions of the Rawhide Creek Plan-EA. The outline is organized under major headings that allow the reader who is not familiar with the details of the watershed and the analysis leading to the conclusions to be able to form a conclusion and form an opinion on the adequacy of the Plan. The appendix follows USDA NRCS Watershed Program Manuals and guidance previously referenced in the Plan. The appendix is intended to supplement information contained in the Plan.

The appendix was written by the consultant in collaboration with the Nebraska NRCS Engineering team and in consultation with other federal, state, and local agencies, property owners, sub-consultants, Dodge County, and local community representatives. These stakeholders worked together to incrementally analyze a cost-effective alternative meeting social, political, and economic acceptability.

D 2. HYDROLOGIC ANALYSIS

Hydrologic analysis was conducted using various methods depending on the unique flow characteristics and potential solutions for the watershed. In general, modeling parameters were developed in accordance with appropriate engineering-based methods by professional engineers licensed in the State of Nebraska. Each of the models developed was calibrated using the best available scientific data including historical observations and historical gage information.

The following sections outline available background data, data sources, and other methods used in the development of the baseline hydrologic conditions within the study area.

D 2.01 EXISTING STUDIES

The alignment of Rawhide Creek and the ditch network within the watershed have been periodically modified and studied since the early 1900's. Data and studies that have been considered during the creation of this Hydrology model are as follows:

Trouble Creek Dam Design

The Trouble Creek Dam was designed and constructed in the early 1980's. The structure was designed as a significant hazard dam. Peak flows for the design storms were calculated using the SCS method for loss and transform. These design plans were used to model the Trouble Creek Dam for the Rawhide Creek hydrology modeling effort. Stage-storage data recorded in the dam as-built plans was copied to the model. A stage discharge curve was created based on the principal and auxiliary spillway details shown in the as-built plans and verified with the listed discharges in the plans. Key elevations and associated storage and discharge values of the reservoir are shown in Table 1.

Table 1: Trouble Creek Dam Stage/Storage/Discharge

	Elevation (ft)	Storage (acft)	Discharge (cfs)
	1,235.0	30	0
Low Level Inlet -	1,243.0	175	0
Permanent Pool -	1,248.5	447	0
	1,256.0	945	41
	1,258.0	1,185	47
Riser Crest -	1,260.1	1,500	52
	1,261.0	1,675	118
	1,262.0	1,875	178
Emergency Spillway -	1,262.5	1,987	179
	1,266.0	2,800	2,546
	1,268.0	3,340	4,837
Top of Dam -	1,270.0	4,000	7,593

Merlyn England Diversion and Ditch 8 Design

The design of this project was completed in the 1980's with construction completed in 1994. An Operations and Maintenance manual was created for the LPNNRD in 1994, and updated with clarifying language and maps in the 2000's. This study and design reroute part of Rawhide Creek flows into Ditch 8 instead of allowing it to flow uncontrolled into Fremont. High flows are still allowed to enter the old creek bed and flow towards the Merlyn England Diversion channel, which diverts flows from the ditch network and a branch of Rawhide Creek to Ditch 8. The Diversion structure consists of 3 large arch pipes moving most of the flow northeast to Ditch 8 and a weir with two 24" pipes allowing low flows to continue towards Fremont in Rawhide Creek. The design plans were used to gain an understanding of the changes made to the Rawhide Creek system in this area which was used to ensure the hydrology model was functioning correctly. Survey was taken at key points of this design to ensure flood model geometry is correct and the diversion is still functioning as intended.

NDOT Highway 30 Design

The design of the new Highway 30 alignment was completed in 2021 and is currently under construction. This highway alignment connects to the existing Highway 30 near Rogers then runs along the north side of North Bend and connects to the north stretch of Highway 275 north of Fremont. Design plans and surface models were used to add the new alignment, including culvert and bridge locations, into the terrain for the hydrologic and hydraulic models. These plans are available on request. This impacted the boundaries of drainage basins as it created a new major topographic feature in the watershed.

North Bend Cutoff Ditch Study

At the time of writing, this ongoing study and model analyze the effectiveness of the North Bend Cutoff Ditch and the flooding risks that the Rawhide Creek, Shell Creek and Platte River overflows pose to North Bend, NE. The study area includes the lower reach of Shell Creek and the western portion of the Rawhide Creek WFPO area, with the eastern boundary at the Central Cutoff Ditch. This model was referenced to gain an understanding of the impact it may have on the Rawhide WFPO Project and to begin to understand the impact the Shell Creek and Platte River have on this portion of the project area.

Elkhorn Township Drainage Study:

JEO completed a FEMA funded drainage study of the southeastern portion of the Rawhide Creek watershed in 2023. The study focused on the area south of Ditch 7 and east of Highway 77 until the Dodge County line to the south and Elkhorn River on the east (Figure 1). This Elkhorn Township study is focused on determining if flooding risk within Fremont is due to undersized storm drain infrastructure, restrictions within the urban ditch system or restrictions within the downstream, rural ditch system. HEC-RAS (USACE Hydrologic Engineering Center River Analysis System) was used to evaluate capacities for ditches in Fremont and east of Fremont. The modeling efforts for Rawhide Creek are being coordinated closely with the Elkhorn Township Study modeling effort in areas where they overlap.

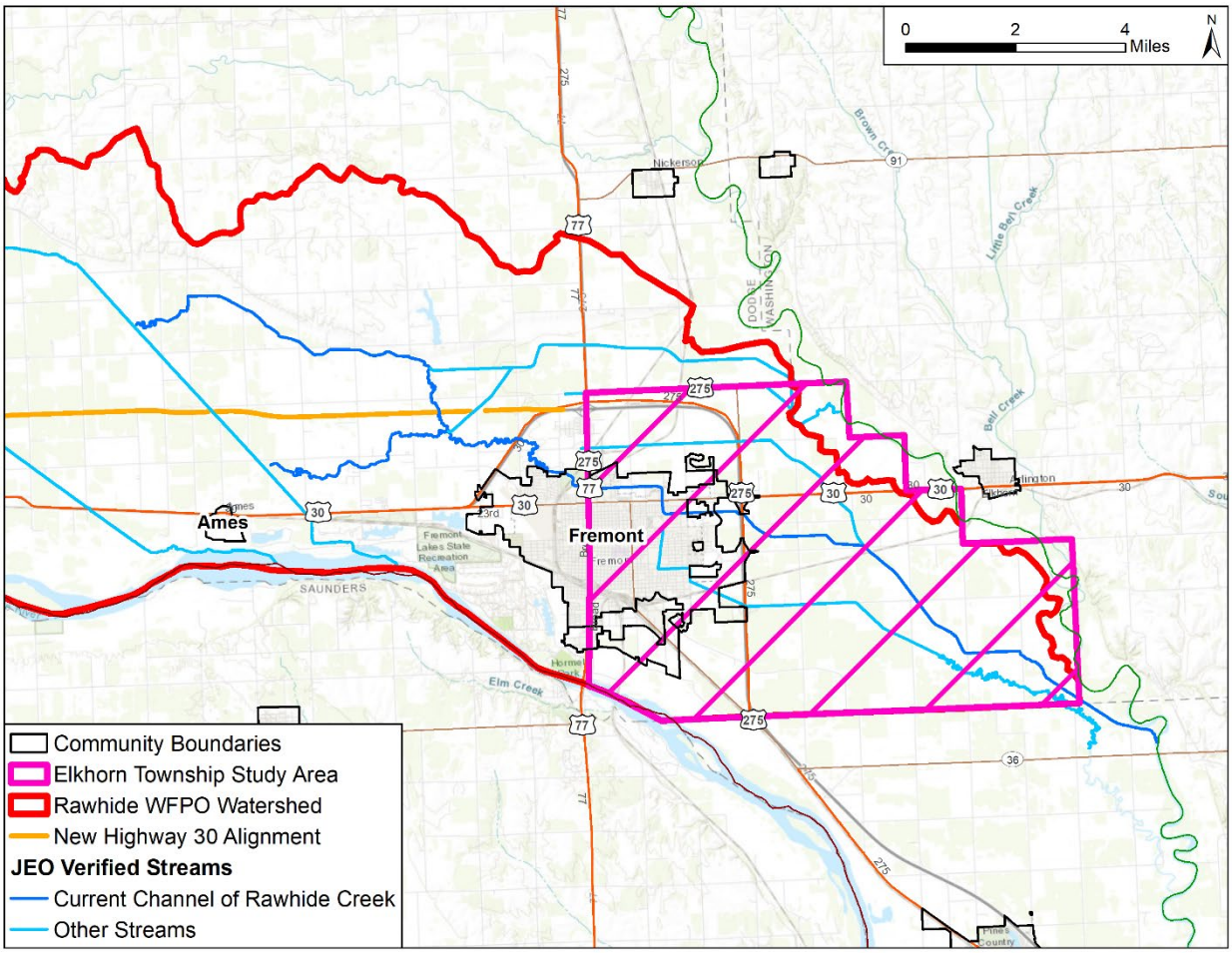

Figure 1: Elkhorn Township Drainage Improvements Study Area

D 2.02 HYDROLOGIC METHODOLOGY

WATERSHED DELINEATIONS

Rawhide Creek subbasins were initially delineated using HEC-GeoHMS (Hydrologic Engineering Center Geospatial Hydrologic Modeling Extension). Manual updates to basins were needed as the terrain in the watershed is flat and the ditch network and culvert crossings play a significant role in the hydrologic basin geometry. Key culvert locations were identified initially using aerial imagery and later surveyed. Culverts were used to determine where drainage would cross embankments that impact the border of the basin. Additionally, as the new alignment of Highway 30 is currently under construction it is not included in the most recent LiDAR data, thus this new major landmark in the terrain had to be added manually. Based on design plans, the new highway alignment was added as a new embankment with culverts which informed the drainage basin extents. Finally, manual basin edits were utilized to match the extents of the Fremont basins to

the basin extents used for the current Elkhorn Township Drainage Study so that the model being utilized for that study could be used to cross check the results of the Rawhide WFPO modeling efforts. Terrain data was obtained from USGS Dodge, Saunders, Washington, Douglas and Colfax County LiDAR collected between 2016 and 2018. The terrain was then manually updated based off NDOT's Highway 30 plan set to include the new highway alignment. Basins were delineated to outflow locations that consist of major watershed landmarks. Basin outflow points were placed at tributary confluences, cutoff ditch locations, flow restrictions locations such as railroad and highway crossings, existing dams, and key culvert locations. In total, 108 subbasins ranging in size from 0.14 to 8.56 square miles were delineated (Figure 2).

LOSS AND TRANSFORM METHODS

The Rawhide Creek hydrologic model uses the SCS Curve Number loss method. The higher the curve number, the higher the percentage of precipitation will become runoff. The SCS Curve Number loss method classifies land based on both land use and hydrologic soil group (HSG) as indicated by the USDA NRCS Web Soil Survey. Land use was drawn from the 2016 National Land Cover Database. Because most of the watershed is the same hydrologic soil type and land use, the range of average curve numbers was relatively small (71.1 to 90.2) with the highest curve numbers primarily impacted by the amount of impervious cover. In general, the Rawhide Creek watershed has a high average curve number as the majority of the soils in the watershed are HSG C and D which have generally lower permeability and therefore lead to higher curve numbers. Subbasins along the current and historic Rawhide Creek channel have slightly lower curve numbers because of tree cover and the HSG of soils within the channel. An overview of basin delineations and calculated curve number is shown in Figure 2 and Figure 3.

The time of concentration for each basin was developed with Natural Resources Conservation Service (NRCS) TR-55 methodology. A mixture of Sheet Flow, Shallow Concentrated, and Channel Flow was used, depending on the subbasin. The maximum length of sheet flow was assumed to be 100 feet. Shallow concentrated flow lengths were not allowed to exceed 5000 feet for rural basins as it is assumed that the flow would reach a ditch before leaving a square mile. For basins within Fremont the shallow concentrated flow was not allowed to exceed 1300 feet as it is assumed to reach storm sewer or a ditch within this length. The lag time was assumed to be 0.6 times the calculated time of concentration. Lag times were checked by comparing the Trouble Creek dam HMS basin to the Trouble Creek Dam design. The Trouble Creek Dam design plans used an area of 8.47 square miles and a curve number of 74. These are very similar to the numbers generated using HEC-GeoHMS of 8.56 square miles and curve number of 76.45. Similarities in basin characteristics lead to the assumption that the time of concentrations should be very similar. To adjust the time of concentrations to reasonably compare with the Trouble Creek Dam, the hydraulic radius was modified in basins with peaking factors of 300 or basins characterized by rural rolling hills, similar to the Trouble Creek dam basin.

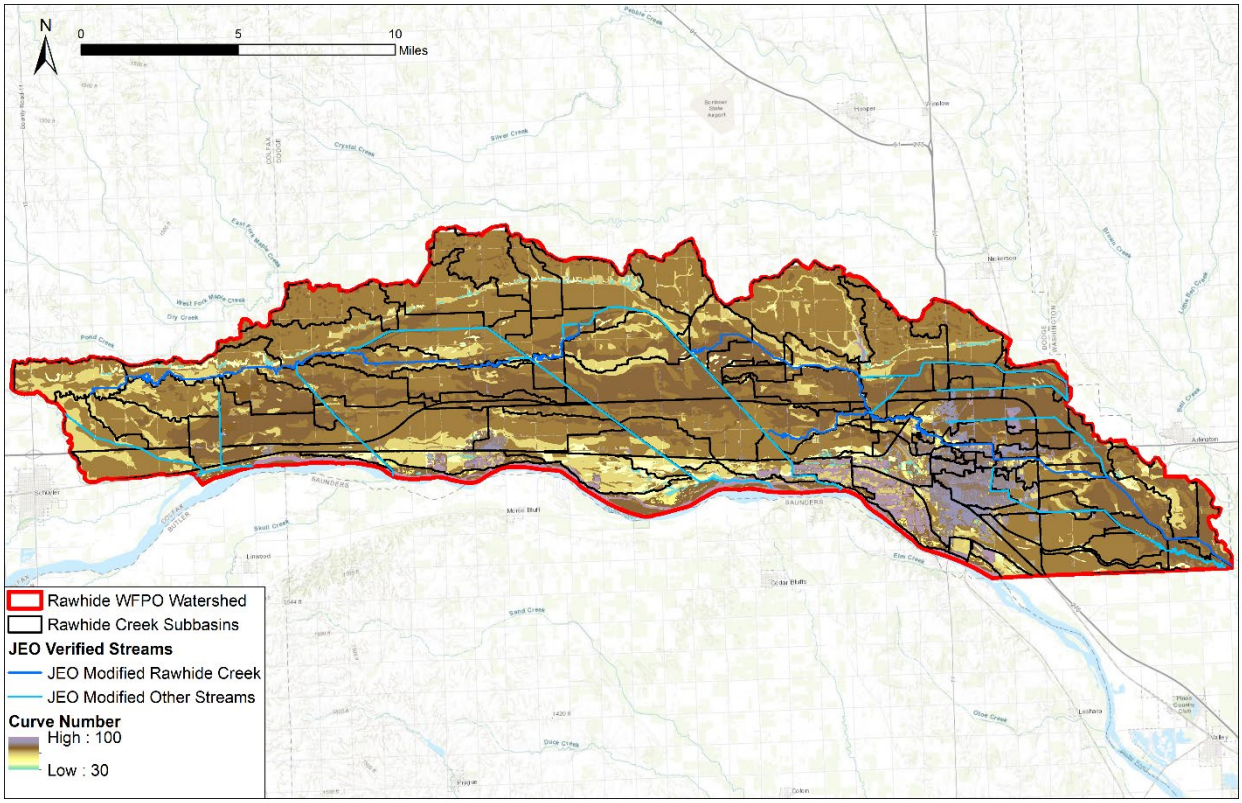

Figure 2: Hydrologic Model Curve Number Overview

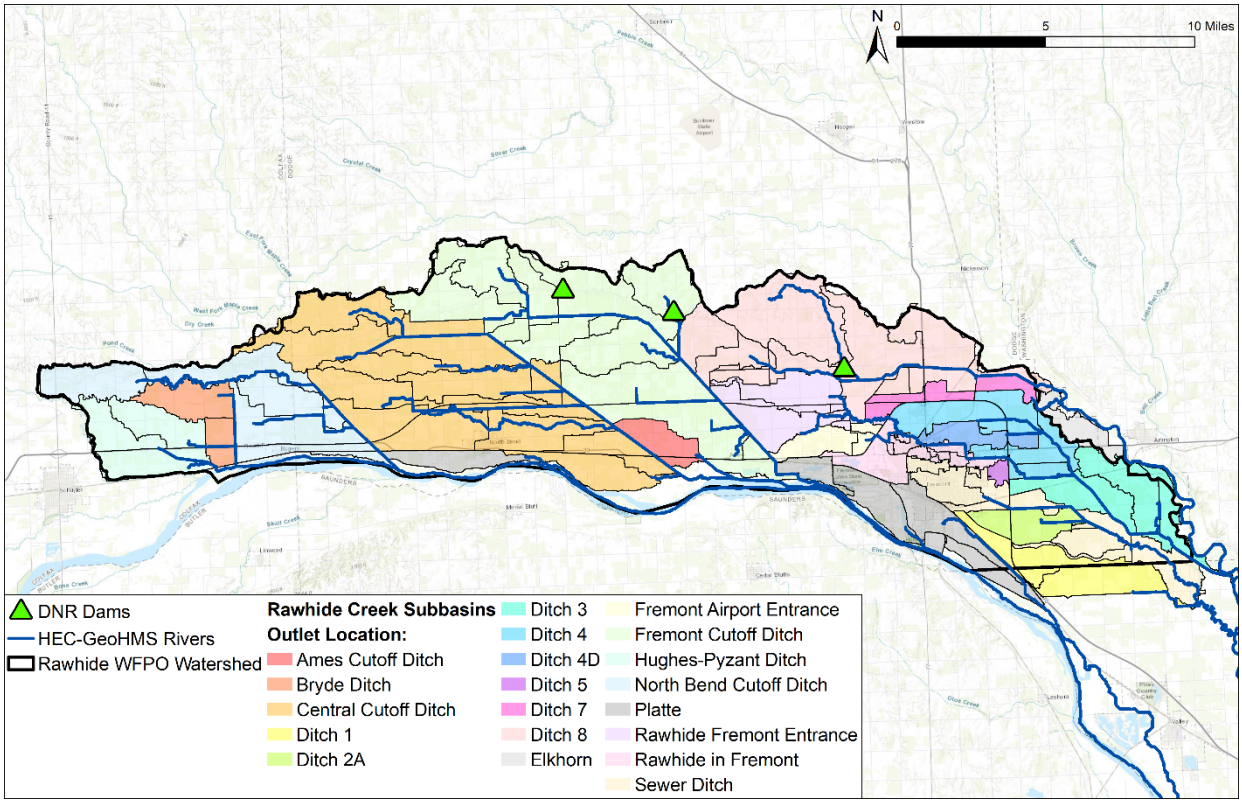

Figure 3: Drainage Basins by Outlet Location

ROUTING AND STORAGE

The Muskingum-Cunge eight-point cross section method was used to route flow through the stream reaches. Channel lengths and slopes were determined using HEC-GeoHMS and manually updated during basin edits. Channel slopes, ranging from 0.0002 ft/ft to 0.0082 ft/ft, sloped towards the confluence of Rawhide Creek, Elkhorn River and Platte River. The Rawhide Creek watershed has multiple paths water can take depending on the water surface elevation. For example, for a small event runoff typically stays within the Fremont Cutoff Ditch, however, during larger events the water may overtop Cutoff Road and flow towards Fremont. Due to the variability in where water may be routed, it was decided that Boundary Conditions within HEC-RAS would generally represent basin outflows, allowing the water to be routed over the 2D surface. Exceptions to this are a few basins along the Platte River which were grouped together at junctions, with routing included for short connecting channels.

The Trouble Creek Dam was included in the model. The other two dams, Brush Creek and Pollard, were not modeled as they are small, low hazard dams with low potential for hydrologic impact. Stage-storage and discharge data recorded in the dam as-built plans for Trouble Creek was used to incorporate the structure into the model.

METEOROLOGICAL MODEL - PRECIPITATION

Hypothetical storms created using the frequency storm methodology were used to model the 2- through 500-Year storm events. Precipitation data, illustrated in Table 2, was obtained from the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Server (PFDS). Point precipitation depths were reduced within HEC-HMS (Hydrologic Engineering Center Hydrologic Modeling System) using the program TP40 area reduction curves and a 223 square mile storm.

Table 2: Rainfall Depths

Design Storm	Rainfall Depth (In)
2-year, 24 hr	3.02
5-year, 24 hr	3.71
10-year, 24 hr	4.33
25-year, 24 hr	5.28
50-year, 24 hr	6.06
100-year, 24 hr	6.91
500-year, 24 hr	9.1

D 2.03 MODEL CALIBRATION

Calibration checks of the model focused on comparison to previous studies, event calibration, and a comparison of the results to the adjacent Maple Creek watershed. No stream gages are located in the Rawhide Creek watershed. The nearest stream gage is located on the Maple Creek Watershed, which is the next watershed to the north of Rawhide. This stream gage is located just upstream of the confluence with the Elkhorn River.

TROUBLE CREEK DAM

Calculated hydrologic parameters for the current analysis were compared to those reported in the Trouble Creek Dam As-Builts as an initial check on the validity of the existing model. As can be seen in Table 3, the model closely matches those parameters calculated as part of the Trouble Creek Dam design.

Table 3: Trouble Creek Dam Properties

	Dam As-Builts	Rawhide Creek Model	Percent Difference
Drainage Area (sqmi)	8.5	8.6	1.1%
Curve Number	74	76	3.2%
Time of Concentration (hrs)	6.3	5.9	-6.7%

MAPLE CREEK BULLETIN 17C ANALYSIS

The Maple Creek watershed is on the northern border of the Rawhide Creek watershed. While the land use is very similar to the Rawhide Creek watershed other characteristics vary. Both watersheds are primarily Class C soils, however, the Rawhide Creek watershed has a higher percentage of Class D soils. The relative relief (basin relief divided by the basin perimeter) of the watersheds is similar but it was also noted the majority of the Rawhide Creek watershed is located in the flat valley separating the Platte and Elkhorn Rivers. An overview of the watersheds and the hydrologic soils groups of each is shown in Figure 4. Watershed characteristics are highlighted in Table 4.

Table 4: Maple and Rawhide Creek Characteristics

	Maple Creek	Rawhide Creek
Contributing Drainage Area (sqmi)	368	225
Hydrologic Soil Group B%	20%	13%
Hydrologic Soil Group C%	79%	59%
Hydrologic Soil Group D%	1%	25%
Relative Relief (ft/mi)	4.1	4.5
Average Land Slope	1.8%	1.3%

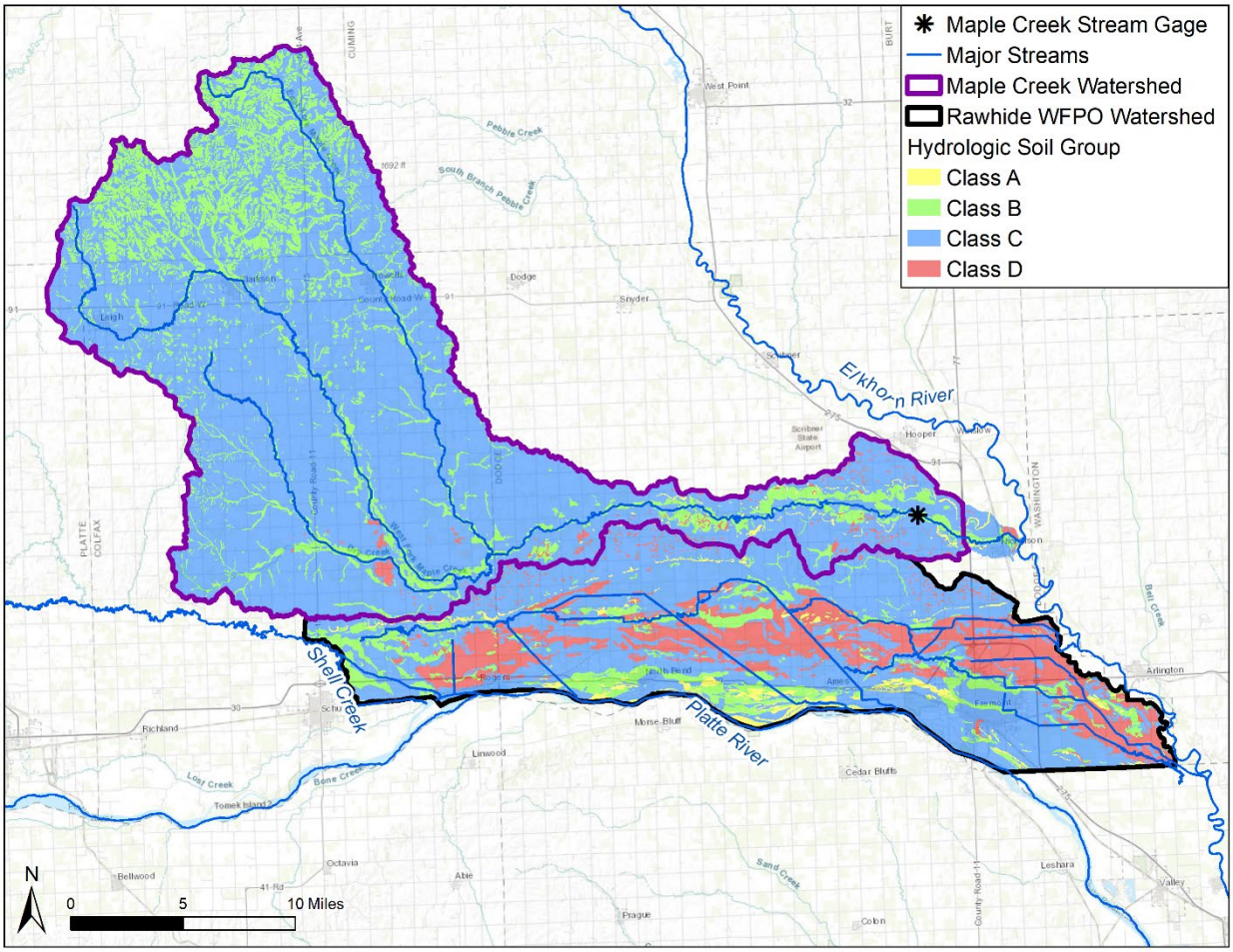

Figure 4: Maple and Rawhide Creek Watershed Overview

Given the hydrologic soil group and drainage area differences between the watersheds, it is not anticipated they would clearly result in similar discharges, however, with little other information to use for model calibration a review of the Maple Creek stream gage was completed as a high-level check of the validity of the Rawhide Creek model results. A Bulletin 17C analysis of the historical

USGS Stream Gage 06800000 Maple Creek near Nickerson was completed using the HEC-SSP (Hydrologic Engineering Center Statistical Software Package) software program Version 2.2. Annual peak discharges reported for the gage ranged from 480-cfs (1952) to 13,700-cfs (1996). A historical event was recorded on June 11, 1944, with a peak flow of 35,000 cfs and was treated as such in the analysis. Analysis was completed using the station skew and a weighted skew based on a regional skew value of -0.25. Results of the gage analysis are reported in Table 5.

Table 5: Bulletin 17C Analysis

	Station Skew	Weighted Skew
Computed 1% Chance Exceedance Discharge	21,594	19,871
Mean	3.510	
Standard Deviation	0.357	
Adopted Skew	-0.019	-0.162

The gage analysis results were compared to the peak flows produced from the Rawhide Creek HEC-HMS model for the 100-Year storm event. As can be seen in Table 7, the modeled peak flows were nearly double those estimated by the Bulletin 17C analysis for Maple Creek. Given the smaller contributing drainage area and flatter terrain, the peak flows produced by the model compared to the Maple Creek Bulletin 17C analysis appear to be high. The model was updated by adjusting the peaking factor from the default SCS value of 484. The unit hydrograph peaking factor was modified for all basins based on their topography per National Oceanic and Atmospheric Administration (NOAA) recommendations in the NOAA unit hydrograph technical manual as shown here: https://www.nohrsc.noaa.gov/technology/gis/uhg_manual.html. Table 6 outlines the peaking factor used based on basin topography. Specific basin peaking factors can be provided upon request.

Table 6: NOAA Peaking Factors

General Description	Peaking Factor
Urban areas; Streep Slopes	550
Typical SCS	484
Mixed Urban/Rural	400
Rural, Rolling Hills	300
Rural, Slight Slopes	200
Rural, Very Flat	100

The modeled results based on the updated peaking factors appeared more reasonable in comparison to the Maple Creek watershed, but still slightly high. Routing that occurs within the Rawhide Creek watershed is very complex, varying depending on the storm event. This is due to the flat nature of the watershed, which allows flows that exit the existing creek and ditch network

to flow overland, frequently ending up at a different outlet depending on the storm event. For this reason, the resulting subbasin hydrographs from the 100-Year storm event with the reduced peaking factors were applied to the HEC-RAS 2D model as inflow boundary conditions and the HEC-RAS model was run. The peak discharge from the downstream boundary of the HEC-RAS model is also reported in Table 7.

Table 7: 100-year Peak Flows

Maple Creek		Rawhide Creek		
Station Skew	Weighted Skew	Default Peaking Factor	Updated Peaking Factor	HEC-RAS Downstream Boundary
21,594	19,871	40,590	23,144	18,472

EVENT CALIBRATION

On June 17th, 2016, significant heavy rain fell on the Rawhide Creek watershed. The heaviest rainfall was centered over the City of Fremont where a cooperative observer for the National Weather Service reported receiving 7 inches. The western portion of the watershed received around one to two inches as shown in Figure 5. According to the NWS the event resulted in widespread urban flooding with many roads and properties flooded. Areas hardest hit were in the east part of town where the water took several days to subside.

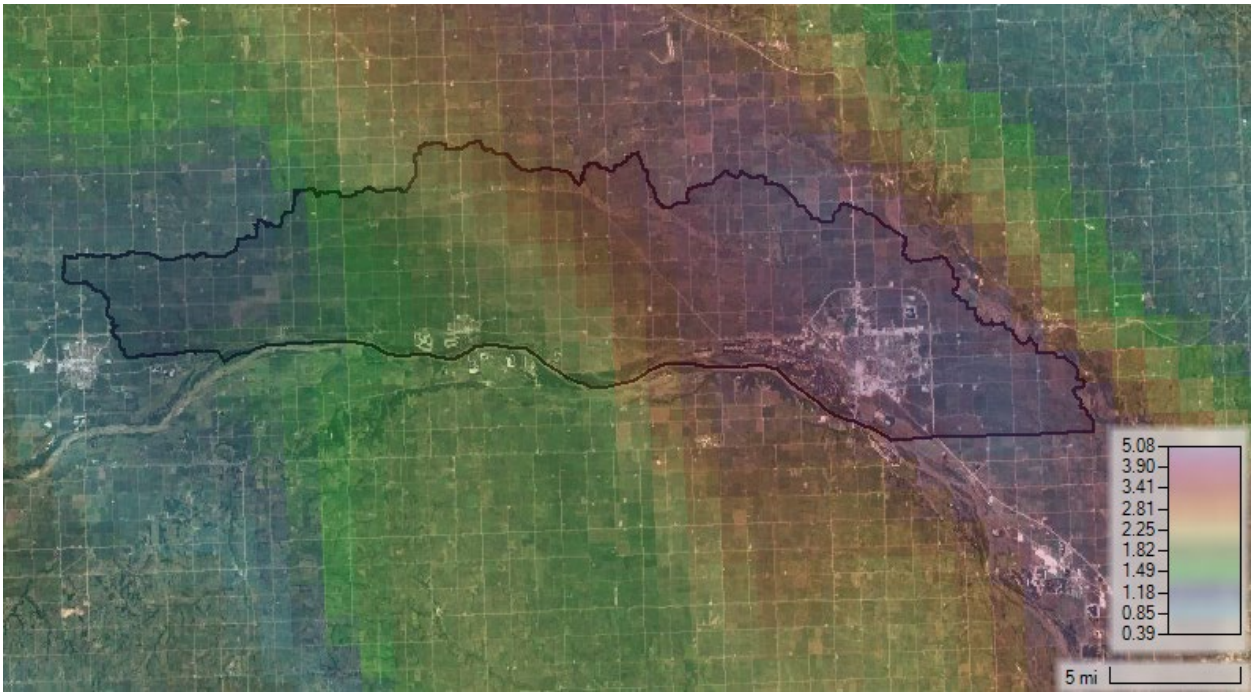

Figure 5: June 2016 Accumulated Precipitation (inches)

Event calibration of this event was conducted using the gridded precipitation method within HEC-HMS and comparing the modeled inundation depths and extents with pictures provided by stakeholders from the June 2016 flood event. Precipitation data was acquired from the National Weather Service, Advanced Hydrologic Prediction Service, Missouri River Basin Forecast Centers Analysis of Record for Calibration (AORC). The model used a structured discretization with a cell size of 2000-meters and a 30-minute time step. This event was chosen as it is the most recent flooding event reported based on rainfall on the watershed. The resulting subbasin hydrographs were then applied to the HEC-RAS 2D model as inflow boundary conditions and the HEC-RAS model was run. The resulting ponding depths and a selection of event pictures are shown in the Model Calibration section of this appendix. As can be seen, the model results appear to closely match the provided pictures. In some places the modeled results appear to show more flooding than the pictures indicate, however, it is not clear when the pictures were taken, and it is unlikely they would all have been taken at the time of the peak flooding. In other locations, such as the area around 17th and Main Street, the modeled results appear to show less flooding than the pictures indicate. This is likely due to the scale and detail of the current model efforts. Flooding at this location is likely due to local storm drainage deficiencies which were not included in the model.

D 3. HYDRAULIC ANALYSIS

D 3.01 TABLE 31EXISTING STUDIES

In addition to the studies mentioned above in the Hydrologic Analysis Section the following study was referenced during the assembly of the hydraulic model.

USACE Section 205 and Silver Jackets Platte River Studies, 2020/2021

The USACE performed a Section 205 Flood Risk Management Feasibility Study for the Platte River at Fremont, Nebraska. The most recent draft project report was released in April 2022. A final report has not been released. This study considered structural and nonstructural/programmatic measures. Structural options included recommendations such as upstream diversion, levees/floodwalls, channelization, bridge removal/replacement, ice jam control and upstream dams. Nonstructural/programmatic options included: flood warning systems, dry floodproofing, wet floodproofing, elevations, filling in basements, and acquisitions/relocations. The recommendation of this study was to implement a nonstructural plan which would focus on flood mitigation to the structures within the floodplain starting with buildings within the 100-year floodplain. For cost-benefit reasons, the recommended plan focuses on buildings within the 25-year floodplain. Primary recommended mitigation actions were elevation, dry floodproofing, and wet floodproofing. The plan primarily focused on buildings that are in the Fremont Levee protected area, and a few in Platte Township that are not in the floodway. The 1D HEC-RAS model developed as part of this study was obtained from the USACE and has been used to inform the modeling of the Platte River as described in the Hydraulic Methodology Section.

D 3.02 HYDRAULIC METHODOLOGY

The hydraulic analysis for the Rawhide Creek Watershed was completed in HEC-RAS Version 6.3.1. A 2D HEC-RAS model was created for the Rawhide Creek basin. Due to the large size of the model, a grid cell size of 200 ft x 200 ft was used to provide a sufficient resolution of model outputs while also maintaining reasonable model run times. Break line cell spacing along key features such as 2D area connections, channels and roadways was also set at 150 ft to further refine the model. Further refinement was given to major ditches, with parallel break lines placed on their adjacent high ground with cells placed along the break lines in the channel, refining channel flow in ditches. Outflow boundary conditions for the model were assumed to be normal depth with energy slopes estimated from LiDAR. There is only one outflow boundary condition where flow can leave the model, which is just south of the Rawhide – Elkhorn Confluence and encompasses both the Platte and Elkhorn Rivers approximately 15.5 miles upstream of their confluence near Ashland, NE. There are 101 inflow boundaries used to model the different hydrographs from sub basins as modeled in HEC-HMS. These inflow boundary conditions were paired with flow hydrographs from the HMS output. Additionally, three inflow boundary conditions were included to model potential overflow hydrographs from the Platte River, Elkhorn River, and

Shell Creek under various flow conditions. The model was run for 3 days which was sufficient to pass the peak flow through Fremont.

Terrain data was obtained from USGS for Dodge, Saunders, Washington, Douglas, and Colfax County LiDAR collected between 2016 and 2018. For areas most impacted by the March 2019 flood event, LiDAR was collected in 2019 to reflect post-flood conditions. This updated data was reviewed for possible use to represent existing conditions; however, it was noted that most flood damaged areas at the time of the 2019 data collection have been restored during the recovery process to pre-damage condition. Therefore, it was deemed that overall, the pre-flood LiDAR more accurately reflects existing terrain. The terrain was then manually updated based off NDOT's Highway 30 plan sets and design surfaces to include the new highway alignment. NDOT Highway 30 plans along with survey information that was gathered by JEO were used to develop geometry for key bridge and culvert structures. Survey was also collected for the Cutoff Road Raise performed after the 2019 flood event, which raised approximately the south third of Cutoff Road along the east side of the Fremont Cutoff Ditch. Numerous break lines were incorporated within the model to enforce important topographic features (roadway embankments, berms, channel bottoms, etc.) into the 2D grid to align flows to natural topographic features.

The Rawhide Creek, Shell Creek, Elkhorn River, and Platte River, along with many of the major ditches in the watershed, typically have water flowing within them. This baseline condition is assumed to be accounted for by the LiDAR surface which records the water surface elevation on the day the data was gathered. As this system seems likely to be sensitive to the water surface elevation at the Elkhorn and Platte Rivers the date of the LiDAR collection was compared to the USGS stream gage records downstream of the Rawhide watershed during the same period. Table 8 outlines the dates listed for the data collection of the LiDAR used for the 2D model along with the average discharge and stage that the LiDAR data accounts for. This data was then compared to a duration analysis completed in HEC-SSP Version 2.2 for both the Platte and Elkhorn Rivers (Table 9 & Table 10) for each stream gage since January 1, 1990. Based on this analysis the base flow condition that is being evaluated with the 2D model is likely to be observed 16% of the time on the Elkhorn River (60 days a year) and 5% of the time on the Platte River (18 days a year). LiDAR was not changed due to this analysis. This analysis was done to understand the baseflow condition that the terrain provides. These values provide a conservative base flow condition.

Table 8: LiDAR Base Flow Condition

County	Collection Date	Gage	Average Discharge (cfs)	Average Gage Depth (ft)
Douglas County	2/20/20 - 2/21/20	Elkhorn River at Waterloo, Nebr. USGS 06800500	2722	3.5
Dodge County	4/23/18 – 5/7/18	Elkhorn River at Waterloo, Nebr. USGS 06800500	3735.17	5.3
Dodge County	4/23/18 – 5/7/18	Platte River near Leshara, Nebr. USGS 06796500	6000	4.5
Colfax County	12/8/16 – 2/3/17	Platte River near Leshara, Nebr. USGS 06796500	4000	5.5

Table 9: Elkhorn River at Waterloo, Nebr. Duration Analysis

% of Time Exceeded	Annual Flow
99	269
95	476.8
90	597
80	845
50	1440
25	2500
15	3400
16.23 (LiDAR)	**3200**
10	4210
5	5844
2	8934.8
1	12700
0.1	33822.4

Table 10: Platte River near Leshara, Nebr. Duration Analysis

% of Time Exceeded	Annual Flow
99	269
95	476.8
90	597
80	845
50	1440
25	2500
15	3400
10	4210
5	5844
4.85 (LiDAR)	**6000**
2	8934.8
1	12700
0.1	33822.4

Manning's roughness coefficients of the channel and floodplains were based off land use data obtained from the National Land Cover Dataset (NLCD). Table 11 shows the different land uses and associated Manning's n values used in the model.

Table 11: Manning's n Values Used in HEC-RAS Model

Land Use	Manning's n-value	Land Use	Manning's n-value
All Other	0.04	Evergreen Forest	0.15
Barren	0.03	Grassland	0.04
Cultivated Crops	0.04	Herbaceous Wetlands	0.045
Deciduous Forest	0.10	Mixed Forest	0.12
Developed - Low	0.08	Open Water	0.035
Developed - Medium	0.12	Pasture	0.04
Developed - High	0.15	Shrub	0.05
Developed - Open	0.035	Woody Wetlands	0.07

Manning's n calibration regions were added to refine stream channels. Major cutoff or diversion ditch channel calibration regions were added to ensure that key ditch sections have uniform Manning's n values in the model. Ditch channel calibration regions were applied in all model geometries. Figure 6 shows the extents of the calibration regions and Table 12 details the calibration region values.

Table 12: Manning's n Values Used for HEC-RAS Calibration Regions

Calibration Region Name	Manning's n values
Central Cutoff	0.035
Ditch 8	0.035
Ditch 8 South	0.035
Fremont Cut/off	0.035
Hughes-Payzant	0.035
North Bend Cutoff	0.035

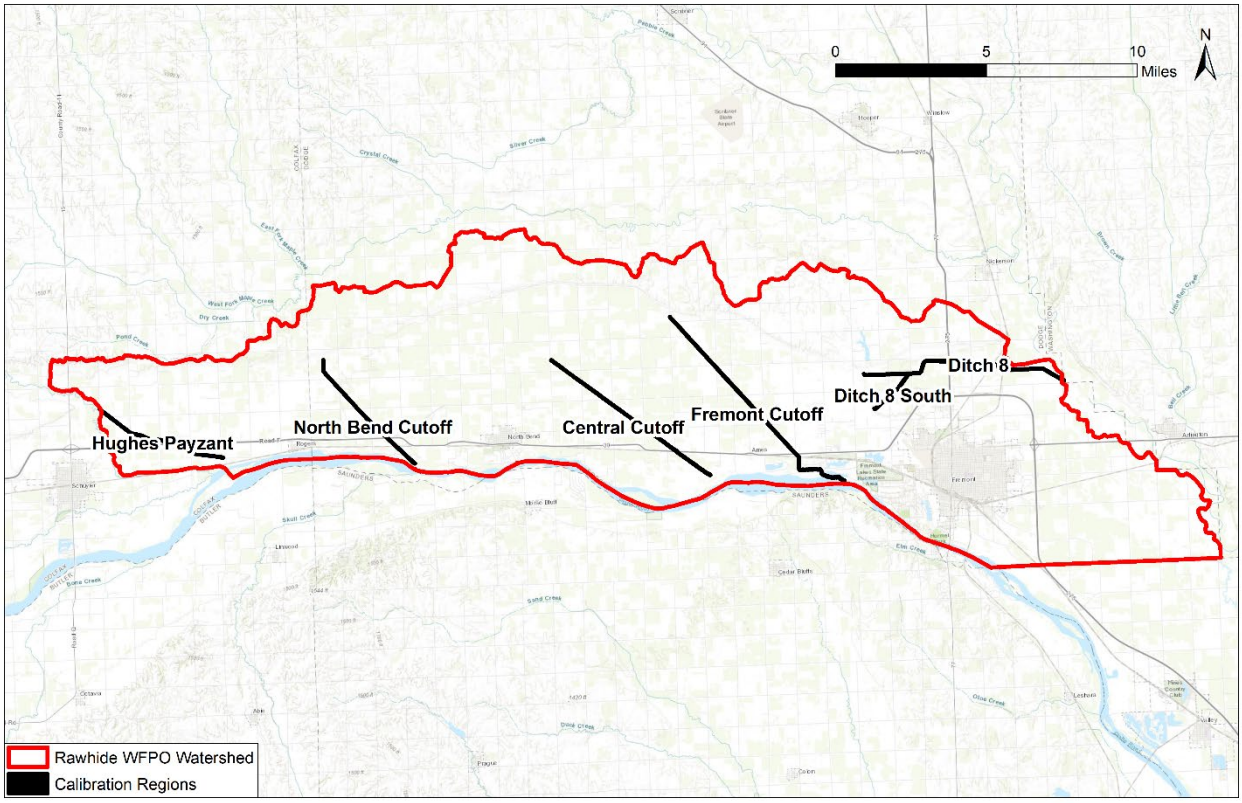

Figure 6: Manning's n Calibration Regions

EXISTING CONDITIONS SCENARIOS

Multiple geometry and flow scenarios were created to capture the existing conditions and potential flood risk scenarios within the Rawhide Creek Watershed. Figure 7 shows the model geometry which does not include the new Highway 30 alignment and represents the geometry that was in place before the 2019 flood event. This geometry was created for the calibration of the model with local input related to a flood event in June 2016. A second geometry was created that included the Cutoff Road Raise added after the 2019 flood which raised approximately the south third of Cutoff Road along the east side of the Fremont Cutoff Ditch. This geometry is meant to capture the existing conditions in place for events prior to the 2019 flood and to understand the differences due to the new Highway 30 alignment. Figure 8 shows the third geometry created to capture revised existing conditions which includes the Cutoff Road raise and new Highway 30 alignment and structures. This geometry captures the current conditions within the watershed following the completion of construction of the new Highway 30.The geometry shown in Figure 8 is what has been used for the existing conditions modeling runs. This geometry includes a reduction in the total number of subbasins, increases in the number of break lines, and increases in the number of modeled culverts.

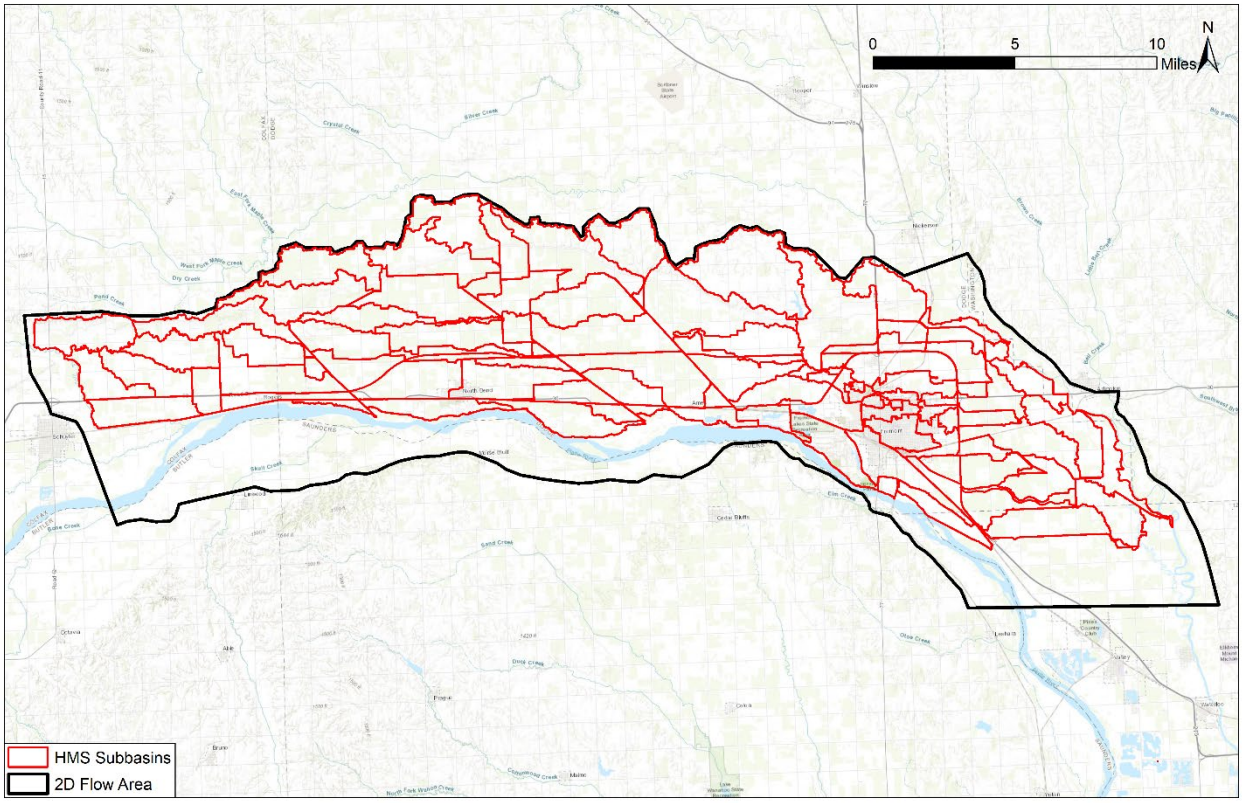

Figure 7: Hydraulic Model Geometry without New Highway 30

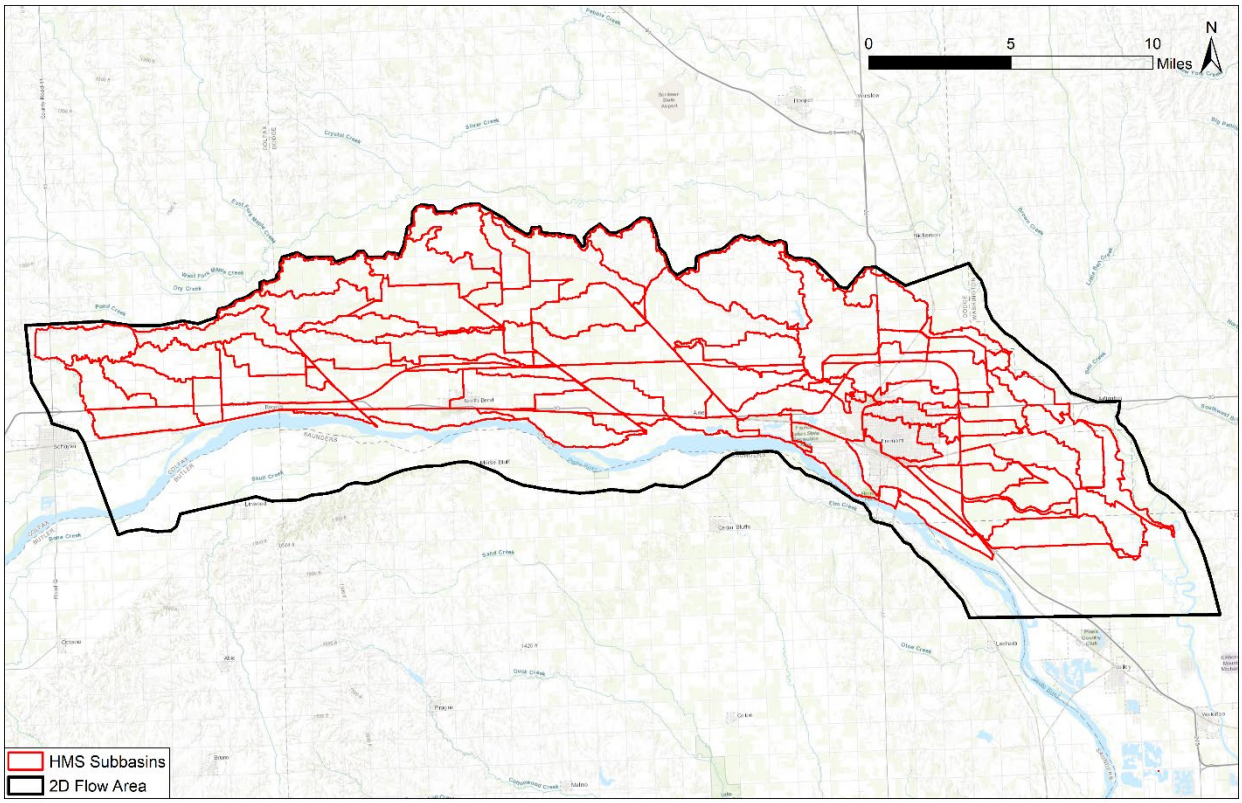

Figure 8: Hydraulic Model Geometry with New Highway 30

D 3.03 MODEL CALIBRATION

On June 17th, 2016, significant heavy rain fell on the Rawhide Creek watershed. Flooding observations from this event were used to calibrate both the HEC-HMS and HEC-RAS models. Precipitation data was acquired from the National Weather Service, Advanced Hydrologic Prediction Service, Missouri River Basin Forecast Centers Analysis of Record for Calibration (AORC). The HEC-HMS model used a structured discretization with a cell size of 2000-meters and a 30-minute time step. This event was chosen as it is the most recent flooding event reported based on rainfall on the Rawhide Creek watershed. The resulting subbasin hydrographs were then applied to the HEC-RAS 2D model as inflow boundary conditions and the HEC-RAS model was run. The resulting ponding depths and key event pictures are shown in Figure 9 and Photos 2, 5, 10, 12, 19 and 45. As can be seen, the model results appear to closely match the provided pictures. In some places the modeled results appear to show more flooding than the pictures indicate, however, it is not clear when the pictures were taken, and it is unlikely they would all have been taken at the time of the peak flooding. Additional photos are available upon request.

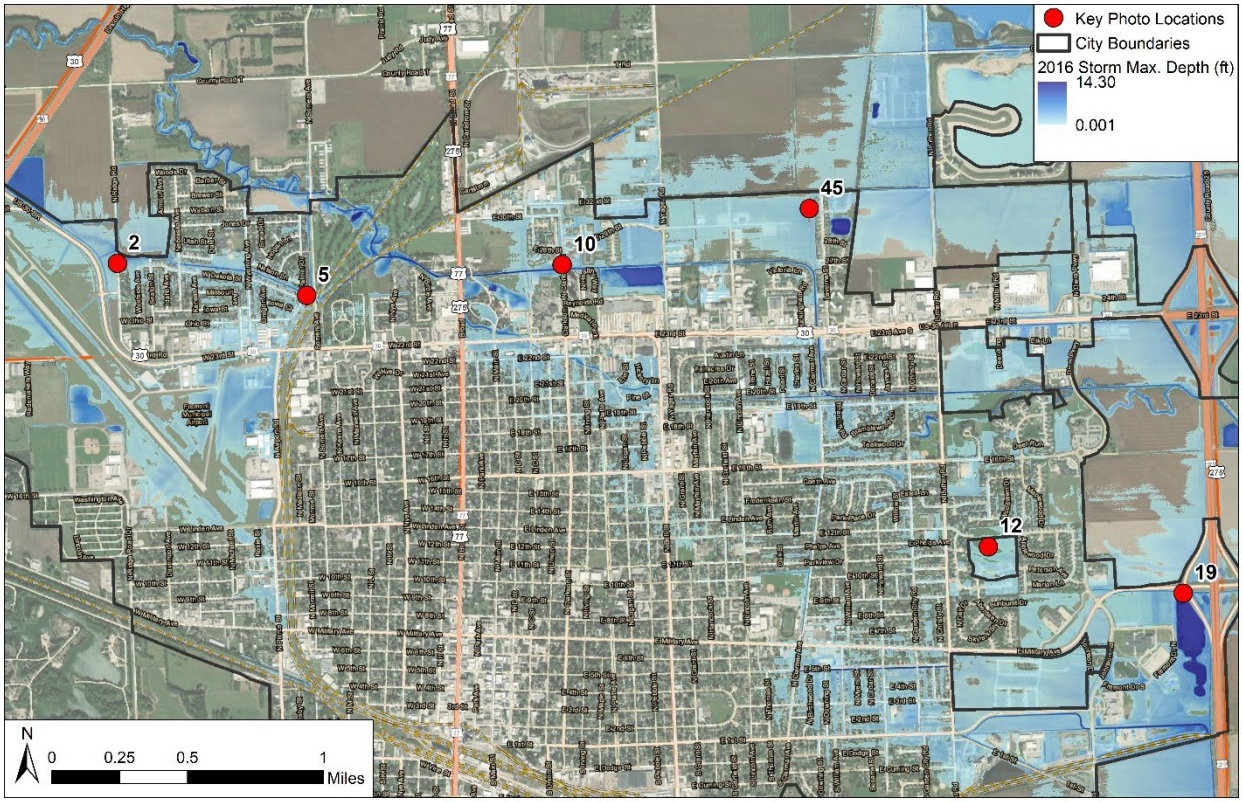

Figure 9: Map of Key Photo Locations in Fremont, NE

Photo 2

Photo 5

Photo 10

Photo 12

Photo 19

Photo 45

D 3.04 BASELINE HYDRAULIC RESULTS

The 2D hydraulic model begins east of Schuyler and runs southeast until Rawhide Creek joins with the Elkhorn River. Rawhide Creek flows through the City of Fremont, while the other communities within the watershed lie along the watershed boundary shared with the Platte River. The flow characteristics of Rawhide Creek are influenced by the topography, cutoff and diversion ditches, major roadway embankments, local roadway bridges/culverts, the Union Pacific Railroad Company Railroad (RR), and local topography features within Fremont. Culverts greatly impact the hydrology and hydraulics of this watershed, and although it was not feasible to add all culverts to the 2D model, key culverts with the most potential to impact flooding extents were added to the model based on survey data or NDOT plan sheets.

In the Rawhide Creek WFPO hydraulic model, the Shell Creek, Elkhorn River, and Platte River were modeled using the National Cooperative Highway Research Program NCHRP Report 15-36 technique for estimating joint probabilities of coincident flows developed for the AASHTO Model Drainage Manual. The drainage area ratios of the other contributing waterways and Rawhide Creek were used to determine the flood flow frequency used in the model for the Shell Creek, Elkhorn River, and Platte River according to the size of event modeled on Rawhide Creek. Peak flows for the Elkhorn River were taken from the USACE November 2021 report “Peak Flow Frequency Improvement with Mixed Population Hydrology and Subject Matter Expert Elicitation” while the peak flows for the Platte River were taken from the USACE October 2020 report “Lower Platte River Flood Frequency Update”. A bulletin 17C analysis was completed on the USGS stream gage 06795500 Shell Creek near Columbus, Nebraska to determine the coincident peak flows for Shell Creek. Table 13 below shows the coincident events with Rawhide Creek and the other contributing flood risk sources used for this study.

Table 13: Joint Probability of Coincident Flood Events

Stream	Frequency for Coincidental Occurrence (years)						
Joint Return Period	**2**	**5**	**10**	**25**	**50**	**100**	**500**
Rawhide Creek	2	5	10	25	50	100	500
Shell Creek	0	0	5	10	25	25	50
Shell Creek Flow Rate (cfs)	0	0	3,126	4,544	6,794	6,794	8,826
Elkhorn River	0	0	2	2	2	2	5
Elkhorn River Flow Rate (cfs)	0	0	14,700	14,700	14,700	14,700	26,500
Platte River (Rainfall Season)	0	0	2	2	2	2	5
Platte River (Rainfall Season) Flow Rate (cfs)	0	0	28,300	28,300	28,300	28,300	44,000

D 3.05 RISK ASSESSMENT AND HYDRAULIC RECOMMENDATIONS

Risk assessment and hydraulic recommendations described below are based on the existing conditions model results from the hydraulic model described above. These existing conditions are based on a Rawhide Creek driven coincident flood event based on the joint probability of coincidence described in Table 13. This risk assessment and recommendations do not consider the impact of flood events whose major source is the Platte River, Elkhorn River or Shell Creek. Existing conditions maps for the 10, 25, 50, 100 and 500-year storm events are attached in Figure 10 through Figure 14. The results of these model results are discussed below, with key flow locations displayed in Table 14.

Table 14: Ditch Capacity vs 100-year Flow and Overflows

Outlet	Ditch Capacity Coincident Event (cfs)	Ditch Capacity Rawhide Only Event (cfs)	100-year Coincident Results Peak Flow (cfs)
**Hughes-Payzant Ditch	6.5	328.1	1,860.7
Byrne Ditch	23.5	23.5	1,226.7
**North Bend Cutoff Ditch	-354.4	403.8	1,223.1
**Central Cutoff Ditch	720.9	764.2	2,204.3
Fremont Cutoff Ditch	481.7	481.1	3,141.4
Ditch 8	686.6	685.6	1,398.7
Rawhide Entering Fremont	172.1	174.9	385.5
Airport Entrance to Fremont	37.8	37.8	153.9
Rawhide Leaving Fremont	146.9	146.7	327.1
Model Outlet (Platte and Elkhorn combined)	N/A	N/A	66,482.5

**Note: Ditches which show less capacity for a coincident event than a Rawhide only event are impacted by back water from the Platte or Elkhorn Rivers which is the cause of coincident event ditch capacities less than Rawhide only ditch capacities. 100-year coincident peak flow results are derived from the model at areas of high ground near the outlet of each ditch, for example, at the current Highway 30 and Railroad embankments along the south of the watershed.

FREMONT

Fremont is located within the southeastern portion of the watershed. Fremont is meant to be compartmentalized from the rest of the Rawhide Creek watershed by the Fremont Cutoff Ditch and Cutoff Road. Additionally, the Merlyn England Diversion and Ditch 8 improvements are meant to direct flow north away from the Rawhide entrance to Fremont . Two entrances for flow exist on the western side of Fremont under Highway 275, one at the Rawhide Creek inflow and one near the Fremont Municipal Airport. A small detention area lies just inside of Highway 275 to detain water entering at this location. Generally, Fremont development abuts the top of the current ditch and creek banks. Starting within Fremont a ditch system gathers drainage and carries it southeast to the Rawhide Creek confluence with the Elkhorn River. Further improvements to detention west of Fremont, ditches to move flow more efficiently through and/or out of town, as well as improvements to the Fremont Cutoff Ditch and Cutoff Road Embankment are recommended to reduce flooding impacts from the Rawhide Creek watershed in the Fremont Region.

Major Findings for Rawhide Creek Flood Risk:

- Culvert without flapgate causing flooding at Co Rd 16 and Cutoff Rd.
- Culvert without flapgate causing flooding at Co Rd 15 Blvd and Cutoff Rd.
- Culvert without flapgate causing flooding just north of Co Rd S and Cutoff Rd.
- Cutoff Rd over topping just north of Co Rd S. At 100 yr coincident event approximately 2 inches of depth is overtopping allowing a volume of 239 ac-ft to cross the embankment. Overtopping begins at the 50-year coincident event. This flow then stays along the north side of Highway 30 until the Rawhide Crossing near the Merlyn England project.
- Significant ponding occurs behind the Fremont Cutoff Ditch and Cutoff Rd.
- Discharge ditch for Brush Creek Dam is over topping and causing flooding within the area southeast of the berms.
- A significant amount of flow exits Rawhide Creek between Co Rd 16 and Co Rd 19 which is then intercepted by the ditch along the north of Co Rd S until it is overtopped and is then intercepted by the ditch along the north side of the new Highway 30.
- Merlyn England Detention locations are functioning generally as planned.
- Overtopping occurs along Ditch 8 at the abandoned railroad crossing near Luther Rd with an approximate depth of 2 inches allowing a volume of 102 ac-ft to cross the north embankment. Overtopping begins at the 50-year coincident event.

- Detention near Highway 275 and Fremont Municipal Airport is undersized beginning at the 10-year coincident event.
- Significant ponding occurs on the west side of Highway 275 near the Airport impacting the neighborhood located at Co Rd 20 Ave and T Blvd.
- The ditch that runs near Milliken Park Elementary School is undersized from Ridge Road to North Somers Avenue causing significant ponding throughout this neighborhood.
- Rawhide Creek is undersized through Fremont with overtopping beginning at the 25-year coincident event causing significant ponding north of E 23rd St between N Somers Ave and the east leg of Highway 275.
- The ditch that runs from the Masonic Park to connect to its confluence with the Rawhide Creek near E 20th St and N Clarmar Ave is undersized with flooding starting at the 2-year event. Overflow from this ditch inundates the immediate area around the ditch as well as areas to the south and east.
- Ditch 4D and 4B are undersized for their drainage areas beginning at the 2-year storm and receive additional flow from overtopping in the Rawhide Creek between N Broad St and Laverna St beginning at the 25-year storm.
- Sewer Ditch is undersized with ponding at the powerplant of approximately 2.67 feet for the 100-year coincident event. Significant ponding begins at the 2-year event.
- Drainage east of Fremont generally flows southeast along Ditch 4 to its confluence with the Elkhorn River.
- Areas along the Elkhorn River are sensitive to Elkhorn River overtopping. Particularly near the northeast corner of Fremont including Ditch 4B and Ditch 4D.

INGLEWOOD

Inglewood is located south of Fremont between Fremont and the Platte River. Internal drainage seems to be a likely problem within this area during a Rawhide watershed driven storm, however a more detailed model would be needed to determine specific concerns. The highest risk of flooding is from the Platte River.

Major Findings for Rawhide Creek Flood Risk:

- Internal drainage seems to be a factor within this area.

AMES

Ames is located just west of Fremont along the current Highway 30. This area is at risk of flooding from Platte River overflow but does seem to be impacted by Rawhide Creek watershed flooding.

Major Findings for Rawhide Creek Flood Risk:

- A ditch runs along the north side of Ames. This does not seem to impact any buildings within Ames for the 100-year coincident event.

NORTH BEND

North Bend is located on the south boundary of the watershed on Highway 30 near the Platte River. Rawhide Creek does not pose a flood risk to this community; however, some internal drainage may cause damages and a more detailed model should be created to identify specific concerns. Most risk to this community is posed by the Platte River and Shell Creek overflows. Improvements to the North Bend Cutoff Ditch and embankment is recommended to reduce risk from these sources and are being currently considered by a separate study.

Major Findings for Rawhide Creek Flood Risk:

- Flow generally is routed around the north side of North Bend.
- Some flow enters town via a ditch along the north side of the current Highway 30 which seems to cause some drainage concerns within town as the flow moves east through town.
- Some structural damage is seen within town.

ROGERS

Rogers is the most western community within the Rawhide Creek watershed and is located along Highway 30 and the Platte River. Rawhide Creek drainage does not appear to pose a threat to Rogers, however, some localized drainage concerns do seem to be present, and a detailed model should be created for this area to identify these specific concerns. Platte River overflows and overflows from large events on the Shell Creek are the primary major flooding risk factors for this community.

Major Finding for Rawhide Creek Flood Risks:

- Many ditches within the community are showing ponding, however, no structures appear to be impacted for the 100-year coincident event.

OTHER AREAS

Large amounts of the rural area in this watershed are impacted by Rawhide Creek drainage. The Rawhide Creek and ditch system throughout the watershed seems to be consistently undersized. A unified plan regarding overall flow paths and increased sizing should be explored to improve the function of this system to reduce the damages to crops, livestock, the rural road network, and buildings. Specifically, the North Bend, Central, and Fremont Cutoff Ditches should be examined to determine the capacity and embankment height necessary to achieve flood risk reduction goals. Additionally, Shell Creek overflows should be managed with either additional ditches to carry this flow or improvements to the Hughes Payzant ditch.

Major Findings for Rawhide Creek Flood Risk:

Central Cutoff Ditch

- Significant ponding occurs behind the Central Cutoff Ditch and Embankment.
- A culvert near current Highway 30 and Co Rd 13 lacks a flapgate which allows flooding within this area. Additionally, some overtopping is at this same location with approximately 9 inches of depth for the 100-year coincident event. Cumulatively, the culvert and overtopping allow a volume of 143 ac-ft to cross the embankment. Overtopping begins at the 50-year coincident event.
- A culvert near the Co Rd T and Co Rd 12 intersection is causing ponding in the area.
- Overtopping occurs just north of the new Highway 30 with approximately 2 inches of depth for the 100-year coincident event, allowing 430 ac-ft to cross the embankment. This overtopping begins at the 100-year coincident event.
- A field ditch between Co Rd 10 and Co Rd 11 is causing ponding in this area.
- A culvert and roadside ditch at the Co Rd 10 crossing are causing ponding east of the embankment in this area.
- A culvert near the Co Rd R crossing is causing ponding in this area.
- Overtopping occurs between Co Rd Q and Co Rd 9 with approximately 2 inches of depth, allowing a volume of 87 ac-ft to cross the embankment for the 100-year coincident event. Overtopping begins at the 50-year coincident event.
- The west roadside ditch of Co Rd 8 is causing ponding in this area.

North Bend Cutoff Ditch

- Significant ponding occurs behind the North Bend Cutoff Ditch and Embankment. (This impact is being considered in a separate study.)
- Overtopping occurs at the Co Rd R crossing with approximately 5 inches depth over the embankment, allowing a volume of 104 ac-ft to cross the embankment for the 100-year coincident event. Overtopping begins at the 10-year coincident event. (This impact is being considered in a separate study.)

Byrne Ditch

- Significant ponding occurs behind the Byrne Ditch and Co Rd 17 Embankment.
- Multiple locations overtop between Co Rd H and Co Rd G with the deepest at approximately 5 inches, allowing a cumulative volume of 842 ac-ft across Co Rd 17 for the 100-year coincident event. Overtopping begins at the 2-year coincident event. Flow that overtops generally flows along Co Rd G to the North Bend Cutoff Ditch.

Hughes-Payzant Ditch

- During the 100-year coincident event the Hughes-Payzant Ditch receives 402 cfs of flow from Shell Creek, and a cumulative volume of 1280 ac-ft enters the Rawhide Creek watershed.
- The Hughes-Payzant Ditch does not appear to have overtopping locations once flow enters the ditch, instead flooding observed along the north and south sides of the ditch appears to be flow that has overtopped from Shell Creek and local drainage that is not able to enter the ditch due to Shell Creek occupying the ditches capacity. Ponding then occurs at the Railroad crossing as these flows merge.

Shell Creek Overtopping

- West of Highway 15 approximately 130 cfs overtops the north Shell Creek bank and allows 60 ac-ft to enter the Rawhide Creek watershed. This flow is forced back into the Shell Creek by the Highway 15 embankment.
- Just east of Highway 15 approximately 71 cfs overtops the north bank of the Shell Creek into the Rawhide Creek channel and allows 20 ac-ft to enter the Rawhide Creek watershed. Overtopping begins at the 100-year coincident event.
- Just north of the Hughes-Payzant Ditch entrance approximately 417 cfs overtops the north bank of the Shell Creek into the Rawhide Creek channel and allows 550 ac-ft enter the Rawhide Creek watershed. Overtopping begins at the 25-year coincident event.

- During the 100-year coincident event the Hughes-Payzant Ditch receives 402 cfs of flow from the Shell Creek, and a cumulative volume of 1280 ac-ft enters the Rawhide Creek watershed.

- Just north of the Highway 30 crossing approximately 132 cfs overtops the north bank of the Shell Creek into the Rawhide Creek channel and allows 154 ac-ft enter the Rawhide Creek watershed. Overtopping begins at the 50-year coincident event.

- Within the section of Shell Creek which runs along the north side of the Railroad to its crossing approximately 1792 cfs overtops the north bank of the Shell Creek into the Rawhide Creek channel and allows 4056 ac-ft enter the Rawhide Creek watershed. Overtopping begins at the 10-year coincident event.

Rawhide Creek – Rural Areas

- Just east of Highway 15 approximately 71 cfs overtops the north bank of Shell Creek into the Rawhide Creek channel and allows 20 ac-ft enter the Rawhide Creek watershed. Overtopping begins at the 100-year coincident event.

- Rawhide Creek between Shell Creek and the North Bend Cutoff Ditch is poorly defined with multiple sections being farmed through. As a result, many locations overtop the banks and generally flow south where is it intercepted by Co Rd H and Co Rd G.

- Rawhide Creek between the North Bend and Central Cutoff Ditches has been mostly straightened into what is now called the Scott Ditch. Scott Ditch appears to be undersized with multiple locations of overtopping. Flow that leaves the ditch flows south and east along portions of smaller ditch systems and the historic Rawhide Creek channel.

- Rawhide Creek between the Central and Fremont Cutoff Ditches has been mostly straightened into roadside ditches along the north sides of Co Rd P and Co Rd Q. The roadside ditches appear to be undersized with multiple locations of overtopping. Flow that leaves the channels flows alongside the existing ditches to the Fremont Cutoff Ditch.

- Rawhide Creek between the Fremont Cutoff Ditch and the Merlyn England Diversion Structure has been mostly straightened and connected to Ditch 8. This section of Rawhide Creek is generally undersized, with multiple locations where the south bank is overtopped. These flows move southeast where they are intercepted by the Co Rd S ditch and the new Highway 30 embankment. High flows are still allowed to overtop Ditch 8 into the old channel that turns to the south and enters the Merlyn England Diversion. The flow within the Co Rd S and Highway 30 ditches enters the disconnected Rawhide channels which flows south to the Merlyn England Diversion.

Other Observations

- Results and topography show what appears to be a continuation of a South Branch of Rawhide Creek which runs from just north of North Bend to the Merlyn England Diversion but is cutoff by the Fremont and Central Cutoff Ditches. This flow path is less defined than the Rawhide Creek and is generally farmed through for its entire length.

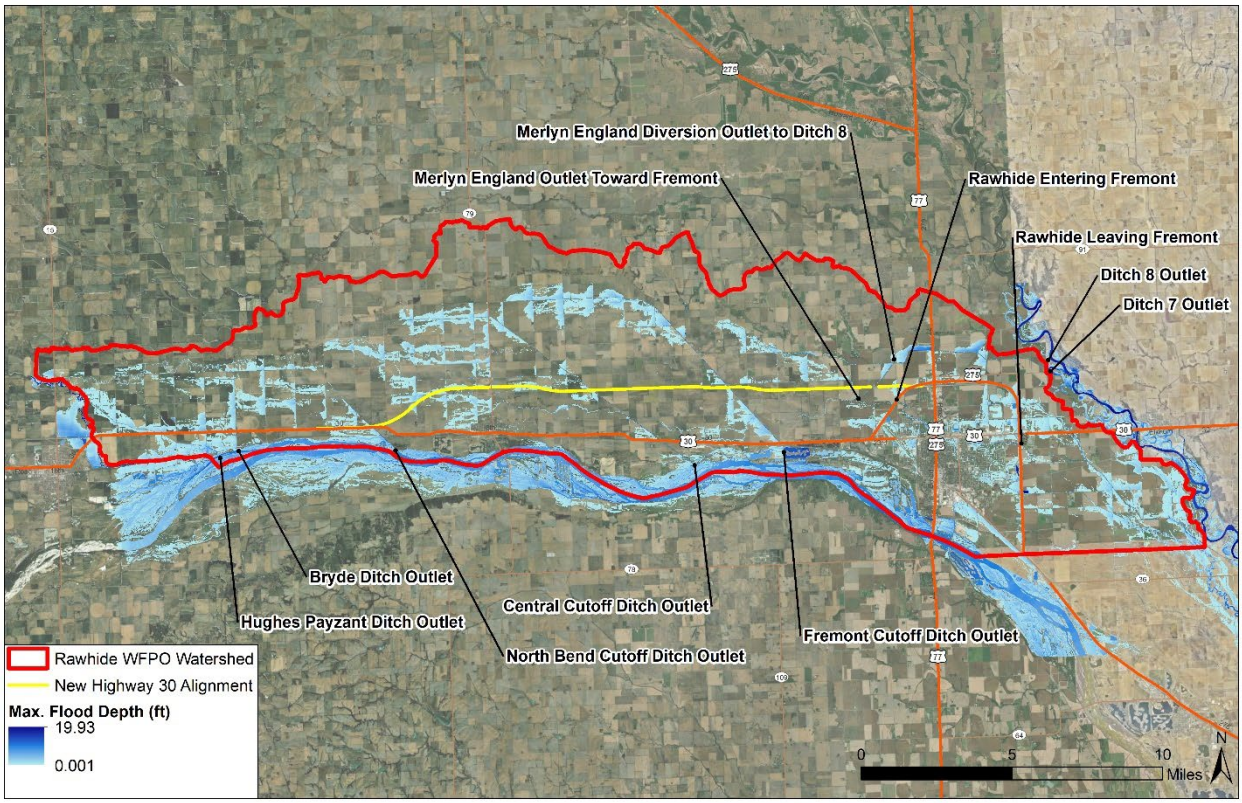

Figure 10: 10-year Coincident Event Existing Conditions

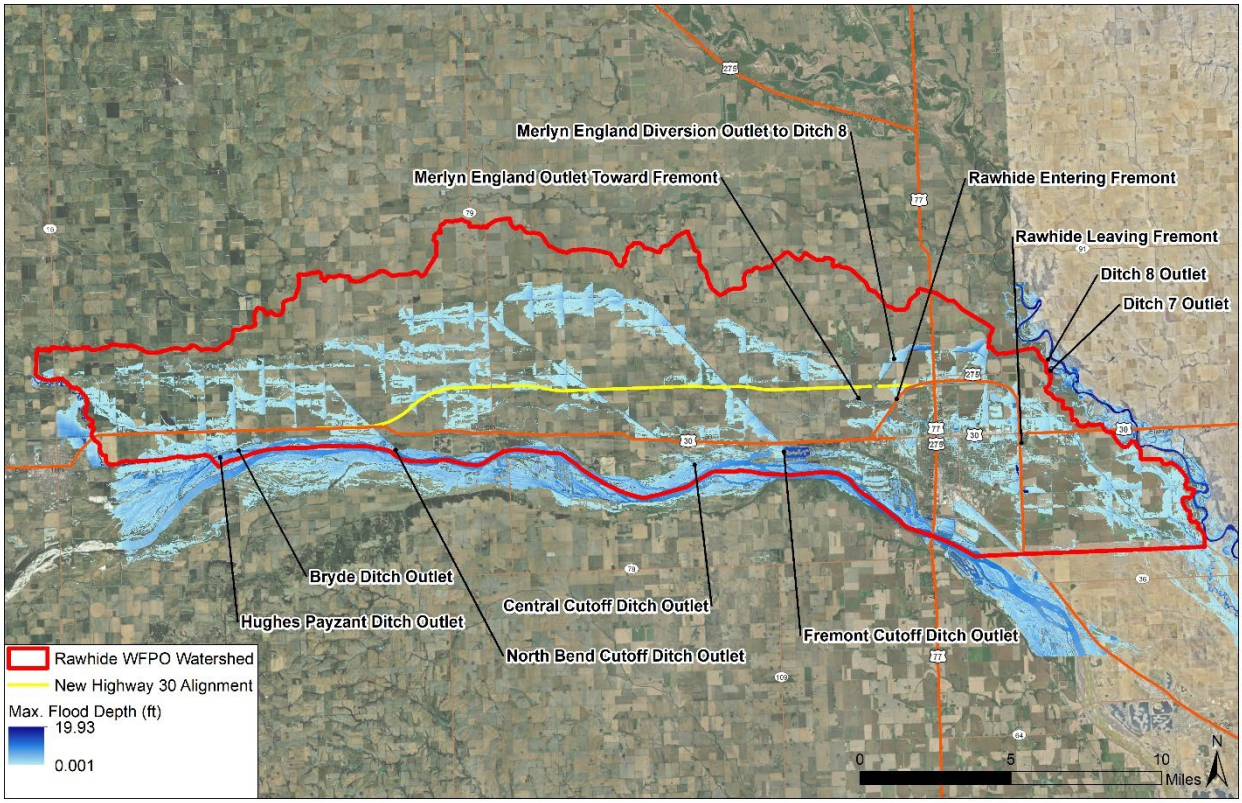

Figure 11: 25-year Coincident Event Existing Conditions

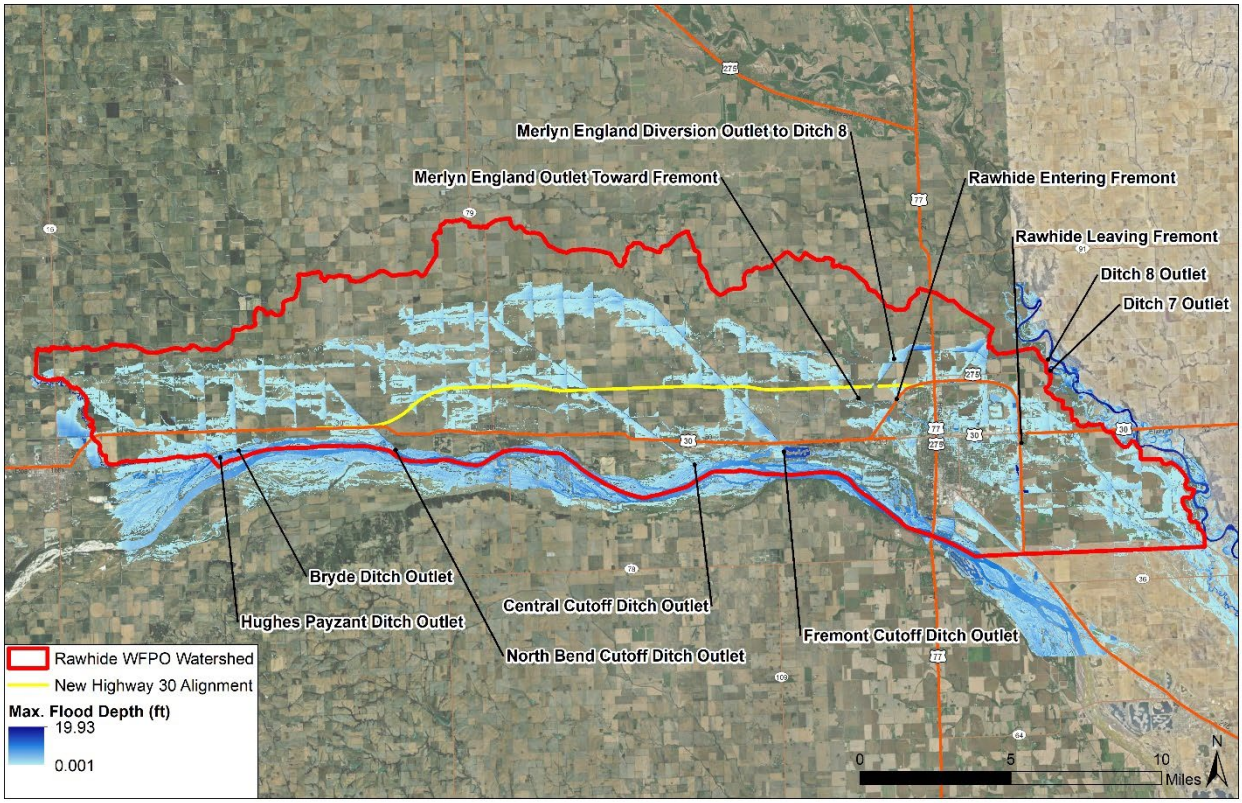

Figure 12: 50-year Coincident Event Existing Conditions

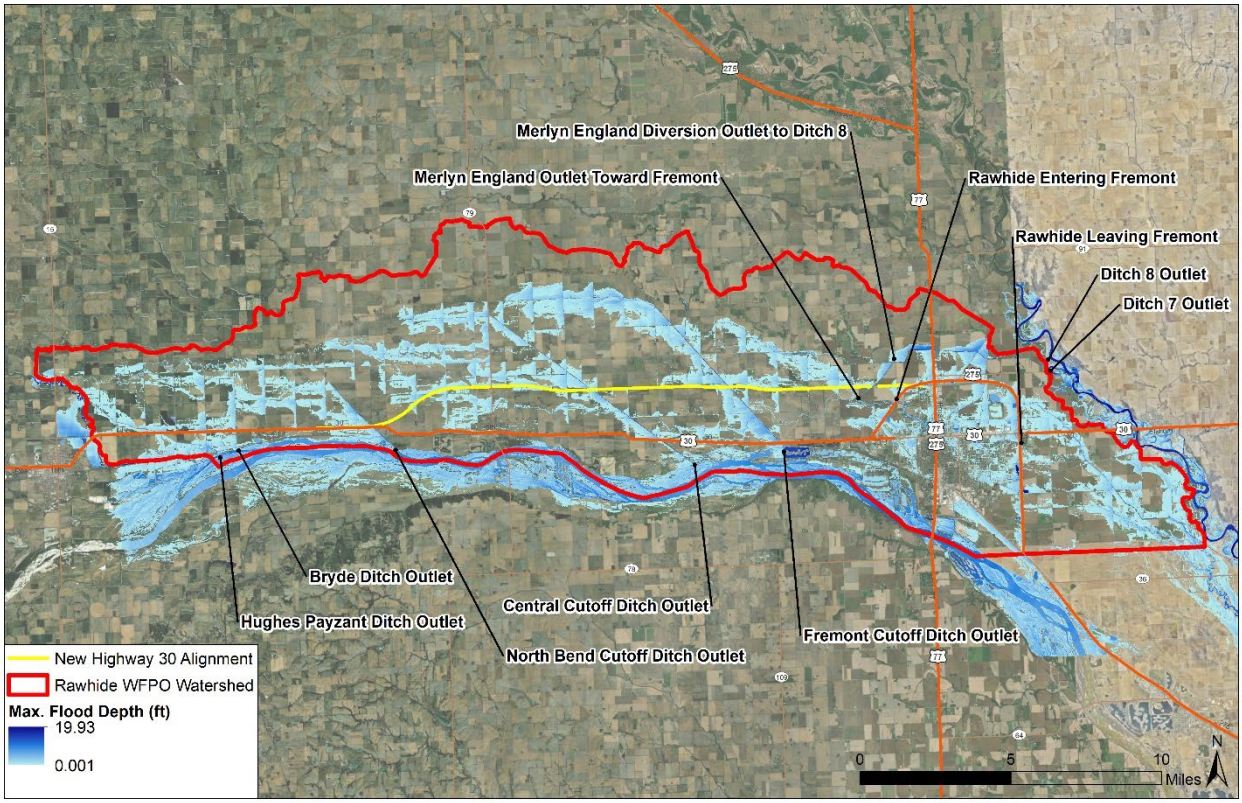

Figure 13: 100-year Coincident Event Existing Conditions

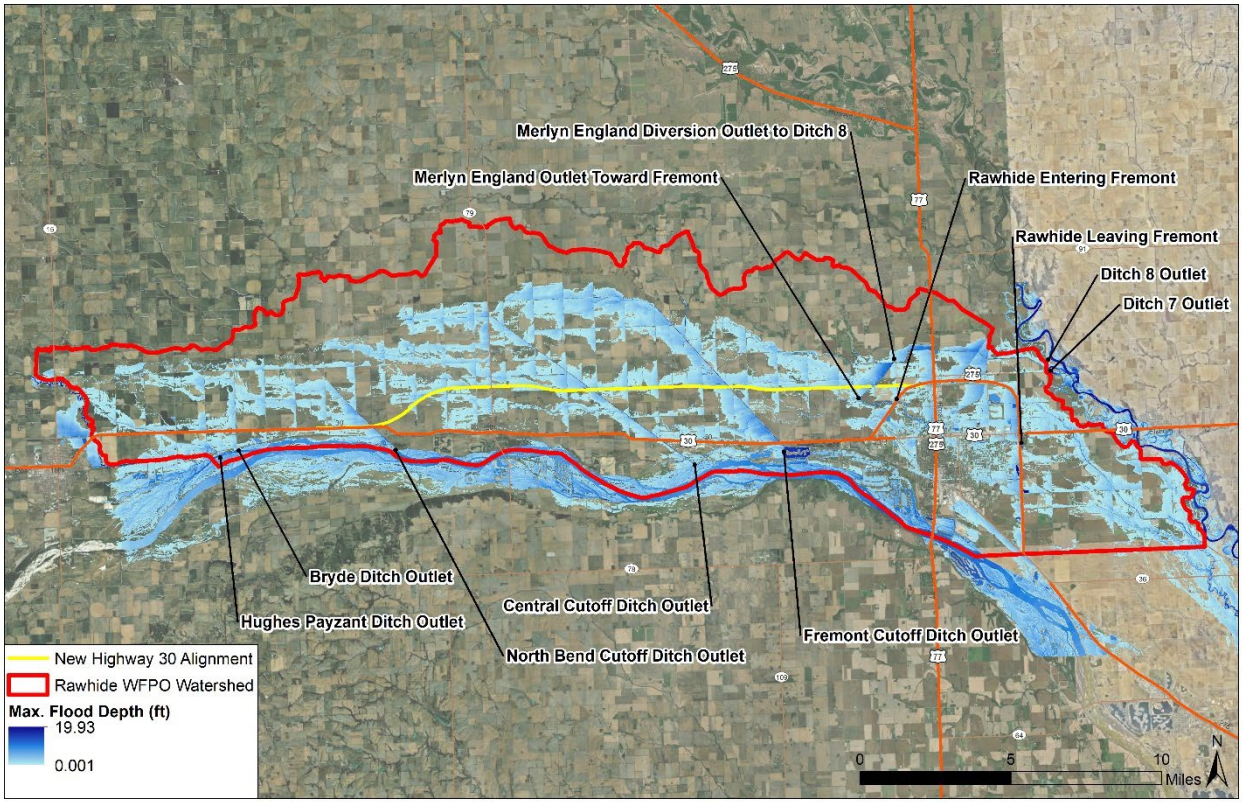

Figure 14: 500-year Coincident Event Existing Conditions

D 4. PREFERRED ALTERNATIVE ANALYSIS AND DESIGN

The results of the baseline hydraulic analysis and risk assessment provided recommended solutions which were evaluated as alternatives. Through this alternative evaluation process, a combination of berm improvements and detention cells was identified for inclusion in the Final Array of Alternatives. As discussed in Chapter 4 of the Plan-EA, this alternative is both the NRCS preferred alternative and the NEPA proposed alternative and will be referred to as the preferred alternative throughout this document. The NRCS preferred alternative is the option and course of action that the SLO and NRCS agree best addresses the stated purpose and need. The NEPA proposed alternative must be technically and economically feasible and meet the purpose and need. A justification for these determinations is included in the narrative below. The intent of this project is to reduce peak flows entering Fremont through the two structures under Highway 275. Selected results from a preliminary geotechnical investigation were used in planning this project and are available upon request. Additional geotechnical investigation will take place during the design phase.

D 4.01 SITE IDENTIFICATION

Potential project sites were identified and analyzed using several factors including aerial imagery, publicly available GIS data, topographic data, field investigations, previous studies, and stakeholder and public involvement. The location of existing infrastructure, including roadways, railroads, utilities, homes, and buildings were all considered to initially select low-impact locations. Alignments were then adjusted to compensate for infrastructure, residences, and other buildings within the project area and areas of impact. An effort was made to identify potential projects which would leverage the current infrastructure that exists in the watershed, like the Merlyn England diversion channel and the cutoff ditches. Additional consideration was given to protecting the new Highway 30 alignment, which is currently under construction at the time of this writing. Existing sensitive resources were also considered when choosing potential site locations. Stream and woodland corridors, potential wetlands, and habitat for threatened and endangered species were identified and used in conjunction with the other data collected.

D 4.02 SITE PRIORITIZATION

Sites that were deemed feasible were evaluated for the quantity of potential flow reduction provided at each entrance to Fremont, the target location. The combination of improvements to two berms, the creation of two detention cells and an overflow channel between the two cells provide significant flood damage risk reduction to Fremont along with reduction to the flood risk to the agricultural areas around Fremont, thus meeting the Plan's purpose and need.

D 4.03 SITE SPECIFIC DESIGN INFORMATION

The detention cells include reinforced concrete boxes or pipes (RCB or RCP), a connecting channel between the detention cells to allow for storage to equalize as needed between the cells and include earthen auxiliary spillways. Levees are aligned along existing roadway and berm to reduce the impact of the footprint to adjacent ag land. Site specific design considerations are described below, and additional details are provided in Structural Tables 3 and 3a located in Chapter 7 of the Plan-EA.

SITE L1-1

Site L1-1 is located on the east side of Cutoff Ditch Road lying between County Road P Blvd on the north and Cutoff Ditch Road on the south. The berm is designed to tie in the Cutoff Ditch Road berm improvements into the higher ground near County Road P Blvd to prevent the 100-year storm from flanking the Cutoff Ditch Road berm. The embankment expands upon an existing berm, with only part of the footprint expanding into the farm ground to the east. This site features a 10-foot wide top and 3:1 (h:v) side slopes. The average height of the berm is 6.5-feet, and the total length of the berm is 5153.5-feet. Site L1-1 is designed to have 2 ft of freeboard for the 100-year event. Structural details are included in Structural Table 3A in Chapter 7 of the Plan-EA and supporting drawings are included in Appendix C. The berm is designed per the Conservation Practice Standard Dike and Levee (Code 356) Class III.

SITE L1-2

Site L1-2 is located along the existing Cutoff Ditch Road alignment from the tie in with Site L1-1 southeast to County Road 15 Blvd. The berm is designed to the 100-year storm. The embankment expands upon the existing roadway, with only part of the footprint expanding into the farm ground to the east. The project footprint does not impact the left bank of the Cutoff Road Ditch and includes the closure of any culverts along the alignment. This site features a 25-foot wide top and 3:1 (h:v) side slopes. The average height of the berm is 3.8-feet, and the total length of the berm is 12265.82-feet. Site L1-2 is designed to have 2 ft of freeboard for the 100-year event, except at the downstream end to allow for tying into existing ground. Structural details are included in Structural Table 3A in Chapter 7 of the Plan-EA and supporting drawings are included in Appendix C. The berm is designed per the Conservation Practice Standard Dike and Levee (Code 356) Class III.

SITE DC1-13A

Site DC1-13A is a detention cell complex consisting of two detention cells connected by a channel. These structures are both located south of the new Highway 30 alignment and west of County Road 20 Ave. At the existing Merlyn England diversion structure, the north detention cell will be added to control a 7.84 square mile drainage area. The north detention cell expands upon the existing diversion by increasing the berm height. This detention cell is sized to hold the 100-year

without use of the auxiliary spillway, set at Elev. 1206.9, and to pass the 500-year. Two outfall structures convey flows either to the Merlyn England Diversion Channel (2 RCB at 6-ft x 6 ft and 6 ft x 7 ft) set at Elev. 1199.55 or to the Rawhide Creek (2 RCP @ 24-inch) set at 1198.3. The detention cell includes 118.3 acre-ft for sediment storage. Site DC1-13A North is connected to Site DC1-13A South via a 10-foot-wide channel and 10-foot top width berm set at Elev. 1212.9, which allows the structures to hold a greater volume of water from variable sources. The South detention cell is located south of County Road T Ave and controls a 2.07 square mile drainage area. This detention cell collects drainage from the ditch which crosses Highway 275 near the Fremont Municipal Airport. This detention cell is sized in conjunction to hold the 100-year and to pass the 500-year and freeboard event, including 45.5 acre-ft for sediment storage. The outfall structures convey flows towards the airport in the existing ditch through an 18-inch RCP set at 1201.0. These detention cells will be dry most of the time. Together the detention cells store a total flood retarding volume of 1454.1 acre-ft. Sediment storage needs were calculated using RUSLE methodology. It was estimated that approximately 1.05 tons/acre would be delivered annually to the detention cell. Estimated trap rates of 30% were then used to develop the required 100-yr sediment storage of 118.3 acre-ft and 45.5 acre-ft, for the two detention cell holding areas, respectively. Structural details are included in Structural Table 3A in Chapter 7 of the Plan-EA and supporting drawings are included in Appendix C. This detention cell is designed per the Conservation Practice Standard - Dams (Code 402), NRCS National Engineering Manual (NEM) (Title 210), Part 520, Subpart C, “Dams”; and NRCS Technical Release (TR) (Title 210) 60, “Earth Dams and Reservoirs”.

D 4.04 PROPOSED CONDITIONS HYDROLOGY & HYDRAULICS

Hydrology and hydraulics for the proposed conditions were analyzed using a combination of HEC-HMS and HEC-RAS using the same hydrology and hydraulic models as the existing conditions. The model terrain was updated to include the geometry of the proposed berm improvements and detention cells. Subbasin extents were updated to reflect the values reported from the proposed hydrology, and the hydraulics were updated for the 10, 25, 50, 100, and 500-year rainfall events. Figure 15 and Figure 16 show the 100 and 500 year proposed flooding extents.

Additionally, since both structures were designed to High Hazard Standards, the determination of the appropriate hydrographs used for design were determined as described in Table 15. Determinations were selected as the product of storage (acre-ft) x effective height (ft) was less than 30,000 acre-ft^2. PMP storm for this area is 23.7 inches.

Table 15: Design Rainfall Depths

Design Hydrograph	Requirement	Rainfall Depth
Principal Spillway (24-hr)	P25	5.28
Auxiliary Spillway (24-hr)	P100	6.91

Freeboard (24-hr)	PMP	23.7

Performance of the proposed detention cells were evaluated using an iterative process in HEC-RAS to determine the storage needs, berm height and outlet configurations which would meet the requirements outlined in TR-210-60. This information is presented in Table 16.

It is important to note that the detention cells work in cooperation with each other once water surface elevations within the cells are greater than 1203.00 for this reason the analysis of the cells was performed with both cells at the same time.

Table 16: Hydrologic Performance of Detention Structures

Design Storm	10-year	25-year	50-year	100-year	500-year
DC1-13A North					
Existing Inflow (cfs)	326	585	755	1064	1490
Proposed Outflow (cfs)	255	391	515	601	627
Percent Reduction	22	33	32	43	58
DC1-13A South					
Existing Inflow (cfs)	287	417	530	654	985
Proposed Outflow (cfs)	2	6	10	15	35
Percent Reduction	99	98	98	98	96
DC1-13A Combined					
Existing Inflow (cfs)	613	1002	1285	1718	2475
Proposed Outflow (cfs)	257	397	525	616	662
Percent Reduction	58	60	59	64	73

** Flow Rates are rounded to the nearest 5 cfs.*

The proposed berms and detention cell improvements work in combination to reduce the flood damage experienced by the Fremont area. For all rainfall events the implementation of this project was able to eliminate the overtopping of Cutoff Ditch Road and significantly reduce the inflow into the City of Fremont.

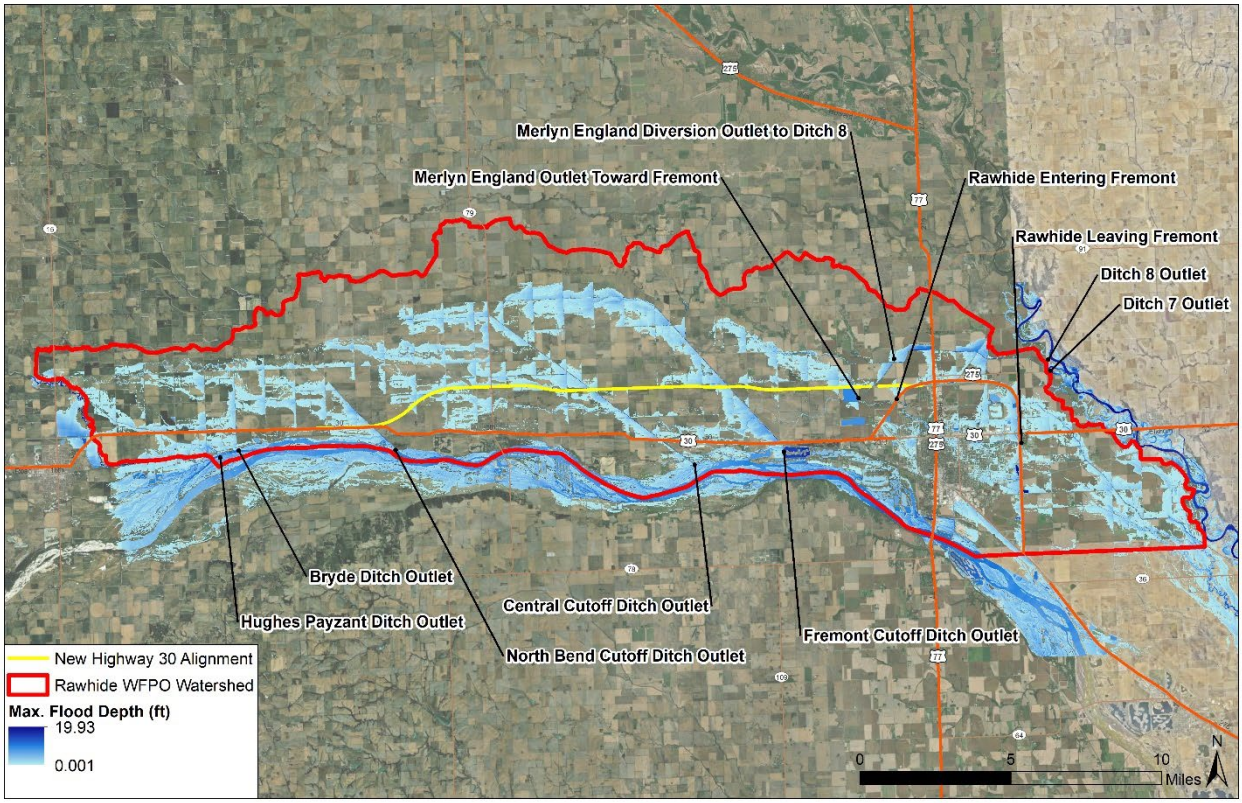

Figure 15: 100-year Coincident Event Proposed Conditions

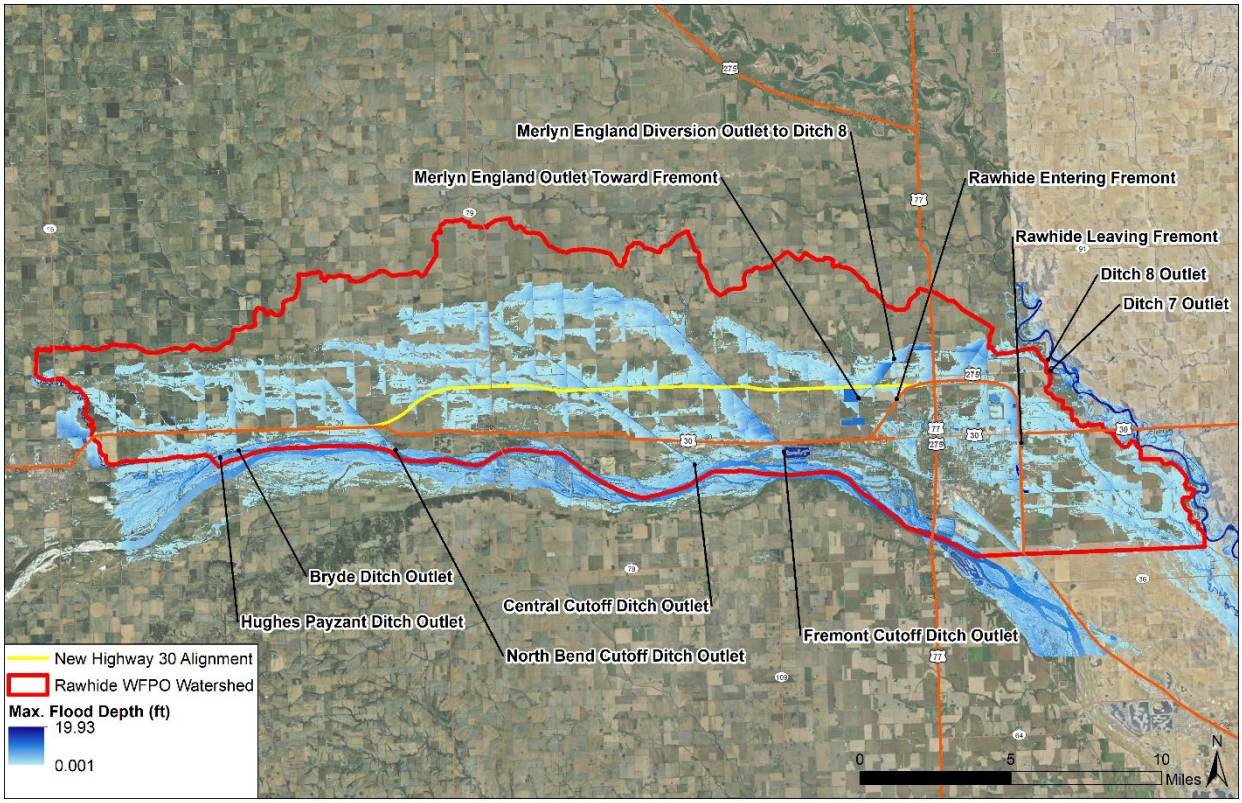

Figure 16: 500-year Coincident Event Proposed Conditions

D 4.05 DAM BREACH ANALYSIS

DAM BREACH HYDROLOGY

Peak breach discharge for each of the structures was estimated using the methodology outlined in Part 1 of TR 210-60 Earth Dams and Reservoirs. The geometry for the proposed dam was based on the cross-sections and elevations noted within the proposed plans. These peak discharges were combined with the storage volume of the reservoir at the time of failure which was used to determine a breach hydrograph in accordance with TR-66. In all cases, the breach elevation was assumed to be at the maximum berm elevation for the detention cell for the freeboard event. A summary of breach flows and breach conditions is provided in Table 17.

Table 17: Proposed Breach Parameters

Parameter	DC1-13A
Minimum Top of Dam Elevation	1211.8
Auxiliary #1 Spillway Elevation	1206.9
Breach Elevation*	1212.9
Volume at Breach (Acre-Ft)	2,144
Tailwater Elevation	1198.20
Peak Breach Discharge (cfs)	**9,400**

*Note: Breach elevation is maximum detention berm elevation.

DAM BREACH HYDRAULICS

Breach routings were completed in HEC-RAS version 6.5 using the same 2D mesh and geometry used for the proposed conditions hydraulics. Breach hydrographs were developed in accordance with applicable Nebraska Dam Safety standards and in accordance with methodology outlined in *NRCS Technical Release 210-60 – Earth Dams and Reservoirs*.

To understand the maximum impact on the City of Fremont multiple breach scenarios were run. Breach hydrographs were also developed assuming that the water surface elevation at the time of the breach was set at the elevation of the pool at a freeboard event, resulting in a peak flow rate of 9,400 cfs. Three breach scenarios were considered, one scenario at each outfall location. The resulting hydrograph was introduced to the 2D mesh immediately downstream of the dam at each outfall location and routed through the 2D model to provide an estimation of flooding extent and severity should sudden dam failure occur.

The most severe result map for the dam is included in Appendix C.

D 4.06 INDUCED FLOODING EVALUATION

RESIDUAL RISK

Though significant improvement exists for all design storms under the preferred alternative, Fremont still has pluvial drainage problems and Platte River, Elkhorn River and Shell Creek overflow flooding are still major concerns for all communities within the Rawhide Creek watershed. For those buildings for which flood risk remains following implementation of the preferred alternative, additional nonstructural floodproofing could be implemented to further reduce flooding damages in conjunction with other ongoing flood risk reduction projects in Fremont and the surrounding region. Additionally, the current regulatory floodplain is outdated compared to the existing conditions that were modeled during this study effort. One major discrepancy between the existing regulatory Platte River floodplain and the model developed for this assessment is the addition of the new alignment for Highway 30. Additionally, there are a multitude of newly built structures in Fremont that are not in the regulatory floodplain, but still regularly experience inundation. The best available floodplain information for this region is the model developed for this study. Based on this, it has been recommended to the City of Fremont to adopt this study for local floodplain management purposes; that action is under consideration by the City.

AVOIDANCE OF UPSTREAM IMPACTS

Since a berm is designed to prevent water from entering an area, it has the potential to increase the water surface elevation over areas upstream of the berm. For this reason, an analysis of the water surface elevation upstream of the Site L1-1 and L1-2 berms was conducted to ensure that proper action was taken if upstream buildings were impacted by the berm improvements. This analysis found that four farmsteads are potentially impacted by the increased water surface elevations, with increases in flood elevation ranging from approximately 0.5 to 4.4 inches. Of the four potentially impacted farmsteads flagged during preliminary investigations using LiDAR, only two farmsteads showed potential impacts to the home while the other two farmsteads showed potential impacts to outbuildings only. All four farmsteads showing potential impacts during the preliminary investigation were then surveyed to better understand the flood risk prior to implementation of the preferred alternative along with changes to flood risk due to implementation of the preferred alternative. Survey showed that the homes on all four properties have a first-floor elevation or lowest opening above the proposed (with preferred alternative) water surface elevation, so no flood risk mitigation activities are required for homes. Table 18 outlines the findings of this analysis. These findings show that as all buildings are below the regulatory base flood elevation and homes are still well above the proposed (with preferred alternative) water surface elevation. Additionally, the flood zone the properties are in is Zone AE without floodway which allows up to a foot of rise due to the improvements under the current ordinance. Considering both of these items, no flood easements are required for this project. The County may decide to work to provide a one-time compensation for property owners based on the incremental depth increase over the property and value of the buildings and agricultural land.

Table 18: Results of Upstream Property Analysis

	Property #1	Property #2	Property #3 (First Floor)	Property #3 (Windowsill)	Property #4 (First Floor)	Property #4 (Windowsill)
Basement	None	Crawl	Full	Full	Full	Full
Regulatory BFE (ft)	1228.50	1228.50	1231.00	1231.00	1232.50	1232.50
Platte Model Max. Existing WSE (ft)	1227.78	1227.08	1227.98	1227.98	0.00	0.00
Platte Model Max. Proposed WSE (ft)	1227.78	1227.78	1227.98	1227.98	0.00	0.00
Platte Model Depth Increase	0.00	.000	0.00	0.00	0.00	0.00
Rawhide Model Max. Existing WSE (ft)	1224.74	1224.71	1227.99	1227.99	1231.12	1231.12
Rawhide Model Max. Proposed WSE (ft)	1225.08	1225.08	1228.05	1228.05	1231.23	1231.23
Rawhide Model Depth Increase (ft)	0.34	0.37	0.06	0.06	0.11	0.11
Surveyed Home First Floor Elevation (ft)	1227.36	1227.81	1232.33	1229.28	1236.37	1232.36
Surveyed Ground at Home Foundation (ft)	1224.50	1226.01	1227.88	1227.88	1232.78	1232.78
First Floor Height Above Existing WSE (ft)	2.62	3.10	4.34	1.29	5.25	1.24
First Floor Height Above Proposed WSE (ft)	2.28	2.73	4.28	1.23	5.14	1.13
Ground Height Above Existing WSE (ft)	-0.24	1.30	-0.11	-0.11	1.66	1.66
Ground Height Above Proposed WSE (ft)	-0.58	0.93	-0.17	-0.17	1.55	1.55

First Floor Height Above Regulatory (ft)	-1.14	-0.69	1.33	-1.72	3.87	-0.143
Ground Height Above Regulatory (ft)	-4.00	-2.49	-3.12	-3.12	0.28	0.28

Note: Negative values in the table above denote locations where the proposed water surface elevation is greater than the surveyed ground surface.

D 5. GEOLOGY

A preliminary geological investigation, including subsurface sampling, was performed to support the design of the preferred alternative. The purpose was to identify any geologic conditions or hazards to address in the design, construction, or operation of the preferred alternative. Field investigations were completed by Thiele Geotech Inc. between August 24, 2023, and January 22, 2024. A summary is included below. The full report is included in Appendix E. A detailed geological investigation would be completed during the design phase and has been included in the project cost estimates. Soil boring was conducted at 18 locations in total:

- Cutoff Ditch Rd – 6 borings
- Brush Creek Dam Outfall – 2 borings
- Detention Cell – 10 borings

Soils encountered generally consisted of man-placed fill underlain by alluvial and Pre-Illinoisan-aged glacial till deposits. Weathered sandstone was encountered below the glacial till. As expected for an alluvial setting, soil conditions vary due to their mode of deposition. The existing soils encountered primarily consisted of alluvial deposits ranging in moisture content, consistency, and plasticity. Excavated site soils will generally be suitable for reuse as structural fill, however, moderate to significant moisture conditioning should be anticipated. The soils encountered in test borings are compressible, and the addition of fill to raise grades will cause these soils to consolidate and settle. Groundwater was encountered in 11 out of 18 test borings with depths ranging from 6.5 to 17.3 feet below existing grades. These soil conditions appear generally suitable for support of the proposed projects.

Preliminary seismic hazard evaluation for the preferred alternative was performed by locating the region as denoted within the 2018 USGS Long-term National Seismic Hazard Map. As seen within the map, the project area is located within a low hazard region. Additionally, the project area is not located over any active faults, as confirmed by the USGS Quaternary Fault Database. A full seismic evaluation as determined necessary by NRCS guidelines will be performed within the design phase of the project.

D 6. ECONOMICS

D 6.01 INTRODUCTION

This report estimates the benefits and costs of proposed flood mitigation measures proposed as part of the Rawhide Creek Watershed Improvement Project in eastern Nebraska. The Rawhide Creek watershed lies within Dodge and Colfax counties and comprises a total area of 142,528 acres. Beginning in Colfax County to the west, Rawhide Creek flows from the City of North Bend (population of 1,269) to the east, through Fremont, a city of approximately 27,400 people. The southern edge of the watershed also contains sections of the Platte River, and the western edge

contains a section of Shell Creek. The Elkhorn River lies just north of the eastern edge of the watershed.

The watershed is prone to frequent, and occasionally severe flooding. Storms occurring both in and outside of the watershed cause Shell Creek, the Platte River, and the Elkhorn River to overflow. In 2010, two flood events caused significant damage to North Bend. In March of that year, an ice-blockage caused approximately $75,000 of damage to buildings and led to the rescue of several people. That summer, a storm event caused the South Platte River to flood, causing an estimated $20 million in damages to public property in and around North Bend.[1] During the most recent flood event in 2019, extensive flooding and damage occurred in Fremont, cutting the city off from public-access for more than a week. The 2019 floods damaged approximately 1,500 homes and buildings in the city.[2] Total public damages from the 2019 floods, which did not account for damages to private property or transportation infrastructure, amounted to more than $34 million in Dodge County.

Dodge County responded by starting the Rawhide Creek Watershed Flood Risk Reduction Plan – Environmental Assessment (Plan-EA) to identify projects to reduce flood risk to homes, businesses, agricultural property, and infrastructure within the watershed in order to protect the diverse economic benefits created within the project area. This report considers the benefits and costs of flood mitigation measures proposed to limit flood damage in the watersheds by addressing the challenges cited above. Specifically, this report considers the benefits and costs of the Action Alternative, which consists of constructing two detention structures as well as a road raise and berms. The benefits and costs of the alternative are compared against a baseline of no action, which is also referred to as the Future Without Federal Investment (FWOFI).

This report is structured into the following sections:

- Federal Guidelines of Benefit-Cost Analysis of Flood Mitigation Measures
- Alternatives and Ecosystem Services Evaluated
- National Economic Efficiency Analysis Data and Methodology
- Current Economic Damages
- Economic and Structural Tables

D 6.02 FEDERAL GUIDELINES OF BENEFIT-COST ANALYSIS OF FLOOD MITIGATION MEASURES

[1] https://storymaps.arcgis.com/stories/9cb7e97dd8fe42e8bb3d27c2a05298a6

[2] Channel 3 News. 2020. Following the Floods: Fremont. Available at: https://www.3newsnow.com/news/following-the-floods/following-the-floods-fremont#:~:text=In%202019%2C%20Fremont%20had%201500,magnitude%20was%2040%20years%20ago.%22

The benefit-cost analysis (BCA) conducted as part of this report uses federal water resource project and NRCS guidelines for the evaluation of benefits and costs of the no action and action alternatives, relying primarily on the Principles, Requirements and Guidelines (PR&G)(NRCS, 2014a), the NRCS Natural Resources Economics Handbook (NRCS 1998), and the National Watershed Program Manual (NRCS 2014b).

With the federal Law passage of the 2007 Water Resources Development Act, Congress directed the federal government to update and consolidate its past guidance on evaluating the costs and benefits of federal investments. The original Principles and Guidelines (P&G) was replaced by Principles, Requirements and Guidelines (PR&G) as of April 2019. The PR&G allow for:

> *… maximizing public benefits (of all types) relative to costs, the use of quantified and unquantified information in the tradeoff analysis, flexibility in decision making to promote localized solutions, ability to rely on the best available science and objectivity, and advance transparency for Federal investments in water resources.*

The PR&G further state:

> *Federal investments in water resources as a whole should strive to maximize public benefits, with appropriate consideration of costs. Public benefits encompass environmental, economic and social goals; include monetary and non-monetary effects; and allow for the consideration of both quantified and unquantified measures.*

The PR&G also requires benefits and costs to be evaluated in an ecosystem service framework. An ecosystem is a natural unit of living and non-living things that function together to create goods and services valued by people (Olander et al., 2016). Ecosystem services is a broad term used to describe the benefits humanity receives from ecosystems as a byproduct of their functioning.

By putting nature at the center, ecosystem services frameworks give economic, social, and environmental costs and benefits equal standing in decision-making processes and therefore help to accomplish the federal objective of maximizing national economic efficiency, ensuring federal investments protect and restore ecosystem functions and values and avoid irreversible impacts (NRCS, 2014a). Economic efficiency requires that resources are used in their highest valued use. Projects that create more benefits than costs utilize resources more efficiently than baseline conditions and therefore increasing societal value.

The four-category ecosystem framework adopted in the PR&G, and utilized in this report, is shown in Table 19.

Table 19: Ecosystem Services Framework Used to Evaluate Benefits and Costs

Service Type	Examples
Provisioning	The supply of food, fuel, fiber, water, timber, and genetic resources

Regulating	The regulation of air, climate, natural hazards, water quality, pests, and disease
Cultural	Services that enhance cultural values, like aesthetics, recreation, tourism, and spiritual or religious values
Supporting	Nutrient cycling, soil formation, and primary production

Source: USDA, 2014b

As Table 19 shows, ecosystem services can be placed into one of four categories. Provisioning services supply goods that directly benefit people. The production of crops, fuel, water, timber, and other raw materials are all provisioning services. Regulating services describe the benefits people receive from an ecosystem's ability to regulate things like air quality, climate, and hazards, both natural and manmade. Cultural services describe the benefits people derive from an ecosystem's ability to provide a good view, a recreation opportunity, a place to travel and visit, or spiritual or religious values.

GUIDING PRINCIPLES

In addition to requiring projects to be evaluated using an ecosystem service framework, the PR&G also seeks to promote projects that fulfill guiding principles related to federal investments in water resources. These include:

- Healthy and Resilient Ecosystems – Federal investments in water resources should protect and restore functions of ecosystems and mitigate any unavoidable damage to these natural systems.
- Sustainable Economic Development – Federal investments in water resources should encourage sustainable economic development that improve the economic well-being of the Nation for present and future generations through the sustainable use and management of water resources.
- Floodplains – Federal investments in water resources should avoid the unwise use of flood prone-areas and avoid and minimize adverse impacts and vulnerabilities in any case in which a flood-prone area must be used. Federal investments should seek to reduce the Nation's vulnerability to floods and storms.
- Public Safety – Federal investments in water resources should avoid, reduce, or mitigate risks to people, including both loss of life and injury, from natural events.
- Environmental Justice – Federal investments in water resources should ensure that and disproportionately high and adverse public safety, human health, or environmental burdens of projects on tribal, minority, or low-income populations are identified, mitigated, or eliminated.
- Watershed Approach - Federal investments in water resources should use a watershed approach that properly frames a problem by evaluating it on a systems level that identifies root causes and interconnectedness of watershed problems that enables the design of solutions that considers the benefits of water resources for a wide range of stakeholders within and around the watershed.

The Rawhide Creek Watershed Plan-EA considered these principles in the characterization of flood risks and water management challenges faced by stakeholders in the watershed and the formulation of solutions as defined in the Action Alternative.

D 6.03 ECOSYSTEM SERVICES EVALUATED

To reduce the risk of flooding in the Rawhide Creek watershed, the project team met with interested parties to answer questions, provide additional information, and learn more about properties that may be impacted by proposed flood risk reduction alternatives. Following these meetings JEO Consulting Group, Inc., the planning consultant, developed an Action Alternative that was evaluated alongside a No Action Alternative as part of the NEE BCA analysis. The No Action Alternative, also known as the Future Without Federal Investment (FWOFI), describes the most likely future if no federal investment is made in the watershed. The Action Alternative describes the proposed actions to be taken to reduce future flood damage in the Rawhide Creek Watershed.

TYPES OF SERVICES IMPACTED

Public scoping comments, planning documents, watershed plans from surrounding areas, and discussions with the project proponent suggest that the project's primary benefits will result from regulating flood risk so that the associated damages to properties, incomes, and farmland in and surrounding population centers in the Rawhide Creek watershed are smaller under the Action Alternative than under the FWOFI.

Figure 17 shows the causal chain describing how the Action Alternative would create social benefits and costs as part of the Rawhide Creek Watershed Flood Risk Reduction Plan. Causal chains are models describing how changes to the structure of an ecosystem affect its functioning and the goods and services it provides to society (Olander et al., 2016). When used as part of a NEE analysis, a causal chain assessment of ecosystem services impacts traces changes in ecosystem composition all the way through to effects on social outcomes and human well-being.

As Figure 17 shows, the Action Alternative would change the ecological structure of the watershed through the construction of the works of improvement described in Table 19.

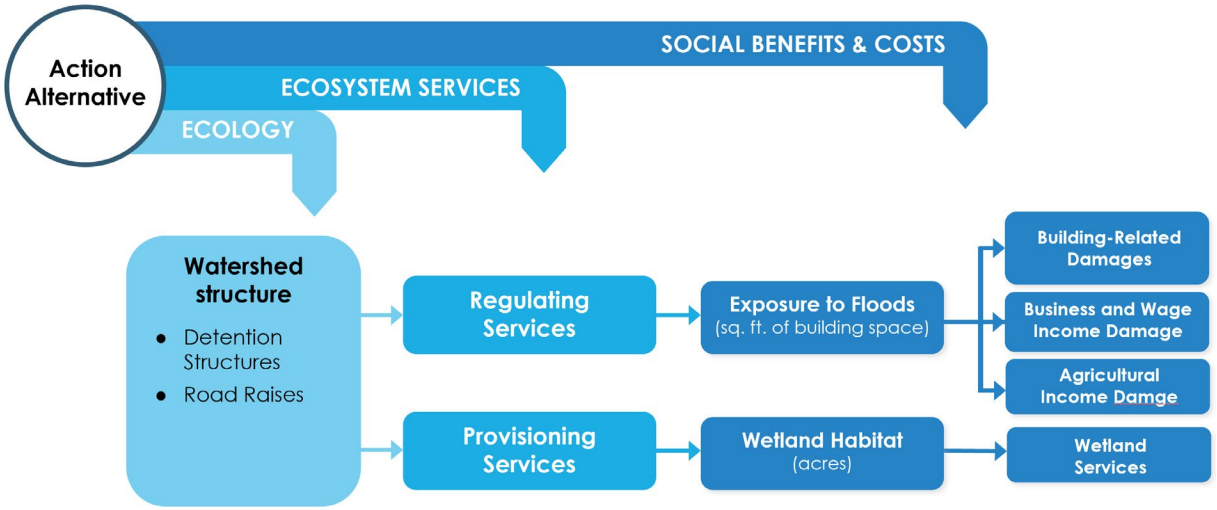

Figure 17: Anticipated Impacts on Ecosystem Services

The change in watershed structure would regulate flooding affecting property-related damages, including damage to buildings as well as their contents and inventory, business and wage income, and agriculture income. In addition, the change would also increase the provisioning of wetland habitat and its associated ecosystem services.

ABILITY TO CHARACTERIZE, QUANTIFY, AND MONETIZE SERVICES

The ecosystem services described in Figure 17 can all be characterized, quantified, and monetized using publicly available information and accepted methodologies that relate biophysical values to economic values. The methods to quantify and value each ecosystem service evaluated as part of this analysis are described in more detail in section D 6.04.

METRICS TO EVALUATE SERVICES

The metrics used to evaluate the change in ecosystem service values under the Action Alternative are shown in Figure 17. Regulating services are evaluated by quantifying and valuing changes to the square footage of buildings affected by flooding of different depths. Provisioning services are evaluated by the change in wetland acres.

PRIORITIZING SERVICES

Services were prioritized based on their expected contribution to the project's primary purposes of reducing damages from floods and enhancing ecosystem service production in the watershed. As a result, the regulating and provisioning services shown in Figure 17 were prioritized for analysis as part of the evaluation of the Action Alternative's impact on National Economic Efficiency (NEE). The project may also result in smaller, secondary changes to other ecosystem services. For example, many residents of rural towns have lived there for many years or multiple

generations and have a strong sense of place. Knowing that the community is at lower risk of flooding, and is therefore more secure, could create cultural benefits for the city's residents (Fabbricattie et. al., 2020).

SUMMARY AND COMPARISON OF ECOSYSTEM SERVICE CHANGES

A summary of the Action Alternative's impact on ecosystem services in the Rawhide Creek Watershed and fulfillment of federal investment principles in water resources are shown in Table 20.

The Action Alternative was created and supported through a local stakeholder process. As part of this process, stakeholders were invited to provide public comment and input into the design and evaluation of the Action Alternative. As a result of this input, the Action Alternative is the locally preferred alternative. The FWOFI is the non-structural alternative in that, without federal investment, there would be no change in the structure of the watershed. The Action Alternative is the alternative that increase National Economic Efficiency by reducing flood damages, infrastructure damages, conserving municipal water, enhancing the provision of farm income, and enhancing recreation values, thereby increasing the value of ecosystem services produced by the watershed. The Action Alternative is also the environmentally preferred alternative as defined in Section 101 of the National Environmental Policy Act.[3]

[3] Section 101 of NEPA states that "…It is the continuing responsibility of the Federal Government to (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain wherever possible an environment which supports diversity and variety of individual choice; (5) achieve balance between population and resource use which will permit high standards of living and wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

Table 20: Summary of Project Alternatives and Ecosystem Services (2024$)

	Alternatives	
	FWOFI	**Action Alterative[1]**
Alternatives		
Locally Preferred		X
Non-structural		
National Economic Efficiency		X
Environmentally Preferable		X
Guiding Principles		
Healthy and Resilient Ecosystems		X
Sustainable Economic Development		X
Watershed Approach		X
Environmental Justice		X
Public Safety		X
Floodplains		X
Total Project Investment (Annualized Average)[2]	**$-**	**$1,146,600**
Monetized Net Benefits (Annualized Average)[3]	**-$8,545,605**	**$1,315,800**
Regulating Services (Annualized Average)		
Reduced building-related damages	-$2,152,800	$339,400
Reduced business income and wage loss	-$6,265,000	$860,000
Reduced agricultural damages	-$127,200	$2,800
Provisioning Services (Annualized Average)		
Increased Wetland Habitat	$-	$113,600

Notes: (1) Note that all costs and benefits for Action Alternative are compared to the Future Without Federal Investment (FWOFI) here and elsewhere in this document. Benefits and costs were calculated over a 103 year analysis period starting two years after construction begins using a discount rate of 2.75 percent. All values reported in 2024 dollars.

(2) Annualized costs for the Action Alternative include design, engineering, administration, permitting, construction, and operations and maintenance.

(3) The net benefits of the FWOFI are negative to reflect the annualized damages and expenses in the study area due to flood events and monetary expenditures.

The Action Alternative, which used a watershed approach to characterize problems and solutions in the watershed, meets the federal principles for investments in water resources. The Action Alternative would restore the watershed's ability to regulate flood damage impacting the population centers in the Rawhide Creek watershed, thereby increasing the health and resiliency of the ecosystem. By reducing flood damages, the Action Alternative improves sustainable economic development by improving the economic well-being of present and future generations

living within the watershed. The Action Alternative also avoids the unwise use of flood-prone areas by reducing the watershed's vulnerability to future flood events. Public safety is also enhanced by the Action Alternative because it would result in lower rates of injury and death related to flooding. The Action Alternative would not adversely affect environmental justice communities.

In terms of benefits and costs, the Action Alternative's investment in the watershed would generate economic returns in excess of the upfront installation and ongoing management costs of the flood control structures as compared to the FWOFI. Under the FWFOI, average annual economic damages and expenses are approximately $8.5 million. These damages are the result of expenses residents of the watershed face to repair property-related damages as well as damages to farmland. The Action Alternative would invest an average annual amount of $1.1 million in built infrastructure to regulate flooding in the watershed, thereby avoiding many of these damages and expenses. The annualized discounted value of the enhanced regulating service benefits generated by the project amount to $1.3 million, outweighing the Action Alternative's annualized expense.[4]

D 6.04 NATIONAL ECONOMIC EFFICIENCY ANALYSIS DATA AND METHODOLOGY

To evaluate the extent to which the Action Alternative would maximize public benefits relative to costs, the expected effects of the Action Alternative were quantified, valued, and compared against the FWOFI or No Action Alternative. The NEE BCA analysis evaluated the costs of the Action Alternative based on cost estimates from JEO Consulting Group, Inc., which included costs for property, permitting, engineering, construction, and operations and maintenance. These were compared against benefits received by regulating losses associated with flood damage in the Rawhide Creek Watershed.

Effects of the Action Alternative were evaluated over a 103-year time horizon, beginning two years after the start of construction to account for the total period of analysis of 105 years. This equates to a 100-year operational life for the structures, which is equal to the length of time over which the structures are expected to have significant beneficial effects. Benefits are expected to begin accruing in full the year after the structures included in the Action Alternative are installed and continue to accrue until the end of the 103-year time horizon. Since all the project elements have design lives of 100 years, replacement costs were not included in the analysis as the project time horizon does not exceed the life of the measures (PR&G Section 9, NWPM 501.37.B and the Economics Handbook, Part 611, 1.12.).

[4] Benefits and costs were calculated over a 103 year analysis period starting two years after construction begins using a discount rate of 2.75 percent. All values reported in 2024 dollars.

To assess the economic benefits and costs of the Action Alternative, GIS-based hydrologic and hydraulic (H&H) projections were developed to assess flood extent and depth in the watershed for 5-, 10-, 25-, 50-, 100-, and 500-year events under the Action and No Action Alternatives. The NEE analysis used this information to quantify and value the benefits and costs associated with the Action Alterative as discussed in more detail below.

Projected benefits and costs are based on a full employment economy and assume no change in relative prices during the period of analysis. Benefits and costs are discounted using the discount rate for federal projects of 2.75 percent for 2024 (NRCS, 2023). Results are reported in both net present values and average annual values in 2024 dollars.

The unit of analysis in this study is the system of projects combined under the Action Alternative. For this study, costs and benefits are estimated jointly for all components of the Action Alternative. Section D.6 considers the impact of each component separately, beginning with the most beneficial component and ending with the least beneficial component, as part of the incremental analysis (390-NWPH, Part 606, Subpart B, Section 606.20).

REDUCED PROPERTY-RELATED DAMAGE AND INCOME LOSS

Reduced property losses were estimated with the HAZUS model. The HAZUS model, endorsed by the NRCS for watershed planning and developed by FEMA, serves as a robust tool for estimating flood damage across various scenarios[5]. The model's primary strength lies in its ability to quickly produce estimates using user-defined H&H modeling and pre-packaged building data, making it well-suited for widespread and integrated flood risk assessments. However, this convenience comes with a tradeoff in precision; HAZUS may not provide the same level of detail for building-specific flood depth damages as models like HEC-FDA. On the other hand, models like HEC-FDA are specifically designed for detailed flood risk analysis but demand more time, specialized expertise, and detailed data, which can limit their accessibility for large flood inundation areas with diverse building inventories. Peer-reviewed comparisons of the HAZUS and HEC-FDA models, which applied the models to several different study areas, found the outputs from HAZUS are similar and consistent with those from HEC-FDA, while requiring a fraction of the time and effort to produce[6]. Based on these reviews and to best utilize the limited resources available in preparing the watershed plan, the project team chose to utilize HAZUS.

The HAZUS model, developed by FEMA based on records of previous flood events and expert judgement, was created as a tool for flood plain managers and others to use in flood mitigation planning (HAZUS Technical Manual 2.1 pg. 2-2). Its primary goal is to provide quantifiable

[5] USDA, NRCS. 2017. Departmental Manual 9500-013. U.S. Department of Agriculture, Washington, D.C.

[6] Ding, A., White, J. F., Ullman, P. W., & Fashokun, A. O. (2008). "Evaluation of hazus-mh flood model with local data and other program." Nat. Hazards Rev., 10.1061/(ASCE)1527-6988(2008)9:1(20), 1527-6996.

information on the damage caused by flood events in support of disaster relief and watershed planning efforts.

The spatially explicit model runs on standard GIS software and addresses damages associated with almost all parts of the built environment. The model can estimate the value of a wide range of different types of flood loss. The model contains different loss modules, which the user has the option of including in their total damage calculation. The modules for reduced property loss, which are time-independent, include:

- Building repair and replacement cost;
- Building content loss; and
- Building inventory loss.

The sum of these losses constitutes building and content losses in the benefit-cost analysis.

The modules for reduced income loss, which measures flood-events impact on business activity, include:

- Capital related income loss; and
- Wage loss.

Regardless of which module is being run, HAZUS works in a two-step process, which includes a flood risk projection step and a flood loss estimation step. In the flood risk projection step, the user defines flood risk in terms of parameters like flood frequency, discharge, and ground elevation in the study area. In the second step, damages are calculated based on the flood risk projections developed in the first step and using default functions relating depth to damage (depth-damage functions) from the U.S. Army Corps of Engineers (USACE) and building inventory and valuation data from the U.S. Census (HAZUS, 2022). The model combines this information to produce spatial and tabular data describing flood losses in monetary terms.

An important part of estimating reduced flood damage is identifying the number, value, type, and other characteristics of at-risk building stock. The HAZUS model's General Building Stock data (GBS) includes information on residential, commercial, industrial, agricultural, religious, government, and education buildings for each Census block in the impacted communities. For modeling simplicity, HAZUS assumes building inventory is evenly distributed across a census block, such that building damage estimates represent averages across their respective block. The model associated each building type with one of seven corresponding occupancy classifications:

- Residential
- Commercial
- Industrial
- Agricultural
- Religion
- Government
- Education

The occupation classification allows the model to analyze losses for buildings with similar uses, valuations, and damages using building type-specific depth-damage curves. Table 21, below, shows the number of structures damaged by flooding under each storm event frequency.

Table 21: Count of Damaged Structures in the Rawhide Creek Watershed Under the Future Without Federal Investment (FWOFI) and the Preferred Alternative (PA)

Occupancy Type	500-Year		100-Year		50-Year		25-Year		10-Year	
	FWOFI	PA	FWOFI	PA	FWOFI	PA	FWOFI	PA	FWOFI	PA
Residential	749	693	536	487	445	405	352	317	224	210
Commercial	4	3	1	1	1	1	1	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0
Agricultural	0	0	0	0	0	0	0	0	0	0
Religious	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0
Total	**753**	**696**	**537**	**488**	**446**	**406**	**353**	**317**	**224**	**210**

Source: HAZUS v5.1

The data in Table 21 were combined in the HAZUS model with flood extent and depth projections for the FWOFI and Preferred Alternative. Flood extent and depth data was input into the HAZUS model using depth grids from five return periods (10%, 4%, 2%, 1%, and 0.2% annual chance floods, or 10-, 25-, 50-, 100-, and 500-year return periods) developed as outputs from the hydrology and hydraulic analysis (H&H) for the FWOFI or existing conditions.

The model combined the general building stock data from Table 21 with the H&H data to estimate the count and square feet of different building types flooded at different depths for different flood frequencies under the FWOFI and Preferred Alternative.

~~The~~ HAZUS model used the data in Table 21 to estimate the losses for the study area's general building stock under the FOWFI and Preferred Alternative. In total, annual building-related damages, including structures and contents, equate to an average annualized damage of about $2,152,000 per year under the FWOFI, compared to $1,813,000 under the Preferred Alternative, for a net damage reduction of $339,400 per year. The HAZUS model's methods for calculating each type of loss are discussed below.

BUILDING REPAIR AND REPLACEMENT COST

Damage to buildings under the FWOFI and Preferred Alternative were calculated by estimating the cost to repair or replace flood-damaged structures and their contents. Building repair and replacement cost estimates are based on the full replacement cost less depreciation model, whereby losses from flood-damaged buildings are calculated assuming the full value of damages, less depreciation, are restored.

Replacement cost data is stored in the HAZUS model at the Census Block level for each building type. The replacement cost values used by the HAZUS model were depreciated based on the median age and assumptions regarding the typical condition of structures in the watershed. According to the U.S. Census' American Community Survey, the median home in Dodge County, which contains the Rawhide Creek Watershed, was built in 1964 and is approximately 60 years old. A visual survey of residential neighborhoods in impacted communities showed that homes are generally maintained in average to above-average condition.

This information was cross-referenced with the Swift Estimator, which provides a depreciation curve for structures of various ages. Based on the median age and assumed condition of buildings in the watershed, the swift estimator recommended using a depreciation rate of 15 percent, which was applied to the replacement cost values provided by HAZUS as shown in Table 22.

Table 22: Replacement Cost Values for Buildings

Occupancy Type	Cost per Sq. Ft.	Depreciation Factor	Depreciated Cost per Sq. Ft.
Residential	$135	15%	$115
Commercial	$198	15%	$168
Industrial	$97	15%	$78
Agricultural	$191	15%	$162
Religious	$114	15%	$87
Government	$135	15%	$115
Education	$103	15%	$88

Note: Replacement costs are reported in costs per square foot for multiple occupancy type sub-categories based on the weighted average of values used in the analysis of building damages.
Source: HAZUS v.5.1.

The replacement cost values used by the HAZUS model were validated using market prices to represent depreciated values since the market takes into account the age and condition of structures.

BUILDING CONTENT LOSS

The HAZUS model estimates the loss value of building contents as a percentage of the structure replacement value as shown in Table 23. Contents in the model include furniture, equipment, computers, appliances, clothing, and personal possessions. Contents do not include things like

light fixtures, ceiling lamps, or other mechanical or electronic components that are integral to the structure of a building.

Table 23: Building Content Loss as Percent of Building Replacement Value

Occupancy Type	Content Values as % of Building Replacement Value
Residential	50%
Commercial	105%
Industrial	140%
Agricultural	100%
Religious	-
Government	125%
Education	125%

Source: HAZUS v.5.1.

The HAZUS model uses an internal damage function library that includes 144 inventory-depth-damage functions from the U.S. Army Corps of Engineers for buildings with different occupancy types.

BUSINESS INVENTORY DAMAGES

Many occupancy types have more than one inventory-depth-damage curve associated with them. In these cases, the HAZUS model averages the relevant functions to form a single average function for the entire building occupancy class. The HAZUS model uses this information along with information on total damaged floor area, annual gross sales per square foot, and business inventory as a percent of annual gross sales, to calculate the total inventory damage for each building type. The gross revenue per square foot and business inventory as a percentage of gross revenue are shown in Table 24.

Table 24: Business Inventory Losses as a Percent of Gross Sales per Square Foot

Occupancy Type	Gross Revenue per Sq. Ft.	Business Inventory as % of Gross Revenue
Residential	-	-
Commercial	$68	12%
Industrial	$613	4%
Agricultural	$156	8%
Religious	-	-
Government	-	-
Education	-	-

Source: HAZUS v.5.1.

BUSINESS INCOME AND WAGE DAMAGES

HAZUS calculates business interruption costs, including proprietor income loss and employee wage loss by building type. In the model, business income and wage losses depend on the amount of time it takes to restore the building where the business resides in addition to restocking its inventory. Restoration time accounts for physical restoration, clean-up, inspections, permits, and contractor availability. Restoration times increase with flood depth and also vary based on building type. Restoration times range from a low of a few months for structures with minimal flooding to a high of several years. For many commercial businesses, restoring lost inventory and equipment accounts for the largest share of restoration time.

The equations below show how HAZUS calculates business income and wage losses following flood events:

- **Income Loss**$_i$ = $\sum$ (1-IRF$_i$) x FA$_{i,j}$ x Inc$_j$ x RT$_{i,j}$
- **Wage Loss**$_i$ = $\sum$ (1-WRF$_i$) x FA$_{i,j}$ x WA$_j$ x RT$_{i,j}$

The parameters of the above equations are defined as:

- i is the building type of the impact structure
- IRF$_i$ is the income recapture factor for building type i
- WRF$_i$ is the wage recapture factor for building type i
- FA$_i$ is the income per day (per sq. ft.) for building type i
- INC$_i$ is the business income per day (per sq. ft.) for building type i
- WA$_i$ is the wage per day (per sq. ft.) for building type i
- RT$_{i,j}$ is the restoration time, measured in days, for building type i and flood depth j.

The equations represent income and wage loss as a function of the length of time needed to restore business operations as well as the ability of businesses and employees to recapture their respective incomes and wages. For example, according to the wage loss equation, employees who are able to recover their full wage following a flood event would have a recapture rate of one, which would mean they would not lose any wages as a result of the flood. Lower recapture rates would lead to high damages, all else equal. The income and wage recapture rates used by the HAZUS model ensure that estimates of income and wage loss only include actual losses rather than deferred economic activity. The equations also reflect the productivity of the business as measured by income generated per square foot.

The parameters used to calculate reduced business income and wage losses under the Preferred Alternative and FWOFI are shown in Table 25. The restoration times shown in the table are based on expert opinion and account for various factors like physical restoration, clean-up, inspections, permits, approval processes, and delays due to contractor availability. Table 25 also displays the income recapture rates, annual business income generation rates, and daily wage rates per square foot used in the analysis.

Table 25: Parameters Used to Calculate Business Income and Wage Loss

Occupancy Type	Restoration Time (Days)	Income Recapture Rate	Daily Business Income per Sq. F.t per Year	Daily Wage per Sq. Ft.
Residential	180 – 720	0%	$0	$0
Commercial	180 – 900	68%	$0.20	$0.48
Industrial	0 – 900	80%	$0.10	$0.42
Agricultural	0 -210	67%	$0.05	$0.17
Religious	180 – 900	80%	$0.16	$2.46
Government	360 – 900	80%	$0.10	$0.14
Education	360 - 900	83%	$0.10	$0.67

Source: HAZUS v.5.1.

NREH Part 611.0403 states that the benefit of reducing business income losses from flood risk reduction can be included as part of National Economic Efficiency benefit-cost ratio when interview data are collected to verify that losses are not compensated for by postponement of an activity or transfer of the economic activity to other establishments.

To validate the nature of business income and wage related losses estimated by HAZUS, a survey of business owners was conducted by the Lower Loup Natural Resource District (LLNRD) to estimate the impact of a 100-year flood event on their business revenue and employee wages. LLNRD approached a sample of businesses to participate in the interviews utilizing NRCS Form ECN-003 (NREH Part 611, Appendix 4A, Form NRCS-ECN-003). The LLNRD engaged in structured dialogues with each business to ensure uniformity in questioning and responses. Confidentiality was assured to encourage participation and information sharing. In total, 11 businesses completed the questionnaires.

The businesses surveyed represented a range of sectors, including retail trade, professional and business services, financial services, and information services. These businesses employed between one and 15 people, with an average of about four employees per enterprise. All respondents indicated that flooding would cause irreversible harm to their operations. This aligns with FEMA data, which shows that 43 percent of small businesses do not reopen after a disaster, and an additional 29 percent close within two years.[7] Furthermore, the limited economic development in rural areas means there may be few alternative businesses to meet the needs of customers impacted by flooding. Even when other businesses are available, demand for goods

[7] https://emilms.fema.gov/is_0111a/groups/23.html#:~:text=Almost%20half%20(43%20percent)%20of,facilitate%20the%20restoration%20of%20businesses.

and services may decrease as affected residents experience financial hardship during the post-flood recovery period.

For many rural retail businesses, lost sales are unlikely to be recovered. For instance, restaurant patrons will not order additional meals to compensate for missed purchases during flood-induced closures, and gas station customers cannot fill their tanks twice to make up for unpurchased fuel. These flood-related losses in transactions cannot be recovered and reflect real and lasting losses of business income and employee wages.

The comparison of income losses estimated with the survey results and the HAZUS model showed that HAZUS produced conservative estimates. On this basis, the HAZUS estimates of income losses are carried forward as national effects in the benefit-cost analysis following guidance in NREH Part 611.0403.

AGRICULTURAL DAMAGE REDUCTION

The H&H projections developed for the HAZUS model were also used to estimate the number of acres of farmland impacted by flooding under the FWOFI and Preferred Alternative. The projections were combined with data from the U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) Cropscape database. The web-based database, which shows crop cover in the United States, was used to classify the land cover of impacted acres in the Rawhide Creek watershed.

Land cover data for alfalfa, corn, and soybeans were carried forward for analysis as they represent the predominant crops grown in the watershed (USDA NASS Cropscape Database, 2021). Table 26 shows the total number of acres that would avoid damages of flooding at different depths under the Preferred Alternative for all flood frequencies. For example, 10 acres of alfalfa that flooded at a depth of 0-1 feet under the FWOFI would avoid damage under the Preferred Alternative. As Table 26 shows, the Preferred Alternative would remove approximately 1,900 acres of agricultural land from flood risk.

Table 26: Acres of Cropland Avoiding Flood Damages

Crop	Flood Depth			Total
	0 to 1 ft.	1 to 3 ft.	3+ ft.	
Alfalfa	10	9	0	20
Corn	599	334	-45	887
Soybeans	726	294	-138	882
Pasture	77	53	1	131
Total	1,412	689	-181	1,920

To estimate the value of reducing crop damage, the impacted acres of alfalfa, corn, soybeans, and pasture in Table 26 were categorized based on the depth of flooding experienced under different flood frequencies. Flood depth categories were defined as 0 –to 1 foot, 1 –to 3 feet, and

more than 3 feet so that they correspond to the depth-damage function used to assess flood losses.

The depth-damage function was used to relate the depth of flooding to corresponding percent reduction in gross revenue as shown in Table 27. For example, an alfalfa field flooded with more than three feet of water would be expected to lose approximately 38.8 percent of its gross value.

Table 27: Agricultural Depth Damage Function

Crop	Loss of Gross Revenue (ac)		
	0 to 1 ft.	1 to 3 ft.	3+ ft.
Alfalfa	18.9%	31.9%	38.8%
Corn	24.6%	50.5%	63.3%
Soybeans	21.2%	43.0%	52.7%
Pasture	13.3%	21.5%	26.5%

Source: Nebraska Resources Development Fund, 2000. Guidelines Including Regulations and Nebraska Statutes.

The gross value of each crop was estimated using state and county-level yield and price data from the USDA's NASS as shown in Table 28. Price information was taken from the NRCS USDA data series on annual normalized prices for the state of Nebraska for alfalfa, corn, and soybeans for the period from 2011 through 2020 (NRCS, 2021). Prices for each crop were estimated using the NRCS normalized price data series. Price information for pasture was collected from the University of Nebraska's 2019 Farm Real Estate Report, which estimated the statewide average annual cash rent for pastures (UNL, 2019). Data on crop yields was gathered from the USDA NASS (USDA NASS, 2021a/b).

Table 28: Crop Values Used to Estimate Gross Crop Revenues

Crop	Units	Normalized Price (2023)	Yield per Acre	Gross Value per Acre
Alfalfa	TON	$164.00	4	$623
Corn	BU	$4.21	180	$758
Soybeans	BU	$10.10	58	$586
Pasture	AC	$34.00	1	$34

Source: USDA NASS, 2021a/b.

The data in Table 26 through Table 28 were combined to calculate the reduced agricultural damages under the Preferred Alternative.

WETLAND HABITAT CREATION

Wetlands are extremely productive ecosystems, capable of producing a variety of public benefits. Previous studies of wetland values have shown that wetlands provide recreational opportunities, including fishing, bird watching, hunting, and boating. Wetlands also provide important habitat for aquatic and avian species, in addition to regulating water flows and improving water quality.

The wetlands included in the Preferred Alternative would be created as part of the project and would therefore have a different value than existing wetlands. Still, created wetlands can produce ecosystem service values. A 2015 study of wetlands created for mitigation compliance with Section 404 of the Clean Water Act found that mitigation wetlands create similar values to original wetlands when they are properly constructed.

The study used data from 33 independent valuation studies from across the U.S. found that wetlands created for mitigation create approximately $8,000 to $60,000 per acre in annual ecosystem service benefits (Table 29). The study also used the data to estimate state-specific wetland value transfer functions, which accounted for several ecosystem services. The study controlled for regional variability of wetland values by including variables characterizing the geographic locations of wetlands included in the meta-analysis. The study used the function to estimate that wetlands in Nebraska produce an average of $8,700 in ecosystem services each year.

Table 29: National Average Benefit Value per Acre for Individual Wetland Ecosystem Services Produced by Wetland Mitigation (2024 $)

Ecosystem Service	Annual Average Benefit Per Acre	Annual Average Benefit Per Acre (Lower Bound)
Recreational Fishing	$3,865	$537
Bird Hunting	$3,984	$554
Bird Watching	$18,865	$2,623
Water Quality Protection	$13,494	$1,877
Water Supply Protection	$9,938	$1,382
Commercial Fishing	$11,477	$1,595
Flood Control	$2,436	$382
National Average	$64,057	$8,949
State of Nebraska	**$8,720**	**$3,783**

Source: Adusumilli, N. 2015. Valuation of Ecosystem Services From Wetlands Mitigation in the United States. Land, 4(1).

Table 30 shows the acres of wetland that would be created by each proposed structure. The acres were multiplied by a value of $8,720 to reflect the average value. In total, the Preferred Alternative will create approximately 22 acres of wetland, resulting in a net increase of approximately 15 acres of wetland in the watershed when accounting for areas impacted due to construction. This will result in an annual total of approximately $130,800 in ecosystem service benefits. Note that the value of $130,800 calculated today, when discounted and amortized over the project lifespan and reported as an average annualized figure, becomes $113,600 as reported in Table 20.

Table 30: Net Acres of Additional Wetland and Wetland Value of Preferred Alternative (2024 $)

Preferred Alternative Component	Net Acres of Additional Wetland	Annual Value of Ecosystem Services
L1-1 & L1-2	0	-

DC1-13A	15	$130,800
Total	15	$130,800

COSTS

Project costs include all expenses incurred as part of the development, installation, operation, and maintenance of a project. Preliminary engineering work was completed by JEO Consulting Group, Inc., who was hired by the Sponsoring Local Organization to lead design and planning work on the project. JEO is the lead engineer on the project. Based on this work, JEO provided cost estimates for the Action Alternative. The cost estimates were allocated to categories, which included:

- Permitting;
- Administration;
- Engineering and Design;
- Construction; and
- Operations and Maintenance.

Each cost was allocated to federal sources or the project sponsor.

INSTALLATION COSTS

Installation costs were estimated using the bottom-up approach. This method breaks projects and structures into lower-level components and then costs those components for their direct costs, including labor, materials, and professional services. In addition, installation cost estimates include cost contingencies of 20 percent of construction costs.

Table 31 and Table 32 show the estimated installation costs for the structures included in the Action Alternative.

Table 31: Estimated Installation Costs of DC1-13A (2024 $)

ESTIMATE OF QUANTITIES					
Item #	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total**
CONSTRUCTION					
1.	Mobilization	LS	1.00	1,076,000.00	1,076,000.00
2.	Bonding and Insurance	LS	1.00	359,000.00	359,000.00
3.	Clearing and Grubbing	LS	1.00	200,000.00	200,000.00
4.	Temporary Traffic Control Measures	LS	0.00	0.00	0.00
5.	North Excavation, Established Quantity	CY	1,055,550.00	5.00	5,277,750.00
6.	North Earthwork Measured in Embankment (Established Quantity)	CY	7,200.00	20.00	144,000.00
7.	South Excavation, Established Quantity	CY	1,318,375.00	5.00	6,591,875.00
8.	South Earthwork Measured in Embankment (Established Quantity)	CY	8,295.00	20.00	165,900.00
9.	Bridge Removal and Replacement	SF	0.00	500.00	0.00
10.	18" RCP, Class III	LF	40.00	250.00	10,000.00
11.	18" RCP Flared End Section	EA	1.00	1,700.00	1,700.00
12.	24" RCP, Class III	LF	140.00	300.00	42,000.00
13.	24" RCP Flared End Section	EA	2.00	2,000.00	4,000.00
14.	Twin 7'x6' Box Culvert	LS	1.00	150,000.00	150,000.00
15.	48" RCP Flared End Section	EA	0.00	3,000.00	0.00
16.	Concrete Headwall	EA	2.00	15,000.00	30,000.00
17.	Automatic Flap Gate	EA	0.00	10,000.00	0.00
18.	Crushed Rock Base Course	TONS	0.00	75.00	0.00
19.	Gravel Surface Course	TONS	0.00	90.00	0.00
20.	Rock Riprap	TONS	1,300.00	110.00	143,000.00
21.	Remove Pavement	SY	0.00	25.00	0.00
22.	7" Concrete Pavement	SY	0.00	100.00	0.00
23.	Silt Fence, Low Porosity	LF	16,000.00	4.00	64,000.00
24.	Seeding, Fertilizer and Mulch	ACRE	570.00	3,000.00	1,710,000.00
				Subtotal of Construction	**$15,969,300.00**
				Contingency 15%	$3,193,900.00
				Total - Construction	**$19,163,200.00**
Local Items					
1.	Mobilization	LS	1.00	15,000.00	15,000.00
2.	Bonding and Insurance	LS	1.00	5,000.00	5,000.00
3.	Clearing and Grubbing	LS	1.00	5,000.00	5,000.00
4.	Temporary Traffic Control Measures	LS	0.00	0.00	0.00
5.	Excavation, Established Quantity	CY	0.00	5.00	0.00
6.	Earthwork Measured in Embankment (Established Quantity)	CY	0.00	20.00	0.00
7.	Triple 8'x4' Box Culvert	LS	1.00	200,000.00	200,000.00
8.	Bridge Removal and Replacement	SF	0.00	500.00	0.00

9.	24" RCP, Class III	LF	0.00	300.00	0.00
10.	24" RCP Flared End Section	EA	0.00	2,000.00	0.00
11.	48" RCP Class III	LF	0.00	500.00	0.00
12.	48" RCP Flared End Section	EA	0.00	3,000.00	0.00
13.	Concrete Headwall	EA	0.00	7,500.00	0.00
14.	Automatic Flap Gate	EA	0.00	10,000.00	0.00
15.	Crushed Rock Base Course	TONS	0.00	75.00	0.00
16.	Gravel Surface Course	TONS	0.00	90.00	0.00
17.	Rock Riprap	TONS	0.00	110.00	0.00
18.	Remove Pavement	SY	0.00	25.00	0.00
19.	7" Concrete Pavement	SY	0.00	100.00	0.00
20.	Silt Fence, Low Porosity	LF	0.00	4.00	0.00
				Subtotal of Construction	**$225,000.00**
				Contingency 15%	$45,000
				Total Construction	**$270,000**
Land Acquisition					
1.	Permanent Land	ACRE	340.00	15,000.00	5,100,000.00
2.	Temporary Easement	ACRE	230.00	5,000.00	1,150,000.00
3.	Home Buyout	EA	0.00	100,000.00	0.00
4.	Hold	LS	0.00	0.00	0.00
				Land Acquisition Subtotal	$6,250,000.00
				Legal Fees, Appraisals, Etc	$625,000.00
				Total Land Rights	**$6,875,000.00**
Engineering					
1.	Design, Geotech, & Bidding	LS	1	3,109,400.00	3,109,400.00
2.	Permitting	LS	1	777,400.00	777,400.00
3	Construction Engineering & Material Testing	LS	1	1,943,400.00	1,943,400.00
				ENGINEERING SUBTOTAL	**$5,830,200**
Professional Services					
				Subtotal Project Cost	**$32,138,400.00**
				Sponsor Administration and Other Fees	$485,900.00
				NRCS Administration Fees	$75,000.00
				Total Project Cost	**$32,699,300.00**

Table 32: Estimated Installation Costs of L1-1 & L1-2 (2024 $)

ESTIMATE OF QUANTITIES					
Item #	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total**
CONSTRUCTION					
1.	Mobilization	LS	1	$151,000.00	$151,000.00
2.	Bonding and Insurance	LS	1	$51,000.00	$51,000.00
3.	Clearing and Grubbing	LS	1	$30,000.00	$30,000.00
4.	Temporary Traffic Control Measures	LS	1	$30,000.00	$30,000.00
5.	Excavation, Established Quantity	CY	570	$10.00	$5,700.00
6.	Earthwork Measured in Embankment (Established Quantity)	CY	93,025	$20.00	$1,860,500.00
7.	Bridge Removal and Replacement	SF	0	$500.00	$0.00
8.	48" RCP Class III	LF	0	$500.00	$0.00
9.	48" RCP Flared End Section	EA	0	$3,000.00	$0.00
10.	Concrete Headwall	EA	0	$7,500.00	$0.00
11.	Automatic Flap Gate	EA	0	$10,000.00	$0.00
12.	Crushed Rock Base Course	TONS	0	$75.00	$0.00
13.	Gravel Surface Course	TONS	0	$90.00	$0.00
14.	Rock Riprap	TONS	0	$110.00	$0.00
15.	Remove Pavement	SY	0	$25.00	$0.00
16.	7" Concrete Pavement	SY	0	$100.00	$0.00
17.	Silt Fence, Low Porosity	LF	14,000	$4.00	$56,000.00
18.	Seeding, Fertilizer and Mulch	ACRE	6	$10,000.00	$60,000.00
				Subtotal of Construction	**$2,244,200.00**
				Contingency 15%	$448,900.00
				Total - Construction	**$2,693,100.00**
Local Items					
1.	Mobilization	LS	1	$41,000.00	$41,000.00
2.	Bonding and Insurance	LS	1	$14,000.00	$14,000.00
3.	Clearing and Grubbing	LS	0	$30,000.00	$0.00
4.	Temporary Traffic Control Measures	LS	0	$0.00	$0.00
5.	Excavation, Established Quantity	CY	0	$10.00	$0.00
6.	Earthwork Measured in Embankment (Established Quantity)	CY	0	$20.00	$0.00
7.	Bridge Removal and Replacement	SF	0	$500.00	$0.00
8.	48" RCP Class III	LF	160	$500.00	$80,000.00
9.	48" RCP Flared End Section	EA	4	$3,000.00	$12,000.00
10.	Concrete Headwall	EA	4	$7,500.00	$30,000.00
11.	Automatic Flap Gate	EA	4	$10,000.00	$40,000.00
12.	Crushed Rock Base Course	TONS	3,000	$75.00	$225,000.00
13.	Gravel Surface Course	TONS	1,500	$90.00	$135,000.00
14.	Rock Riprap	TONS	192	$110.00	$21,120.00
15.	Remove Pavement	SY	0	$25.00	$0.00
16.	7" Concrete Pavement	SY	0	$100.00	$0.00
17.	Silt Fence, Low Porosity	LF	0	$4.00	$0.00
18.	Seeding, Fertilizer and Mulch	ACRE	0	$10,000.00	$0.00

				Subtotal of Construction	**$589,200.00**
				Contingency 15%	$119,700
				Total Construction	**$717,900**
Land Acquisition					
1.	Permanent Land	ACRE	26	$15,000.00	$390,000.00
2.	Temporary Easement	ACRE	12	$5,000.00	$60,000.00
3.	Home Buyout	EA	0	$100,000.00	$0.00
4.	Hold	LS	0	$0.00	$0.00
				Land Acquisition Subtotal	$450,000.00
				Legal Fees, Appraisals, Etc	$135,000.00
				Total Land Rights	**$585,000.00**
Engineering					
1.	Design, Geotech, & Bidding	LS	1	$545,800.00	$545,800.00
2.	Permitting	LS	1	$136,500.00	$136,500.00
3	Construction Engineering & Material Testing	LS	1	$341,100.00	$341,100.00
				ENGINEERING SUBTOTAL	**$1,023,400.00**
Professional Services					
				Subtotal Project Cost	**$5,019,400.00**
				Sponsor Administration and Other Fees	$85,300.00
				NRCS Administration Fees	$25,000.00
				Total Project Cost	**$5,129,700.00**

OTHER DIRECT COSTS & ADVERSE EFFECTS

According to the NRCS PR&G:

> *Other direct costs and adverse effects include uncompensated losses caused by the installation, operation, maintenance, and replacement of a project or group of projects. These other direct costs and adverse impacts can include costs caused by downstream flood damages cause by channel modifications, levies, dikes, and other structures, erosion of land along streambanks created by dams that prevent sediment export downstream, and through lost use value of the land where flood mitigation structures are cited (NRCS, 2014).*

The Action Alternative has only one primary category of other direct costs. The nature of and methods used to calculate these other direct costs are discussed in more detail below.

OPERATIONS AND MAINTENANCE

Once the works of improvement are built, overheads for operations and maintenance will be required for the works of improvement to continue generating the benefits for which they were designed. Operations and maintenance costs were estimated to be 0.75 percent of each work of improvement's construction costs. Estimated annual operations and maintenance costs for each work of improvement are shown in Table 33, below.

Table 33: Estimated Annual Operations and Maintenance Costs (2024 $)

Work of Improvement	Construction Cost	Annual O&M Costs
L1-1 & L1-2	$3,411,000	$25,600
DC1-13A	$19,433,200	$145,700
Total	$22,844,200	$171,300

Annual operations and maintenance (O&M) costs are assumed to equal 0.75 percent of structure construction costs, which do not include costs for engineering, permitting, and administration.

D 6.05 CURRENT ECONOMIC DAMAGES

Average annual flood losses under the FWOFI were estimated to serve as a benchmark of comparison with the Action Alternative and are shown in Table 34, below (NWPM 501.36). In total, average annual flood losses under the FWOFI are approximately $8,545,000 per year, including $2,152,800 of building repair and replacement damages, $6,265,000 of business income and wage losses and $127,200 of crop damages.

Table 34: Average Annualized Damages Under FWOFI (2024 $)

Work of Improvement	Building Related Damages	Business Income and Wage Losses	Crop Losses	Total Annual Damages
FWOFI	$2,152,800	$6,265,000	$127,200	$8,545,000
Total	$2,152,800	$6,265,000	$127,200	$8,545,000

Totals may not sum due to rounding. Prepared: January 2024.

Price base: 2024 dollars; amortized over 103 years at a discount rate of 2.75 percent starting two years after construction begins.

D 6.06 ECONOMIC TABLES

The results of the NEE analysis for the Action Alternative are compared against the FWOFI or No Action Alternative and serve as the best estimate of the additional economic value that would be created under the Action Alternative. Results are presented using the Economic and Structural Tables (NWPM Part 506, NRCS 2014b) as provided in Chapter 7 of the Plan-EA.

D 7. CULTURAL RESOURCES

The cultural resource inventory report (Buried Past Consulting, LLC 2024) that details the methods and results of the cultural resource inventories of the area of potential effect (APE) for the alternatives outlined in the Rawhide Creek watershed plan-EA can be found in Appendix E. Information regarding the location of specific cultural resources has been removed from the report in accordance with Section 304 of the National Historic Preservation Act (54 U.S.C. §307103) and Nebraska Revised Statute 84-712.05. Complete copies of the cultural resource inventory reports may be available from History Nebraska (hn.hp@nebraska.gov) upon request.

D 7.01 POST-REVIEW DISCOVERY PROCEDURES

Once NHPA Section 106 consultation is complete for this project, there is still potential for ground disturbance to expose cultural materials that were not identified by the cultural resources inventory. If any evidence of cultural resources is encountered during construction, all activities will be halted immediately and NRCS will proceed in accordance with the regulation on post-review discoveries (36 CFR § 800.13) by following the procedures outlined in the NRCS Cultural Resources Handbook (Title 190 Part 601.29). Those procedures are described below.

Where construction has not yet begun and a cultural resource is discovered after Section 106 review is complete, the NRCS shall seek avoidance or minimization strategies and/or resolution of adverse effects in accordance with 36 CFR Part 800.6 in consultation with the SHPO and consulting Tribes.

The NRCS shall ensure that every contract for this project includes provisions for halting work/construction in the area when potential historic properties are discovered or when unanticipated effects to historic properties are found after implementation, installation, or construction has begun. When such a discovery occurs, Dodge County or their contractor shall immediately notify the NRCS State Conservationist's Office, Cultural Resource Specialist (CRS), supervisory NRCS personnel for the area, and the landowner.

The NRCS CRS shall inspect the discovery within 24 hours if weather permits. The CRS shall establish a protective buffer zone surrounding the discovery in consultation with the local NRCS official (field office supervisor or District or Area Conservationist), concerned Indian tribes, the SHPO, the NRCS State engineering or program supervisor, as appropriate), and Dodge County. This action may require inspection by Tribal cultural resources experts in addition to the CRS.

All NRCS contact with media shall occur only under the direction of the NRCS Public Affairs Officer, as appropriate, and the State Conservationist. Security shall be established to protect the resources/historic properties, workers, and private property. Local law enforcement authorities will be notified in accordance with applicable State law and NRCS policy in order to protect the resources. Construction and/or work may resume outside the buffer only when the State Conservationist determines it is appropriate and safe for the resources and workers.

The NRCS CRS shall notify the SHPO, concerned Indian Tribes, and the Advisory Council on Historic Preservation no later than 48 hours after the discovery. The NRCS CRS will describe NRCS's assessment of the National Register eligibility of the property, as feasible, and the proposed actions to resolve any adverse effects to historic properties. The eligibility determination may require the assessment and advice of concerned Indian Tribes, the SHPO, and technical experts (such as historic landscape architects) not employed by NRCS. NRCS shall take any comments provided into account and carry out appropriate actions to resolve any adverse effects. NRCS shall provide a report to the SHPO, Tribes, and the ACHP of the actions when they are completed.

HUMAN REMAINS

When human remains are discovered, the NRCS shall follow all applicable federal, tribal, and state burial laws and ordinances, and related human rights and health statutes, where appropriate. NRCS shall refer to the ACHP's Policy Statement regarding Treatment of Burial Sites, Human Remains and Funerary Objects and the ACHP's Section 106 Archaeology Guidance. NRCS shall also follow USDA and NRCS policy on treatment of human remains and consultation.

All the measures proposed in the Rawhide Creek Watershed Plan will be installed on non-federal, non-Tribal land. Therefore, any human remains discovered during construction will be subject to protection under the Unmarked Human Burial Sites and Skeletal Remains Protection Act (Nebraska Revised Statues 12-1201 to 12-1212). Per Nebraska Revised Statute 12-1205, all ground disturbing activities in the area shall stop immediately. The remains shall be covered and/or protected in place in such a manner that minimizes further exposure of and damage to the remains. Dodge County or its contractor shall contact local law enforcement within 48 hours of the discovery. Per Nebraska Revised Statute 12-1207 and 12-1208, disposition of the human remains shall be the responsibility of the county attorney and/or History Nebraska. Construction may resume once all human remains and/or burial goods have been removed from the project area, and the State Conservationist determines it is appropriate and safe for the resources and workers.

APPENDIX E: OTHER SUPPORTING INFORMATION

LIST OF DOCUMENTS INCLUDED

- Alternatives Analysis for Clean Water Act
- Wetland Delineation Reports
- Summary table of impacts to aquatic resources, includes:
    - Avoidance and minimization measures
    - Compliance with Food Security Act / Swampbuster
    - Analysis for Executive Order 11990
- Summary maps of impacts to aquatic resources
- Summary maps of proposed mitigation measures
- Consumptive Use Calculations for Platte River Depletions
- Geotechnical Investigation Report
- Nebraska Conservation and Environmental Review Tool (CERT) Reports
- USFWS Information for Planning and Consultation (IPaC) Reports

ALTERNATIVES ANALYSIS FOR CLEAN WATER ACT

The purpose of this writeup is to document the range of alternatives considered for the Rawhide Creek Watershed. All reasonable alternatives, including both structural and nonstructural, were rigorously explored and objectively evaluated through this process. Information on alternatives analysis related to the National Environmental Policy Act (NEPA) can be found in Chapter 4 of the Watershed Plan-EA. It is anticipated that this documentation will be helpful in future permitting efforts, however, it is not intended to be used solely as a permit application. For those not selected for the Final Array of Alternatives, Chapter 4 discusses the reasons for their elimination. Alternatives selected for inclusion in the Final Array underwent further evaluation, and documentation of their effects to resources of concern is included in Chapter 5 of the Plan-EA. Appendix E documents the evaluation of alternatives in relation to Section 404 of the Clean Water Act.

CRITERIA OF THE CLEAN WATER ACT

Section 404 of the Clean Water Act prohibits discharge of dredged or fill material into waters of the U.S., except as authorized in a permit issued in accordance with the Section 404(b)(1) Guidelines of the CWA. Although called guidelines, they are legally binding pass-or-fail criteria, established in regulations (40 CFR § 230), that must be met before a permit can be issued. Specifically, the Section 404(b)(1) Guidelines dictate that “no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences” (40 CFR § 230.10[a]). USACE must determine which alternatives are truly practicable and this is accomplished through compliance with the Section 404(b)(1) Guidelines, which require the evaluation of practicable alternatives.

The Section 404(b)(1) Guidelines state that an alternative is considered practicable “if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes” (40 CFR § 230.10[a][2]). Practicable alternatives under the Section 404(b)(1) Guidelines also assume that “alternatives that do not involve special aquatic sites are available, unless clearly demonstrated otherwise” and that “all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise” (40 CFR § 230.10[a][3]).

Through evaluation of considered alternatives under NEPA and the Section 404(b)(1) Guidelines, USACE determines which alternatives are truly reasonable and practicable. Based on the range of impacts identified for each of the practicable alternatives, and barring existence of other significant environmental consequences, USACE would authorize (i.e., issue a permit for) the alternative that does the least damage to the aquatic ecosystem (known as the least environmentally damaging practicable alternative, or LEDPA). As compared to NEPA, which

serves as a disclosure document that aids in decision-making, the Section 404(b)(1) Guidelines provide a pass or fail test that dictates the ultimate selection of an alternative to be authorized.

PURPOSE AND NEED

The project purpose is flood prevention (flood damage reduction) within and near the community of Fremont, Nebraska. The project is needed due to the long history of flooding damages that have occurred throughout the watershed, impacting communities as well as agricultural areas. The area is threatened by regional heavy rainfall events, snowmelt, ice jams, and overflows from neighboring watersheds. Flooding damages have been recorded in the region since the 19th century. Flooding impacts the local economy, makes travel difficult or impossible, threatens lives, damages structures and property, and damages agricultural lands. To achieve the project purpose, the project must reduce the volume and velocity of flows that enter the City of Fremont originating from Rawhide Creek and its tributaries.

SCREENING CRITERIA FOR ALTERNATIVES EVALUATION

Alternatives were evaluated using a set of screening criteria developed specifically for this project. Screening criteria helped identify which alternatives were likely to conform to State and Federal requirements. Major Federal requirements include NEPA, CWA, and PR&G. Additionally, ensuring consistency with the Federal Objective was considered. The Federal Objective of investments in watersheds is to:

- Seek to maximize sustainable economic development;
- Seek to avoid the unwise use of floodplains and flood-prone areas and mitigate impacts when such areas must be used; and
- Protect and restore functions and mitigate unavoidable impacts to natural systems.

To ensure an objective alternatives analysis process, several sets of screening criteria were developed as existing resource concerns were identified. Then, using agency and public input gained through the scoping process, these screening criteria were further refined. The screening criteria ultimately were used to identify alternatives and evaluate them.

In addition to the project's purpose and need, the following screening criteria were identified:

- **Problems** are existing, negative conditions. As documented in Chapter 1, flood damage is the primary problem facing the watershed.
- **Opportunities** are the desirable, future conditions that may be achieved through the implementation of project alternatives. As documented in Chapter 1, the following opportunities were identified:
    - Reduction in future flood damages
    - Reduction of the need for flood insurance within the floodplain project area
    - Improved or increased wildlife and aquatic habitat

- **Objectives** are statements that describe the desired results by solving problems and taking advantage of the opportunities. In addition to the Federal Objectives listed above, the following objectives were identified:
    - Fulfill the project purpose of flood damage reduction.
    - Provide a pathway to revise the current regulatory floodplain.
    - Reduce risk to life, health, and safety.
    - Protect existing infrastructure (roads and utilities) from flooding.
- **Constraints** are things that must be avoided or cannot be changed while meeting the objectives. The following constraints were identified:
    - Reduce impacts to private property and minimize land acquisition or easements necessary for alternative implementation.
    - Ensure the solution is cost-effective for local sponsors.

EVALUATION OF ALTERNATIVES

A range of alternatives were identified and evaluated. These include no action, structural alternatives, and nonstructural alternatives. Detailed information about the formulation of each alternative is available in Chapter 4 of the Plan-EA. Each alternative is described below.

NO ACTION ALTERNATIVE

This alternative is the most likely future condition if none of the action alternatives are selected. This alternative does not satisfy the purpose and need, but rather is utilized as the baseline to evaluate the effectiveness of the other alternatives in reducing flooding damages.

CHANNEL WIDENING ALTERNATIVE

The channel of Rawhide Creek that currently conveys flows through the City of Fremont has a capacity of approximately 320 CFS. The peak flow generated by a 100-year storm event is approximately 870 CFS as measured near Methodist Fremont Health (N Clarkson St) before bank overtopping leads to flooding. Many potential channel widening alignments were considered to reduce flooding damage in Fremont and better convey peak flood flows. The most effective was to widen Rawhide Creek through Fremont and to the Elkhorn River. The Rawhide Creek channel within Fremont would need to be nearly quadrupled in size for a distance of approximately 7.2 miles. Additionally, these channel improvements would necessitate the expansion of approximately 20 bridges (3 Highway, 3 Railroad, and 14 City). Stream channels outside of Fremont to the southeast would also need to be widened to accommodate the increased peak flow without causing additional damage downstream for a length of approximately 9.3 miles with an additional 10 bridge expansions (1 Railroad, and 9 County). Widening the channels would allow for greater capacity and has the potential to greatly reduce flooding damage.

A project of this magnitude would require a significant amount of earthwork along with the construction of multiple larger bridges and stream crossings. Within the City of Fremont, many

homes and significant easements would need to be acquired. Significant stream and wetland impacts are likely along several segments of the channel. A preliminary cost estimate for widening the channel and improving undersized bridges showed construction cost of at least $39,000,000. Land acquisition, design, permitting, construction testing, and other administrative activities are not included in this cost estimate. While this alternative was considered to be effective, other alternatives could accomplish the same goals at a lower cost. Due to the high costs and large potential environmental and structural impacts, this alternative was found to be impracticable and was eliminated from further consideration.

DIVERSION CHANNEL ALTERNATIVE

The watershed was investigated for potential locations to construct diversion channels with the primary intent of collecting floodwater that currently spills out of Rawhide Creek and existing ditches and conveying that floodwater to the Elkhorn River. The watershed currently contains multiple diversion channels and ditch improvements, none of which have the capacity to convey the runoff generated by a 100-year storm. Construction of this 0.3-mile-long diversion channel would also require widening of 11.4 miles of existing channels downstream of the diversion channel to handle the additional flow being added until it reaches the Elkhorn River. Additionally, this project requires the crossing of one city road, 10 county roads, 2 highways, and 1 railroad line. The preliminary cost estimate for the diversion channel and improving downstream channels and bridges is $26,000,000. Land acquisition, design, permitting, construction testing, and other administrative activities are not included in this cost estimate. While this alternative had the potential to be effective, other alternatives could accomplish the same goals at a lower cost. Therefore, this alternative was found to be impracticable and was eliminated from further consideration.

LEVEE / BERMS IMPROVEMENTS ALTERNATIVE

Multiple alignments of levees/berms were considered throughout the Rawhide Creek watershed. Preliminary hydraulic and hydrologic modeling determined that the location which would provide the most flood damage reduction would involve making improvements to the existing embankment along Cutoff Ditch Road and the east leg of the Brush Creek Dam outfall berms to prevent them from overtopping during a 100-year storm event. While levee / berm improvements were found to be beneficial towards meeting the purpose and need, they are unable to fully meet the project purpose and need as a standalone alternative. The combined preliminary estimated cost of the Cutoff Ditch Road raise and Brush Creek Dam outfall berm improvements is $4,882,900. This alternative was found to be practicable and was carried forward for further consideration.

DETENTION CELL ALTERNATIVE

This alternative investigated creating one or more detention cells west of Fremont to temporarily capture excess floodwater and reduce peak flows before runoff enters the city. Temporarily detained floodwater would be metered out into existing channels over a period of time to avoid overwhelming downstream infrastructure. Multiple locations for a detention cell were considered throughout the study area, with the preferred location selected being just upstream of the existing Merlyn England diversion channel and just upstream of the Fremont Municipal Airport, located south of Co. Rd. T Ave between Co. Rd. 20 Ave and Co. Rd. 19. It was determined that one large cell composed of two holding areas connected by a regulating channel would provide the most flexibility to the system to protect the city from large storms across multiple drainage areas. While the detention cell alternative was found to meet the project purpose and need as a standalone alternative, it was determined that it would be most cost-effective as part of a combined alternative as the overall excavated area could be reduced by 16 acres if combined with the berm alternative. The preliminary cost estimate for this alternative as part of the final array of alternatives is $19,433,200. This alternative was found to be practicable and was carried forward for further consideration.

STREAM RESTORATION / WETLAND STORAGE ALTERNATIVE

This alternative involves creating a series of wetlands along the stream corridor to provide storage and natural infiltration of flood waters. A water depth of 2-feet was used for estimating purposes. A substantial expansion of wetlands would require excavation to provide enough storage to prevent flooding damages in the watershed. This necessitates large areas of land acquisition, leading to high project costs. For example, a wetland 200-feet wide on each side of Rawhide Creek over a stream length of 10,000 feet would store approximately 200 acre-feet of floodwater and have a construction cost of approximately $26,000,000. However, the volume of water entering Fremont in a 100-year flooding event is approximately 1,300 acre-feet. Therefore, the cost to excavate enough wetlands to reduce flooding successfully extrapolates to approximately $169,000,000. Therefore, due to logistics and potential costs, this alternative was determined to be impracticable and was eliminated from further consideration.

SINGLE DAM ALTERNATIVE

This alternative consists of building a single large dam on Rawhide Creek to capture floodwaters and prevent damage downstream. However, potential locations for such a structure are limited by the watershed's topography. Much of the Rawhide Creek watershed is flat floodplain area and presents no options for tie-in locations for a large dam embankment, limiting the storage capacity of a potential reservoir. Additionally, the compartmentalization of the watershed due to the existing system of cutoff ditches adds further complications to finding a suitable site. Evaluation of the watershed was unable to find suitable locations for a single large dam. Due to the lack of feasible dam sites, this alternative was found to be impracticable and was eliminated from further consideration.

MULTIPLE DAMS ALTERNATIVE

This alternative consists of building multiple dams throughout the watershed to capture floodwater and prevent damage downstream. While there are existing dams throughout the watershed, investigation found very few suitable new dam sites due to the compartmentalization of the creek by the cutoff ditches, the topography of the watershed, and the Platte River floodplain. Expansion of the existing dams was investigated, and it was determined that they could not control enough of the watershed drainage area to successfully prevent floodwater from entering Fremont. Due to the limitations on dam locations, approximately two thirds of the area draining into Fremont would remain uncontrolled and the volume of floodwater entering Fremont would still be greater than the existing channel capacity of Rawhide Creek through the city. Due to the lack of feasible dam sites, this alternative was found to be impracticable and was eliminated from further consideration.

INTERIOR DRAINAGE / STORM SEWER ALTERNATIVE

This alternative consists of enlarging existing and constructing additional new storm sewers and ditch networks to convey floodwater downstream away from communities. Interior drainage is a significant consideration in Fremont, as Rawhide Creek flows through town and drains approximately half of the community. Construction of an expanded storm sewer system within Fremont would not alleviate the flooding as these damages are driven by both excessive flows entering the community from the west, and the restricted Rawhide Creek channel through Fremont and out to the Elkhorn River.

Therefore, interior drainage improvements necessitate the widening of Rawhide Creek and the ditch system east of Fremont before this alternative would be viable. While an alternative that encompasses major storm sewer improvements, along with significant channel improvements from Fremont to the Elkhorn River, would reduce flooding damages in Fremont caused by Rawhide Creek; the cost would be very high. Such an alternative would require approximately 45 miles of channel widening, expansion or replacement of 53 city bridges, 25 county bridges, 9 highway bridges, 8 railroad bridges, and acquisition of many homes with an estimated cost of at least $125,000,000. Due to the high costs and large potential environmental and structural impacts, this alternative was found to be impracticable and was eliminated from further consideration.

UPSTREAM CONSERVATION MEASURES ALTERNATIVE

The addition of conservation measures upstream would consist of changing land use through conversion of existing crop ground to grassland. This would increase infiltration rates and reduce runoff volumes. The Rawhide Creek Watershed is approximately 77% cultivated cropland. Additionally, the majority (approximately 85%) of soils are in hydrologic soil groups C, D, A/D, B/D and C/D. Therefore, converting cropland to grassland would not make a significant difference in the runoff volume throughout the watershed. Preliminary modeling showed that if all croplands were to be converted to grassland the peak flow rate entering Fremont at Rawhide Creek would

be reduced by approximately 12% and at the airport entrance by approximately 6%. Due to a lack of effectiveness, exorbitant costs, and other logistical concerns, this alternative was determined to be impracticable and was eliminated from further consideration.

FLOOD PROOFING BUILDINGS ALTERNATIVE

This alternative involves various techniques to reduce flood damage to individual buildings. These techniques may include waterproofing, basement filling, elevating buildings, flood vents, and other methods. Flood proofing can be a good solution for structures that experience moderate flooding at regular intervals, depending on the site-specific construction of the building and its relationship to the floodplain. As flood depths and velocities increase, flood proofing becomes less effective and less viable as a solution. For example, for buildings that only experience flood damage at the level of a 100-year recurrence interval but not during more frequent events, flood proofing may not be financially justifiable. Additionally, since flood proofing is a voluntary measure, it may be difficult to obtain total implementation.

To evaluate equivalent effectiveness, a building footprint inundation screening evaluation was completed. This evaluation found that during a 10-year flooding event, approximately 176 buildings in the Fremont area were inundated. During a 100-year flooding event, approximately 454 buildings in the Fremont area were inundated. Floodproofing all impacted buildings would present significant logistical challenges. Other evaluated alternatives provide more expedient wide-area coverage for flood risk reduction and flood frequency reduction that is unfeasible for nonstructural action. Additionally, while the nonstructural alternative would reduce flooding damage to selected buildings, public infrastructure such as utilities and streets would remain subject to flooding, as well as agricultural land. Flooding frequency for impacted areas would not be reduced, and travel and access to emergency services would still be restricted during flooding events. Due to a lack of effectiveness and other logistical concerns, this alternative was determined to be impracticable and was eliminated from further consideration.

PROPERTY ACQUISITION ALTERNATIVE

This alternative involves acquiring properties within the 100-year inundation area and either demolishing or relocating buildings to prevent reoccurring flood damages. In the Fremont area, there are hundreds of buildings located within the 100-year flooding event inundation area. While this alternative would reduce flooding damage to buildings, it would require relocating a sizable portion of the watershed's population. This would likely not be completed due to a lack of public acceptance. Logistically challenging, acquiring these buildings would not prevent flooding from impacting public infrastructure and utilities, as well as agricultural lands. Additionally, Fremont may lose a portion of its tax base, and travel and access to emergency services would still be restricted during flooding events. Due to a lack of effectiveness and other logistical concerns, this alternative was determined to be impracticable and was eliminated from further consideration.

FLOODPLAIN REGULATION / ZONING ALTERNATIVE

This alternative involves introducing additional new regulations to restrict further development within potential flood inundation areas. Regulation is an important component to maintaining the floodplain area and limiting future development in dangerous areas. Both the City of Fremont and Dodge County already participate in FEMA's NFIP program. Additionally, Dodge County has floodplain hazard zoning overlays and the City of Fremont enforces their floodplain zoning. When considered as an alternative, floodplain regulation and zoning does not reduce flood damage to any existing structures or agricultural lands. Existing structures would continue to be at risk of flooding damage. Due to the inability to meet the project purpose and need, this alternative was eliminated from further consideration.

DETENTION CELL WITH BERM IMPROVEMENTS (LOCAL SPONSOR'S PREFERRED ALTERNATIVE)

This alternative consists of constructing one large detention cell composed of two holding basins with a connecting channel (Site DC1-13A), in combination with the Cutoff Ditch Road raise and Brush Creek Dam outfall berm improvements. The Cutoff Ditch Road improvements consist of raising Cutoff Ditch Road (Site L1-2), and the Brush Creek Dam outfall improvements consists of raising the east leg of the Brush Creek Dam outfall berms (site L1-1) to prevent them from overtopping during a 100-year event. The detention cell captures and temporarily stores excess floodwater before flows enter Fremont. During a flood event, floodwater would overflow from the existing channel and into the excavated detention areas. A controlled outlet structure would allow a metered outflow of floodwater to continue down the existing channels downstream of the detention cell without overwhelming the downstream infrastructure and causing flooding. All temporarily detained floodwater would be drained from the detention cell within 24-72 hours, depending on the magnitude of the flood event.

Preliminary modeling indicates that the 393-acre detention cell would reduce the peak flow from Rawhide Creek into Fremont from a 100-year storm from 578 CFS to 82 CFS, and would also reduce the peak flow into Fremont from the southern Rawhide Creek tributary from 420 CFS to 195 CFS. The preliminary cost estimate for construction only of the detention cell is $19,433,200. Land acquisition, design, permitting, construction testing, and other administrative activities are not included in these cost estimates.

Cutoff Ditch Road raise (L1-2) and Brush Creek Dam outfall (L1-1) berm improvements would consist of raising Cutoff Ditch Road and the east leg of the Brush Creek Dam outfall berms to prevent them from overtopping during a 100-year event. Preliminary modeling shows that these improvements would contain flows up to 420 CFS during a 100-yr event. The combined preliminary construction cost of the berm improvements is $4,882,900. Land acquisition, design, permitting, construction testing, and other administrative activities are not included in this cost estimate.

Investigation and modeling determined that the detention cell was critical to the successful reduction of flow into Fremont to meet the project purpose and need, and the inclusion of the

upstream berm improvements as part of the system are very effective methods of reducing agricultural damages in the Fremont area. The combined berm improvements reduce the volume of floodwater entering the detention cell from the north by approximately 30 CFS, leading to a volume reduction of 80 acre-ft during a 100-year event. This allowed the footprint of the detention cell to be reduced by 16 acres. Additionally, the two holding areas of the detention cell are connected via an overflow channel that connects the two separate sub-watersheds that both contribute to flooding in Fremont and helps regulate peak flows leaving the system. In combination, these components work together as a complete and effective alternative to meet the project's purpose and need. Preliminary modeling indicates that this alternative would completely remove approximately 176 buildings from the 100-year flood inundation area.

In combination, the detention cells and berm improvements would prevent excess floodwater from entering Fremont and therefore protect the city from flooding damages. This alternative was found to be practicable and was carried forward for further consideration.

ALTERNATIVES SUMMARY

Alternative	Meets Purpose and Need	Practicable	Environmental Impacts
No Action	No	**No.** Damages from flooding continue at existing rates.	**None.** Would not cause any impacts, but existing flooding issues would continue.
Channel Widening	Yes	**No.** Exorbitant project costs.	**Significant.** Impacts to aquatic resources are anticipated to be significant due to construction in the riparian area.
Diversion Channels	Yes	**No.** Exorbitant project costs.	**Medium.** Impacts to aquatic resources are anticipated to be significant due to construction in the riparian area.
Levee / Berm	Yes	**Yes.**	**None.** Construction would avoid all wetlands and riparian areas.
Detention Cell	Yes	**Yes.**	**Medium.** Construction would impact 7.494 acres of wetlands and 0.095 acres of intermittent streams.
Stream Restoration / Wetland Storage	No	**No.** Exorbitant project costs and logistical concerns due to unreasonable land requirements.	**Positive.** Would result in a net increase of wetlands in the watershed.
Single Dam	No	**No.** No feasible sites for a single large dam structure could be identified.	**Not applicable.** Impacts were not estimated due to a lack of potential locations.
Multiple Dams	No	**No.** Significant flooding damages would still occur.	**Not applicable.** Impacts were not estimated due to a lack of potential locations.
Upstream Conservation Measures	No	**No.** Significant flooding damages would still occur.	**None.** Would not cause any impacts, but existing flooding issues would continue.
Flood Proofing	No	**No.** Logistical constraints keep this alternative from being effective, and it does not solve infrastructure or agricultural flooding.	**None.** Would not cause any impacts, but existing flooding issues would continue.

Property Acquisition	No	**No.** Logistical constraints keep this alternative from being effective, and it does not solve infrastructure or agricultural flooding.	**Unknown.** Impacts were not estimated but could be significant depending on where or how any structure relocations would be completed.
Floodplain Regulation / Zoning	No	**No.** Flooding damages would still occur.	**None.** Would not cause any impacts, but existing flooding issues would continue.
Interior Drainage / Storm Sewer	No	**No.** Flooding damages would still occur.	**Unknown.** Impacts were not estimated but could be significant depending on how construction would take place.
Detention Cell with Berm Improvements (Local Sponsor's Preferred Alternative)	Yes	**Yes.**	**Medium.** This combined alternative would impact the same wetland and stream areas as the standalone detention cell alternative (7.494 acres of wetlands and 0.095 acres of intermittent streams).

AVOIDANCE AND MINIMIZATION

The detention cell with berm improvements alternative (local project sponsor's preferred alternative) combined the two alternatives that were both practicable and could meet the project's purpose and need. Working in combination allowed the detention cell to be smaller in area, reducing project costs and increasing the overall efficiency of the alternative. Therefore, avoidance and minimization measures were not determined for the other alternatives considered.

The preferred alternative avoids and minimizes Impacts to aquatic resources to the maximum extent possible, while meeting the project purpose and need. Berm improvements along the Brush Creek Dam outfall utilize the existing berm footprint, avoiding all impacts to aquatic resources. Raising Cutoff Ditch Road utilizes the existing road footprint, avoiding all impacts to aquatic resources. In the detention cell there would be no grading below the ordinary high water mark except in unavoidable locations such as the installation of inlet and outlet structures. Wetlands that are interrupted by the excavation of the detention cells would be plugged with an earthen berm to avoid any drainage into the cells. All remaining impacts are necessary to build these sites to meet current NRCS design standards. Additionally, the project sites will allow opportunities for onsite mitigation of wetland impacts in the detention cell bottom. A quantification of impacts and mitigation measures for each diversion channel site is available in the Aquatic Resources Impact Summary Table provided in this Appendix.

WETLAND DELINEATION REPORT

Rawhide Creek WFPO

JEO PROJECT NUMBER: 200881.00

JANUARY 2024

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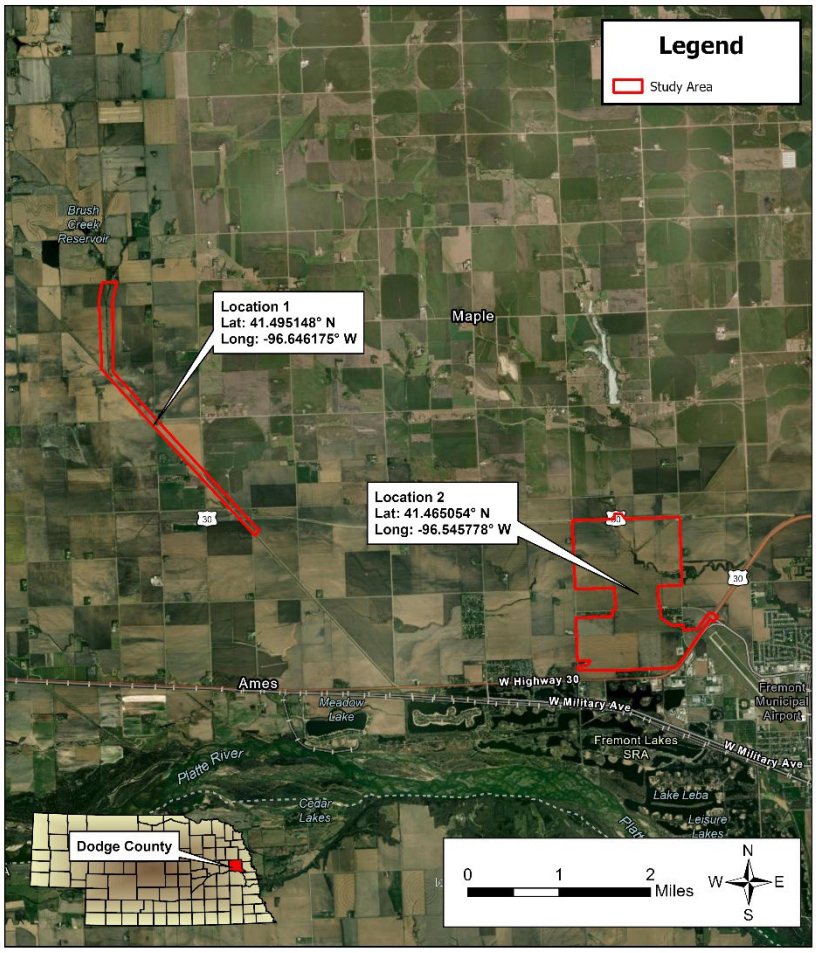
INTRODUCTION

Location

The project includes two locations near Fremont, Dodge County, Nebraska *(see Appendix A, Figure 1)*.

Location 1:
The study area is located in Sections 19, 20, 29, 30, 32, & 33, Township 18 North, Range 7 East and Section 4, Township 17 North, Range 7 East and the approximate coordinates are 41.495148° N latitude and -96.646175° W longitude.

Location 2:
The study area is located in Sections 4, 5, 8, & 9, Township 17 North, Range 8 East and the approximate coordinates are 41.465054° N latitude and -96.545778° W longitude.



Background

JEO Consulting Group, Inc. (JEO) was retained by Dodge County (the County) to conduct a wetland delineation and prepare a wetland report for Rawhide Creek WFPO in Dodge County, Nebraska (study area). This document summarizes the findings of the wetland delineation completed on July 13, November 1, November 16, and November 21, 2023 in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (Midwest Regional Supplement).

WETLAND DELINEATION

Desktop Review

Prior to the field delineation, a desktop review was conducted using U.S. Geological Survey (USGS) topographic maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), Natural Resources Conservation Service (NRCS) Web Soil Survey, Federal Emergency Management Agency (FEMA) Digital Flood Insurance Rate Maps (DFIRM), USGS National Hydrography Dataset (NHD), as well as current and historic aerial imagery provided through Google Earth to identify potential Waters of the U.S. (WOTUS), including wetlands, and areas historically prone to wetland development. The following is a summary of the desktop review.

USGS 7.5-MINUTE SERIES TOPOGRAPHIC MAP

Topographic maps obtained from the USGS depict the Fremont Cutoff Ditch, flowing generally northwest to southeast; an unnamed intermittent stream, flowing generally north to south; Rawhide Creek, flowing generally north to southeast; and a second unnamed intermittent stream, flowing generally west to northeast. The general topographic gradient through the study area is southeast (see Appendix A, Figure 2). Elevations in the study area are approximately 1,195 feet to 1,260 feet above mean sea level.

USFWS NWI

The NWI map depictions are as follows *(see Appendix A, Figure 3a/3b)*.

The study area exhibited:

- 2 – Palustrine, emergent, persistent, temporary flooded wetlands (PEM1A)
- 1 – Palustrine, emergent, persistent, temporary flooded, excavated wetland (PEM1Ax)
- 2 – Palustrine, emergent, persistent, seasonally flooded wetlands (PEM1C)
- 1 – Palustrine, emergent, persistent, seasonally flooded, excavated wetlands (PEM1Cx)
- 3 – Palustrine, forested, temporary flooded wetlands (PFOA)
- 2 – Riverine, intermittent, streambed, seasonally flooded stream (R4SBC)
- 1 – Riverine, intermittent, streambed, seasonally flooded, excavated stream (R4SBCx)

No other aquatic resources are mapped within the study area.

NRCS WEB SOIL SURVEY

The Web Soil Survey maps 16 soil units within the study area which include:

- 2110 – Inavale loamy fine sand, 0 to 3 percent slopes, occasionally flooded

- 3529 – Gibbon loam, 0 to 2 percent slopes, occasionally flooded
- 3537 – Gibbon silty clay loam, occasionally flooded
- 3710 – Cass fine sandy loam, 0 to 2 percent slopes, rarely flooded
- 6324 – Coleridge silty clay loam, 0 to 2 percent slopes, occasionally flooded
- 6380 – Saltine-Gibbon complex, occasionally flooded
- 6526 – Janude loam, rarely flooded
- 6528 – Janude loam, clayey substratum, rarely flooded
- 6545 – Moody silty clay loam, terrace, 0 to 2 percent slopes
- 7055 – Kennebec and Colo soils, channeled, frequently flooded
- 7787 – Luton silty clay, occasionally flooded
- 7891 – Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded
- 8403 – Alda loam, 0 to 2 percent slopes, occasionally flooded
- 8433 – Cass fine sandy loam, clayey substratum, rarely flooded
- 8435 – Cass loam, rarely flooded
- 8580 – Wann fine sandy loam, occasionally flooded

The mapped soil units 2110, 3529, 3537, 3710, 6324, 6380, 6528, 6545, 7055, 7787, 7891, 8403, and 8435 are included in the Nebraska Hydric Soils list and are therefore considered to be hydric (*see Appendix A, Figure 4a/4b*).

FEMA DFIRM

The FEMA DFIRM shows the study area on Panel 31053C0385E, effective date 01/02/2008; Panel 31053C0380E, effective date 01/02/2008; Panel 31053C0375E, effective date 01/02/2008; and 31053C0250E, effective date 01/02/2008. Location 1 is mapped as Zone A (shaded), which are areas of special flood hazard subject to the 1% annual chance flood, and as Zone X (unshaded), which are areas outside of flood hazard subject to the 0.2% annual chance flood. Location 2 is primarily mapped as Zone AE (shaded), which are areas of special flood hazard subject to the 1% annual chance flood.

USGS NHD

The online NHD mapping tool shows the study area within hydrologic unit code (HUC) 102002020101, within the Rawhide Creek-Platte River watershed; HUC 102200031003, within the Rawhide Creek watershed; and HUC 102002020103, within the Elm Creek-Platte River watershed. The NHD map depicts the Fremont Cutoff Ditch, Rawhide Creek, and two unnamed intermittent streams crossing through the study area. No other aquatic resources are identified within the study area in the NHD (see Appendix A, Figure 5a/5b).

AERIAL IMAGERY

A review of both recent and historic aerial imagery (1993 – 2023) in Google Earth depicts the area surrounding the study area within a rural setting surrounded by agricultural fields. Between 1993-1999, a berm and channel were constructed at the confluence of Rawhide Creek and an unnamed stream (Location 2). In 2021, the construction of Highway 30 began, crossing through both portions of the study area. A diversion channel was built for Rawhide Creek to facilitate the construction. No other significant changes to the landscape were observed in any of the aerial images reviewed.

Farmed Wetland Analysis

In accordance with guidance contained in the Midwest Regional Supplement and NRCS National Engineering Handbook, Part 650, Chapter 19, available data from the NRCS Geospatial Data Gateway for Dodge County, Nebraska were utilized to complete a farmed wetland analysis.

A desktop review of five years of color aerial imagery taken during the growing season obtained from the National Agricultural Imagery Program (NAIP), was completed to determine whether wetland hydrology is present within the agricultural fields in the study area. The selected years of imagery reviewed and analyzed for potential wetlands based on hydrologic indicators include 2010, 2012, 2014, 2018, and 2020 (see Appendix D, Figures 1-5). Precipitation data from the FREMONT, NE (the nearest NRCS WETS station to the study area) was analyzed for the three months prior to the date each aerial image was taken. The precipitation data was then given a weighted value to determine wet, dry, or normal conditions (see Appendix D, Wetland Documentation Record).

The hydrology analysis process then requires using at least five years of aerial imagery from normal precipitation years to estimate the boundaries of potential wetlands. In accordance with NRCS National Engineering Handbook, Part 650, Chapter 19, one normal year was available (2018), two drier than normal years (2012, 2020), and two wetter than normal years (2010, 2014) were also reviewed and analyzed (see Appendix D, Rainfall Documentation Worksheets). The specific wetland signatures analyzed during the farmed wetland analysis included:

- Standing water
- Flooded or drowned-out crops
- Crop stress
- Dry areas
- Inclusions of wet areas as “set-aside”

Areas displaying saturated soil signatures that overlapped in at least three years (>50%) of the selected five years of NAIP imagery were identified as potential wetlands and geospatially referenced using GIS (see Appendix D, Figure 6). A site visit was conducted on July 13, November 1, November 16, and November 21, 2023, to determine the presence or absence of hydric soils within the identified potential wetlands. Wetland boundaries were updated based on

hydric soils and topography. Final wetland boundaries are available in Appendix A, Figure 6a-6d.

Some areas identified in the farmed wetland analysis had hydric soils and were determined to be a wetland.

Delineation Methods

JEO conducted a wetland delineation on July 13, November 1, November 16, and November 21, 2023 in accordance with the methods described in the 1987 Manual and the Midwest Regional Supplement using a routine wetland determination method, including the standard multi-parameter approach (vegetation, soils, and hydrology) for wetland identification. An area is considered to be a wetland if hydrophytic vegetation, hydric soils, and wetland hydrology are all present. Sample locations were determined using NWI maps and visual observations that supported a hydrophytic plant community, where applicable, as well as characteristics of hydric soils and wetland hydrology. Definitions and methods for determining each of these three parameters are summarized below:

HYDROPHYTIC VEGETATION

Definition	The prevalence (>50%) of dominant plant species that are adapted to life in saturated soil conditions.
Method	To determine if vegetation was hydrophytic, the scientific name and indicator status of dominant plant species at each wetland were recorded on USACE data sheets. Dominance refers to the spatial extent of a species that is directly observed in the field. The most abundant plant species that individually or collectively account for more than 50 percent of the total coverage of each vegetation stratum and any other individual species comprising 20 percent or more of the total are considered to be dominant species for that stratum. Where 50 percent or more of all dominant species were hydrophytic, the hydrophytic vegetation parameter was met. Absolute percent cover of dominant species within each stratum is listed on data sheets.

HYDRIC SOILS

Definition	Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12 inches.
Method	Soils from each sample location were characterized using Munsell Soil Color Charts and soil texturing. Soil samples were also compared to the NRCS Web Soil Survey and Nebraska Hydric Soils List. If one or more of the hydric soil

indicators on the USACE data sheet were identified, the soil was considered to be hydric.

WETLAND HYDROLOGY

Definition	Fourteen or more consecutive days of flooding, ponding, or water table within 12 inches of the surface during the growing season at a minimum frequency of 5 out of 10 years (50%).
Method	Wetland hydrology was determined by observing the presence of primary and/or secondary indicators listed on the USACE data sheet. If one primary indicator or two secondary indicators were present, the wetland hydrology parameter was met.

Field maps were developed using aerial photography combined with information from the NRCS Web Soil Survey, USFWS NWI, and USGS topographic map. Field-delineated wetland boundaries were determined based on the USACE wetland delineation process by completing paired sample points, where possible, and investigating vegetation, soil, and hydrology parameters. Vegetation was identified to the species level and referenced to the State of Nebraska 2020 Wetland Plant List. Soil and hydrology characteristics were evaluated by using a sharpshooter/tile spade to examine the soil profile. Wetland boundaries were then recorded using Field Maps for ArcGIS in conjunction with a Trimble Catalyst DA2 unit to provide submeter accuracy. Portions of some wetlands may extend beyond the study area; however, only wetland boundaries within the study area were delineated. Site photographs are included in Appendix B and the Midwest Region Wetland Determination Data Forms are included in Appendix C.

WETLAND DELINEATION RESULTS

Data was collected at 61 locations within the study area to document existing conditions. Five WOTUS were present and 18 areas meeting all three criteria for wetland classification were identified during the site visit, as detailed below in Table 1 and Table 2, and overlain on aerial imagery in Appendix A, Figure 6a-6d. No other special aquatic sites (e.g., sanctuaries and refuges, riffle and pool complexes) were identified within the study area.

Table 1: Delineated Wetlands

Sample ID	Wetland ID	Figure	Wetland Classification *(Cowardin[1] | Nebraska Subclass)*	Area *(acres)*
1, 4, 7, 12	Wetland A	6a/6b	PEMA/C | Riverine Channel	0.864
-	Wetland B	6a/6b	PEMA/C | Riverine Channel	0.226
-	Wetland C	6a/6b	PEMA/C | Riverine Channel	0.684
-	Wetland D	6a/6b	PEMA/C | Riverine Channel	0.041
17, 19, 21	Wetland E	6a/6b	PEMA/C | Riverine Channel	0.244
14	Wetland F	6a/6b	PEMA/C | Riverine Channel	0.246
-	Wetland G	6a/6b	PEMA/C | Riverine Channel	0.003
-	Wetland H	6a/6b	PEMA/C | Riverine Channel	0.003
23, 25	Wetland I	6c/6d	PEMA/C | Floodplain Depression	3.304
31	Wetland J	6c/6d	PEMA/C | Floodplain Depression	0.110
35	Wetland K	6c/6d	PEMA/C | Riverine Channel	0.313
37, 38	Wetland L	6c/6d	PEMA/C | Floodplain Depression	1.939
39	Wetland M	6c/6d	PEMA/C | Riverine Channel	5.489
41	Wetland N	6c/6d	PFOA/C | Riverine Channel	2.534
-	Wetland O	6c/6d	PEMA/C | Riverine Channel	1.456
47	Wetland P	6c/6d	PEMA/C | Riverine Channel	10.661

43	Wetland Q	6c/6d	PEMA/C | Riverine Channel	2.124
56	Wetland R	6c/6d	PEMA/C | Floodplain Depression	0.202
TOTAL				**PEM = 27.909 PFO = 2.534**

Notes: [1] PEMA = Palustrine Emergent, Temporarily Flooded; PEMC = Palustrine Emergent, Seasonally Flooded PFOA = Palustrine Forested, Temporarily Flooded; PFOC = Palustrine Forested, Seasonally Flooded

Table 2: Other Water Resources

Photo ID	Figure	Name	Type[1]
1-3, 8-11, 13, 14, 16, 17, 19, 20, 22, 23, 26, 27, 31	6a/6b	Fremont Cutoff Ditch	Intermittent
9	6a/6b	Unnamed Stream	Intermittent
28-29, 34-39, 41	6a/6b	Unnamed Stream	Intermittent
65-68, 70-75, 78-79, 105, 107	6c/6d	Rawhide Creek	Intermittent
77-80, 84-86, 88, 97-98	6c/6d	Unnamed Stream	Intermittent

Notes: [1] Other Water Resources are non-wetland resources such as channels, ponds, and canals.

The following provides a brief narrative for each of the identified aquatic resources:

- **Wetland A –** PEMA/C wetland along the northeast bank of the Fremont Cutoff Ditch. Dominant vegetation within the wetland consisted of smooth brome (*Bromus inermis*), reed canarygrass (*Phalaris arundinacea*), broadleaf arrowhead (*Sagittaria latifolia*), sandbar willow (*Salix exigua*), dark-green bulrush (*Scirpus atrovirens*), and stinging nettle (*Urtica dioica*). *See Appendix B, Photos 1-2, 8-11, 13-14, 16-17, 19-20, 22-23, 26-27, and 31, and Appendix C, Datasheets 1, 4, 7, and 12.*
- **Wetland B –** PEMA/C wetland along the southwest bank of the Fremont Cutoff Ditch. The wetland is related to Sample Point 1. Dominant vegetation within the wetland consisted of reed canarygrass, broadleaf arrowhead, sandbar willow, and dark-green bulrush. *See Appendix B, Photos 1-2 and 8-9.*
- **Wetland C –** PEMA/C wetland along the southwest bank of the Fremont Cutoff Ditch. The wetland is related to Sample Points 4, 7, and 12. Dominant vegetation within the wetland consisted of smooth brome, reed canary grass, broadleaf arrowhead, sandbar willow, dark-

green bulrush, and stinging nettle. *See Appendix B, Photos 9-11, 13-14, 16-17, 19-20, 22-23, 26-27, and 31.*

- **Wetland D –** PEMA/C wetland along the northeast bank of the Fremont Cutoff Ditch. The wetland is related to Sample Point 12. Dominant vegetation within the wetland consisted of smooth brome and reed canarygrass. *See Appendix B, Photos 27 and 31.*
- **Wetland E –** PEMA/C wetland along the east bank of the unnamed intermittent stream. Dominant vegetation within the wetland consisted of wild cucumber (*Echinocystis lobata*), red mulberry (*Morus rubra*), and reed canarygrass. *See Appendix B, Photos 28-29 and 34-39, and Appendix C, Datatsheets 17, 19, and 21.*
- **Wetland F –** PEMA/C wetland along west bank of the unnamed intermittent stream. Dominant vegetation within the wetland consisted of field bindweed (*Convolvulus arvensis*), honeylocust (*Gleditsia triacanthos*), least duckweed (*Lemna valdiviana*), reed canarygrass, and sandbar willow. *See Appendix B, Photos 28-29 and 34-39, and Appendix C, Datatsheet 14.*
- **Wetland G –** PEMA/C wetland along the east bank of the unnamed intermittent stream. The wetland is related to Sample Point 21. Dominant vegetation within the wetland consisted of wild cucumber, red mulberry, and reed canarygrass. *See Appendix B, Photo 41.*
- **Wetland H –** PEMA/C wetland along west bank of the unnamed intermittent stream. Sample point is related to Sample Point 21. Dominant vegetation within the wetland consisted of wild cucumber, red mulberry, and reed canarygrass. *See Appendix B, Photo 41.*
- **Wetland I –** PEMA/C wetland extending northwest from Old Highway 30 within an agricultural field. Dominant vegetation within the wetland consisted of corn (*Zea mays*). Vegetation was assumed hydrophytic due to soil and hydrology factors. *See Appendix B, Photos 42-44 and 46-47, and Appendix C, Datatsheets 23 and 25.*
- **Wetland J –** PEMA/C wetland north of Old Highway 30 within an agricultural field. Dominant vegetation within the wetland consisted of corn. Vegetation was assumed hydrophytic due to soil and hydrology factors. *See Appendix B, Photo 55, and Appendix C, Datatsheet 31.*
- **Wetland K –** PEMA/C wetland south of County Road T Avenue. Dominant vegetation within the wetland consisted of giant ragweed (*Ambrosia trifida)*, Canada wildrye (*Elymus canadensis*), and green foxtail (*Setaria verticillata*). *See Appendix B, Photos 57 and 61-62, and Appendix C, Datatsheet 35.*
- **Wetland L –** PEMA/C wetland south of County Road T Avenue within an agricultural field. Dominant vegetation within the wetland consisted of corn. Vegetation was assumed hydrophytic due to soil and hydrology factors. *See Appendix B, Photos 63-64, and Appendix C, Datatsheets 37-38.*
- **Wetland M –** PEMA/C wetland extending west from County Road 20 Avenue. The wetland borders PFO Wetland N to the northwest. Dominant vegetation within the wetland consisted of Pennsylvania smartweed (*Persicaria pensylvanica*) and reed canarygrass. *See Appendix B, Photos 65-73, and Appendix C, Datatsheet 39.*

- **Wetland N –** PFOA/C wetland west of County Road 20 Avenue. The wetland borders PEM Wetland M to the southeast and PEM Wetland O to the north. Dominant vegetation within the wetland consisted of giant ragweed, green ash (*Fraxinus pennsylvanica*), honeylocust, red mulberry, reed canarygrass, and stinging nettle. *See Appendix B, Photos 74-75, and Appendix C, Datatsheet 41.*
- **Wetland O –** PEMA/C wetland west of County Road 20 Avenue. The wetland is related to Sample Point 39 and borders PFO Wetland N to the south. Dominant vegetation within the wetland consisted of Pennsylvania smartweed and reed canarygrass.
- **Wetland P –** PEMA/C wetland extending from Highway 30 to County Road 19. Dominant vegetation within the wetland consisted of Pennsylvania smartweed and broadleaf cattail. *See Appendix B, Photos 78-79, 83-86, 88, 104-105, and 107, and Appendix C, Datatsheet 47.*
- **Wetland Q –** PEMA/C wetland extending southwest from Highway 30 to PEM Wetland P. Dominant vegetation within the wetland consisted of reed canarygrass and broadleaf cattail (*Typha latifolia*). *See Appendix B, Photos 77 and 97-98, and Appendix C, Datatsheet 43.*
- **Wetland R –** PEMA/C wetland west of County Road 20 Avenue. Dominant vegetation within the wetland consisted of corn. Vegetation was assumed hydrophytic due to soil and hydrology factors. *See Appendix B, Photo 95, and Appendix C, Datatsheet 56.*
- **Fremont Cutoff Ditch –** Intermittent stream flowing generally northwest to southeast through the study area. The channel has an average OHWM ranging in width from 8 feet to 10 feet and an average depth from the top of bank to the OHWM ranging from 1 foot to 3 feet. *See Appendix B, Photos 1-3, 8-11, 13-14, 16-17, 19-20, 22-23, 26-27, and 31.*
- **Unnamed Stream –** Intermittent stream flowing generally west to east through the study area. The channel has an average OHWM ranging in width from 6 feet to 7 feet and an average depth from the top of bank to the OHWM ranging from 1 foot to 3 feet. *See Appendix B, Photo 9.*
- **Unnamed Stream –** Intermittent stream flowing generally north to south through the study area. The channel has an average OHWM ranging in width from 4 feet to 12 feet and an average depth from the top of bank to the OHWM ranging from 2 feet to 4 feet. *See Appendix B, Photos 28-29, 34-39, and 41.*
- **Rawhide Creek –** Intermittent stream flowing generally north to southeast through the study area. The channel has an average OHWM ranging in width from 2 feet to 62 feet and an average depth from the top of bank to the OHWM ranging from 1 foot to 3 feet. *See Appendix B, Photos 65-68, 70-75, 78-79, 105, and 107.*
- **Unnamed Stream –** Intermittent stream flowing generally west to northeast through the study area. The channel has an average OHWM ranging in width from 2 feet to 14 feet and an average depth from the top of bank to the OHWM ranging from 1 foot to 3 feet. *See Appendix B, Photos 77-80, 84-86, 88, and 97-98.*

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Appendix A: Figures

Figure 1: Location Map

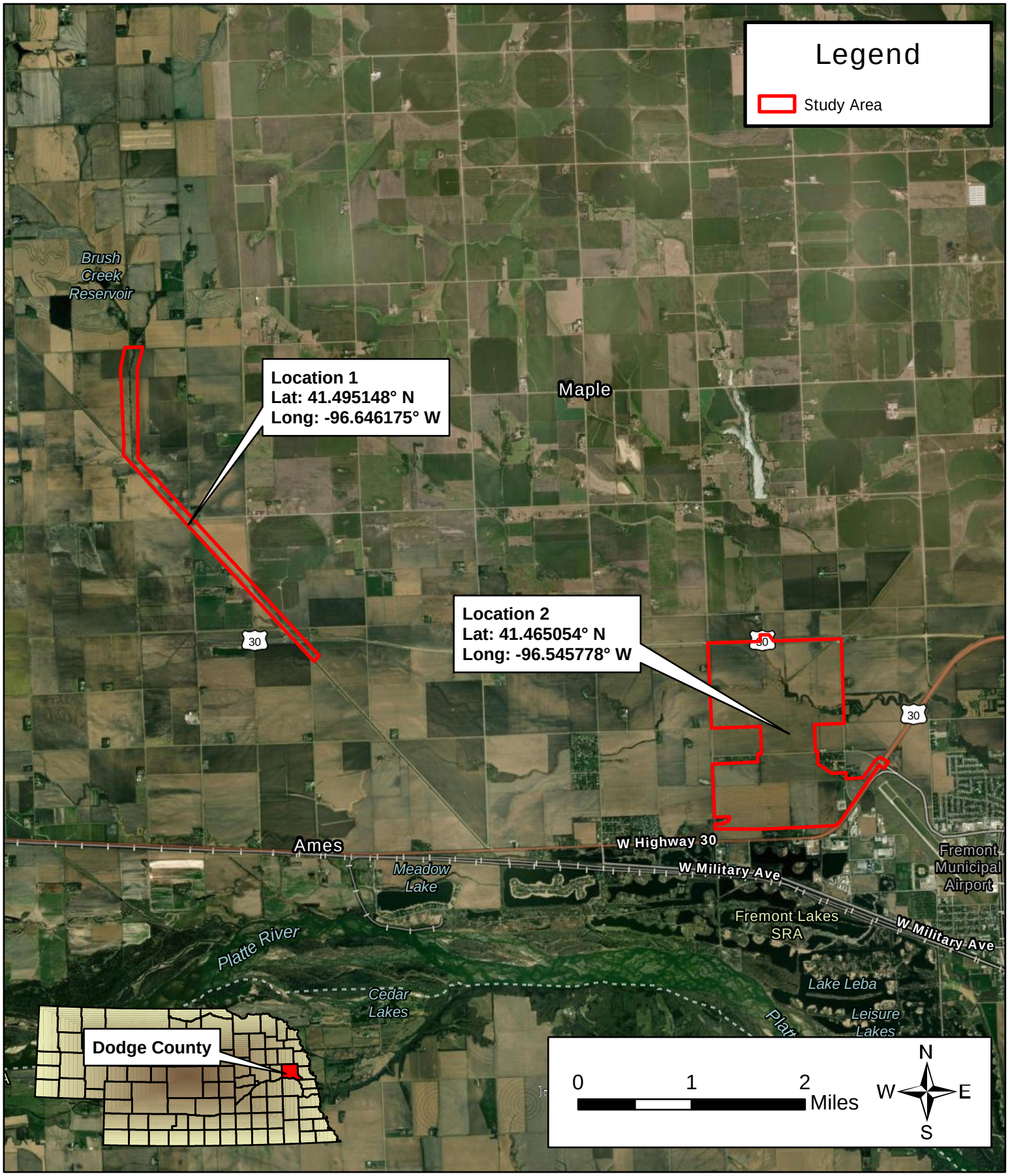
Figure 2: Topographic Map

Figure 3a/3b: NWI Map

Figure 4a/4b: Soils Map

Figure 5a/5b: NHD Map

Figure 6a-6d: Delineated Wetlands/WOTUS



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Rawhide Creek WFPO

Figure 1 - Project Location Map
Dodge County, Nebraska

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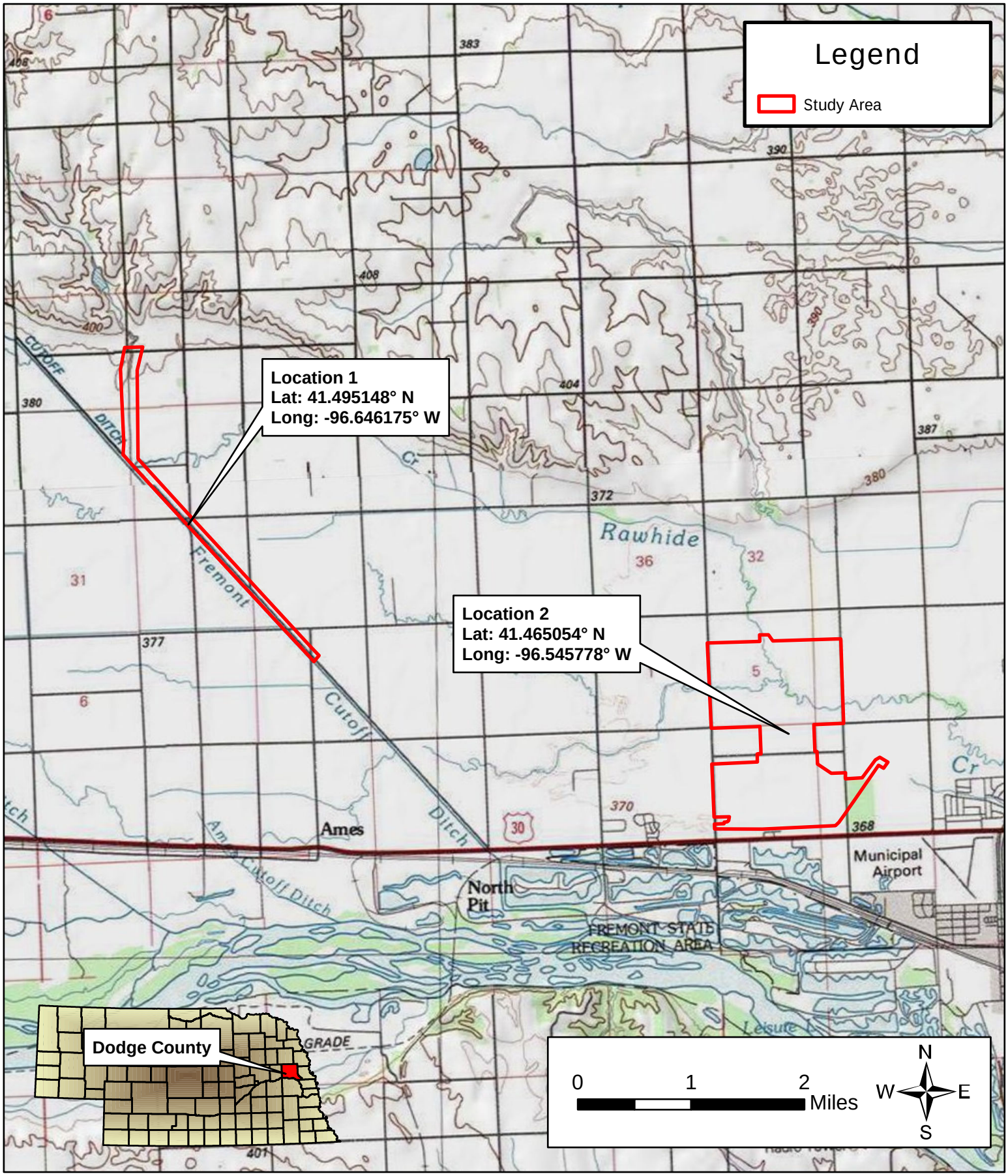

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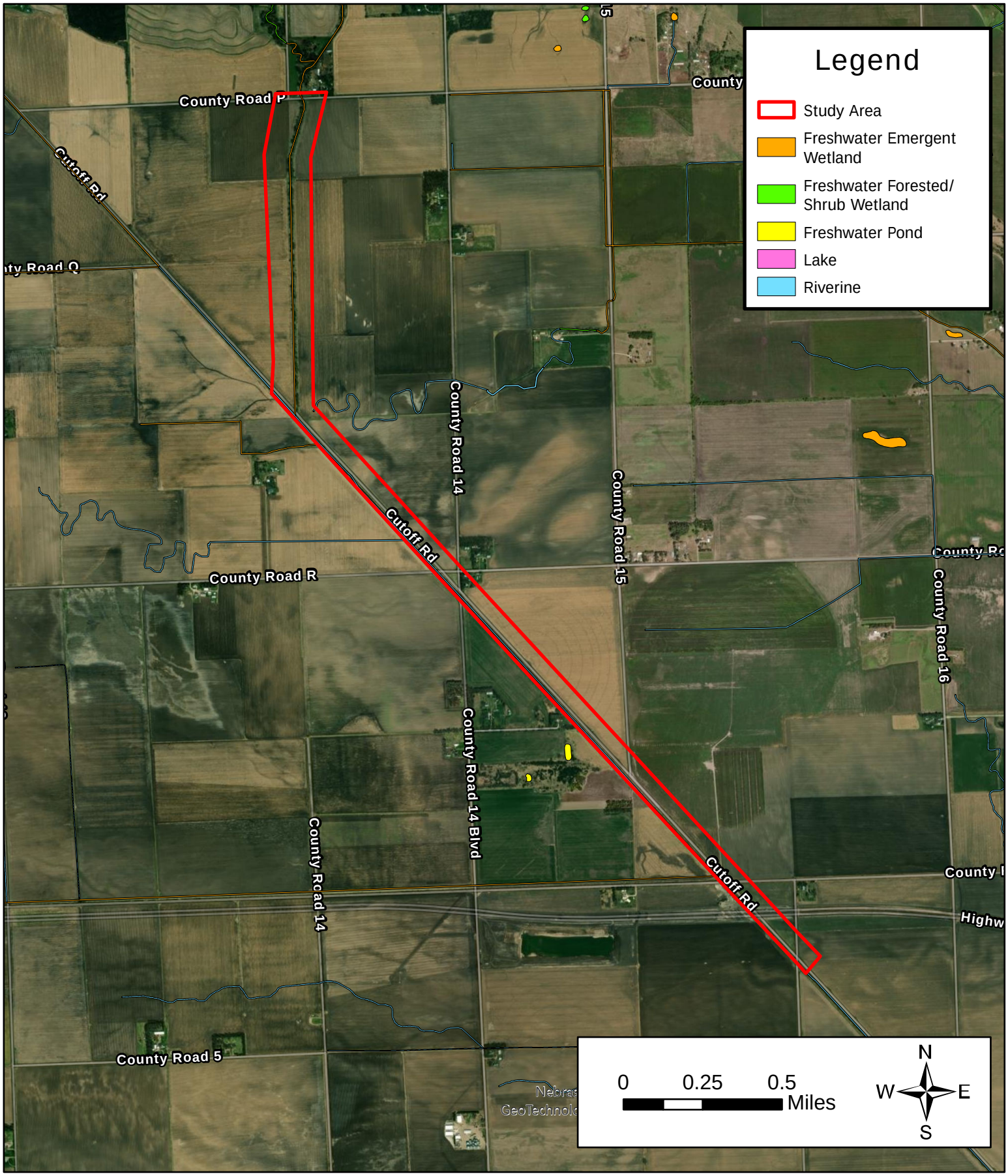
Rawhide Creek WFPO

Figure 2 - Topographic Map
Dodge County, Nebraska

JEO CONSULTING GROUP INC



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Rawhide Creek WFPO

Figure 3a - NWI Map
Dodge County, Nebraska

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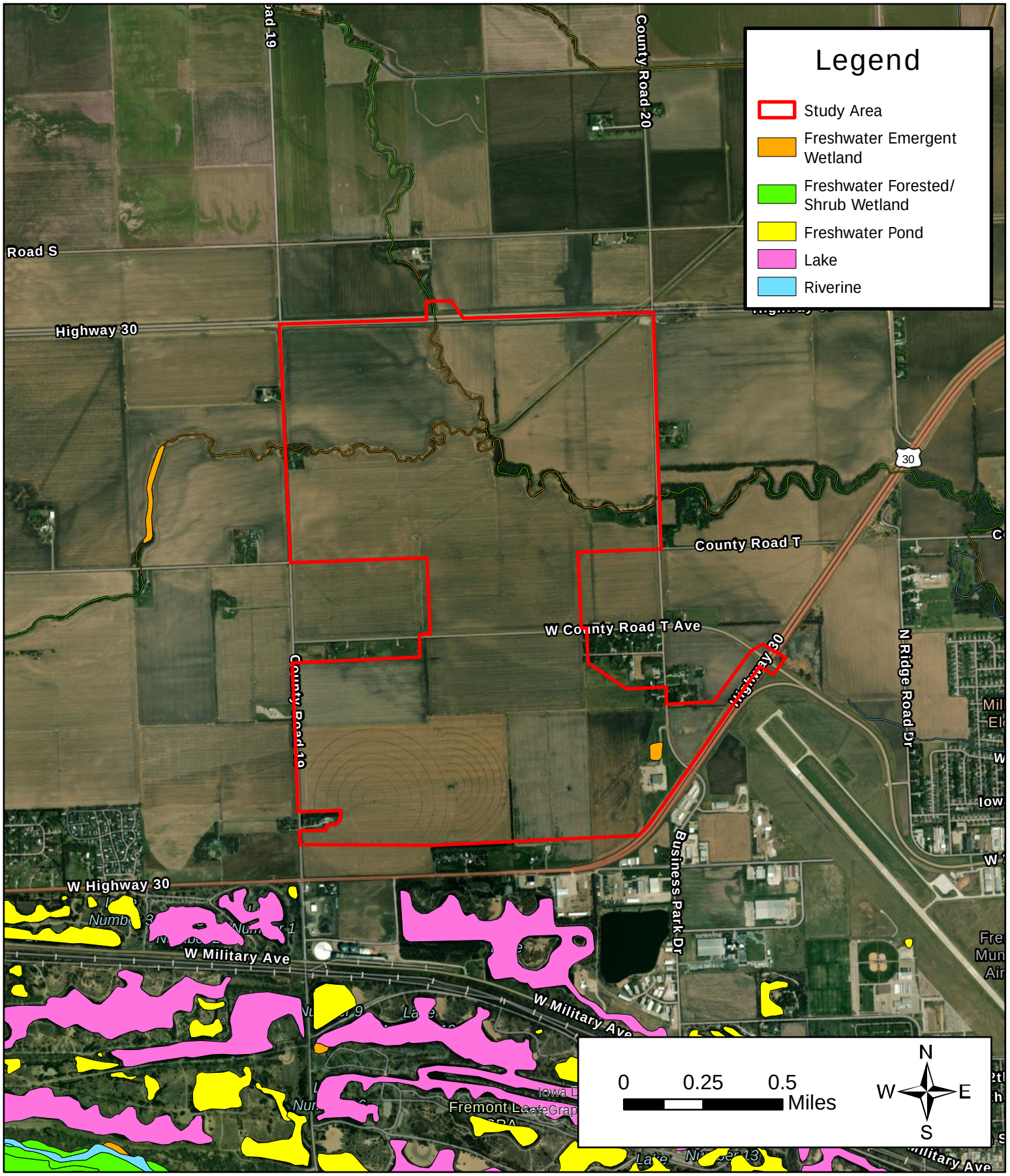

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Rawhide Creek WFPO

Figure 3b - NWI Map
Dodge County, Nebraska

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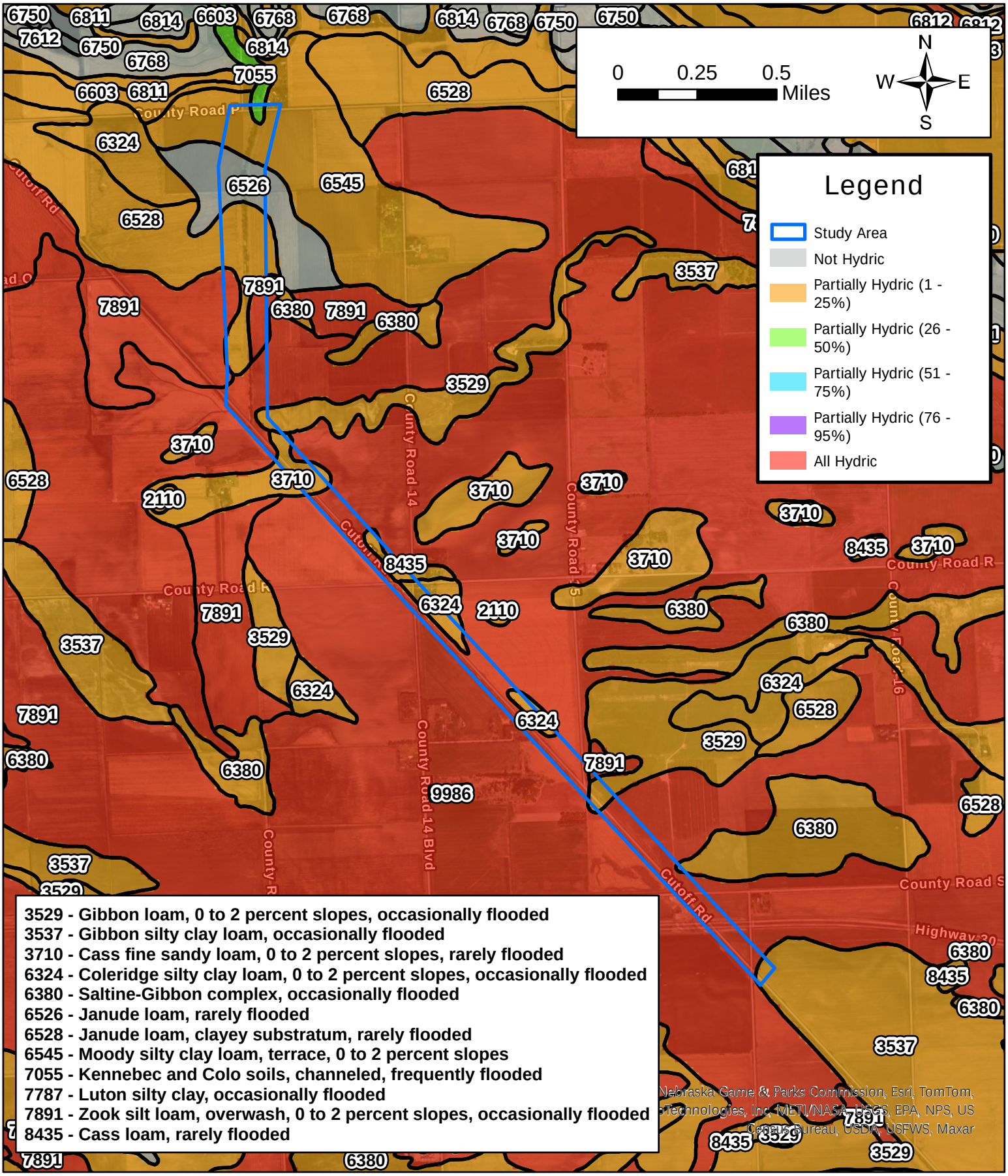

3529 - Gibbon loam, 0 to 2 percent slopes, occasionally flooded
3537 - Gibbon silty clay loam, occasionally flooded
3710 - Cass fine sandy loam, 0 to 2 percent slopes, rarely flooded
6324 - Coleridge silty clay loam, 0 to 2 percent slopes, occasionally flooded
6380 - Saltine-Gibbon complex, occasionally flooded
6526 - Janude loam, rarely flooded
6528 - Janude loam, clayey substratum, rarely flooded
6545 - Moody silty clay loam, terrace, 0 to 2 percent slopes
7055 - Kennebec and Colo soils, channeled, frequently flooded
7787 - Luton silty clay, occasionally flooded
7891 - Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded
8435 - Cass loam, rarely flooded

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Rawhide Creek WFPO

Figure 4a - Soils Map
Dodge County, Nebraska

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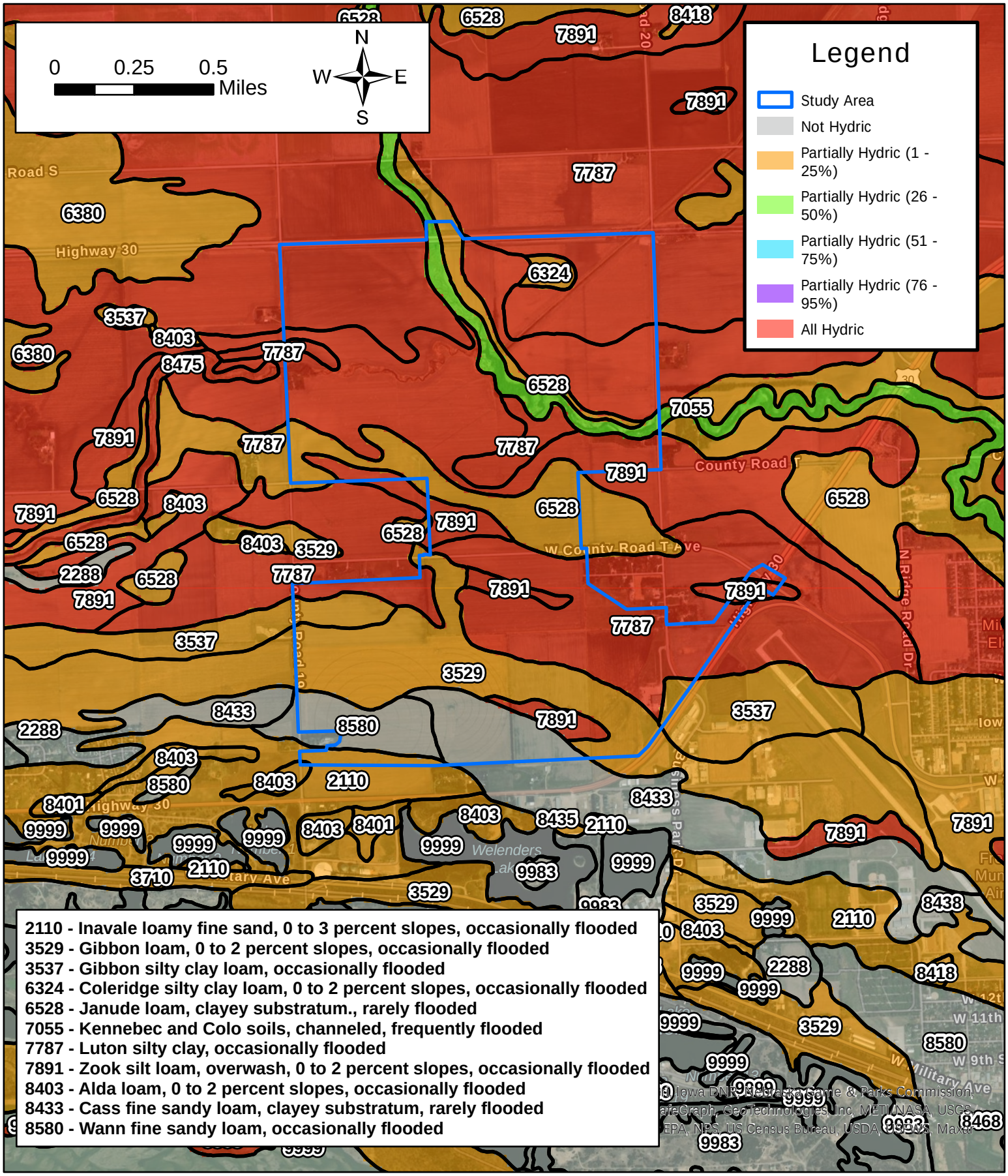

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Rawhide Creek WFPO

Figure 4b - Soils Map
Dodge County, Nebraska

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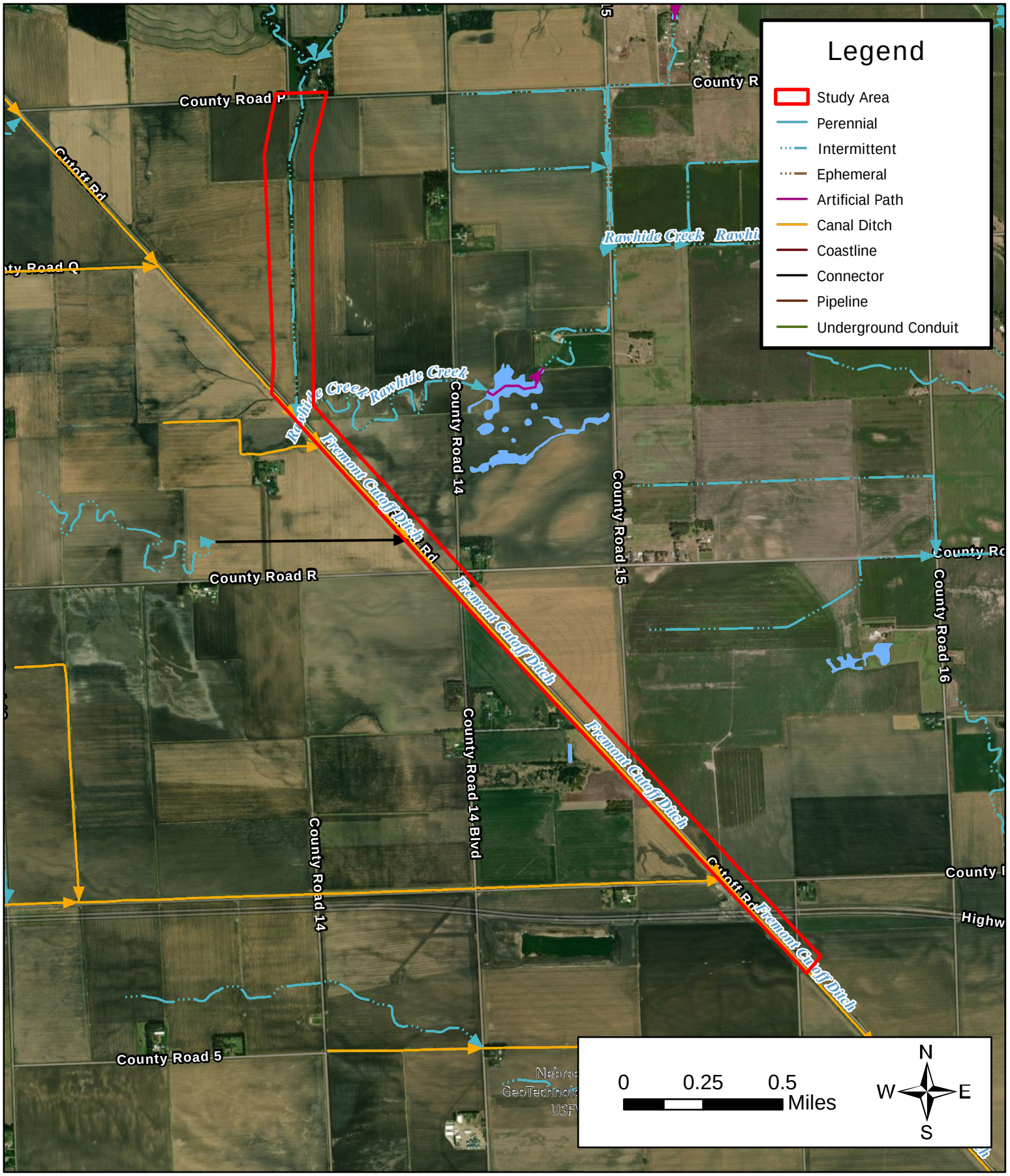

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Rawhide Creek WFPO

Figure 5a - NHD Map
Dodge County, Nebraska

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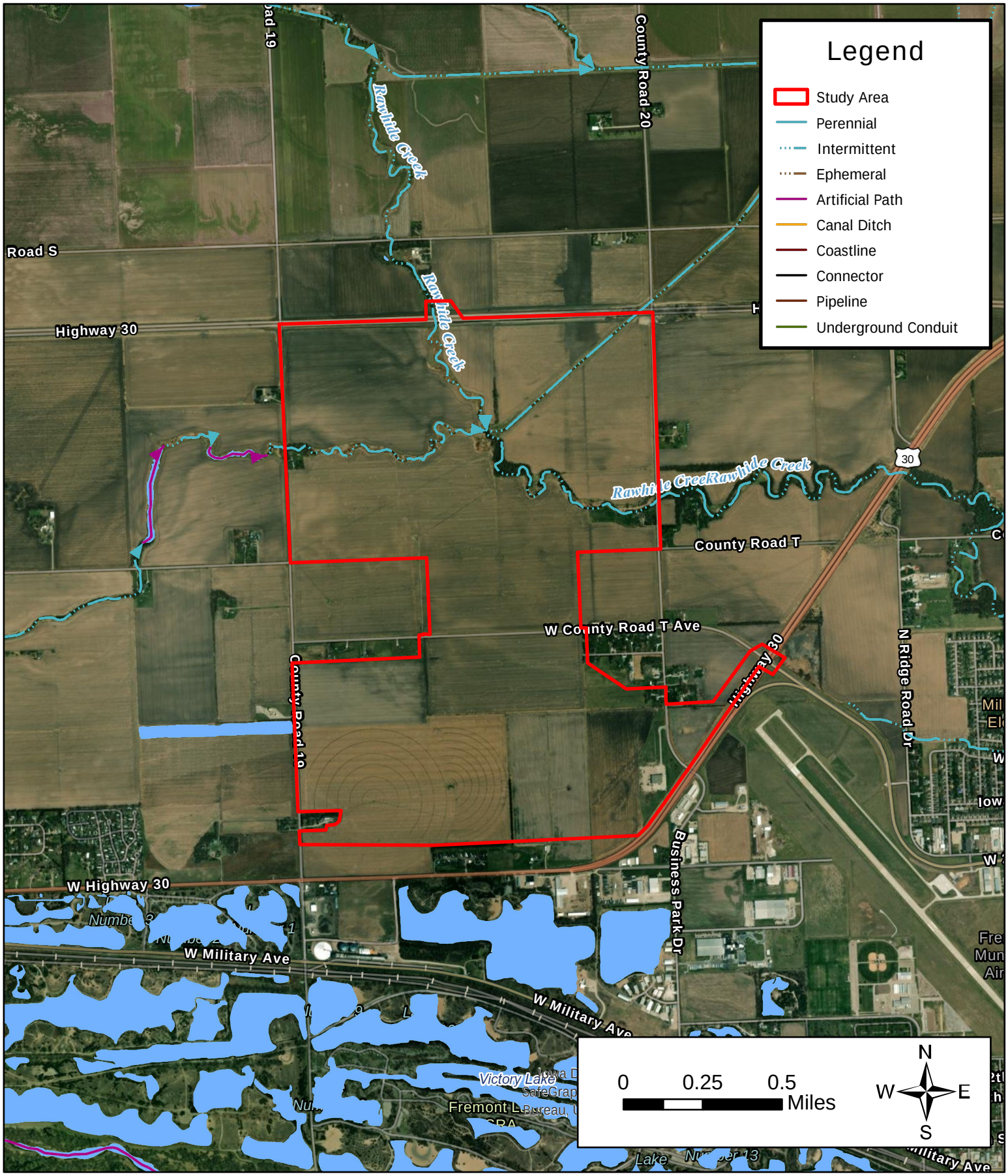

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Rawhide Creek WFPO

Figure 5b - NHD Map
Dodge County, Nebraska

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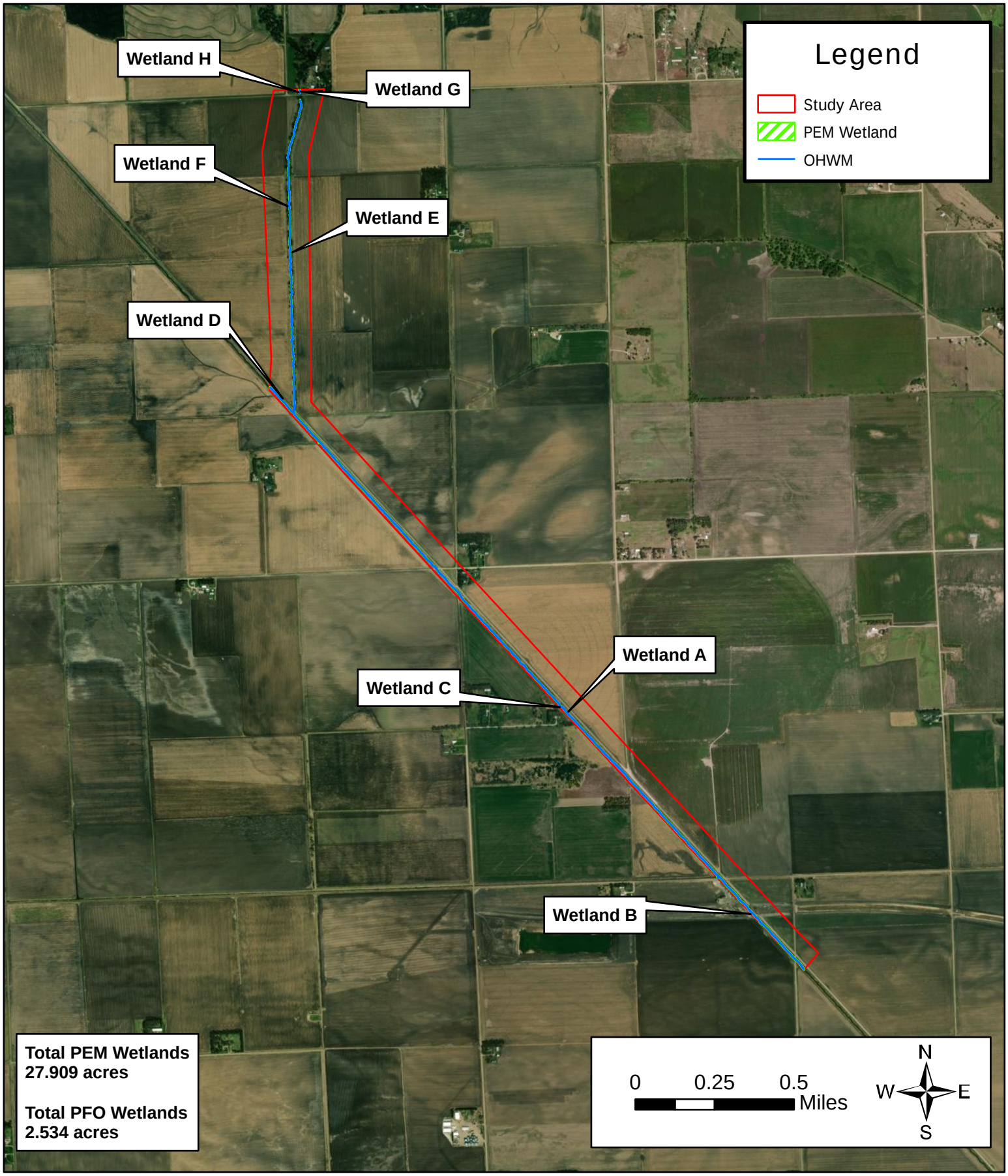

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Rawhide Creek WFPO

Figure 6a - Delineated Wetlands/WOTUS
Dodge County, Nebraska

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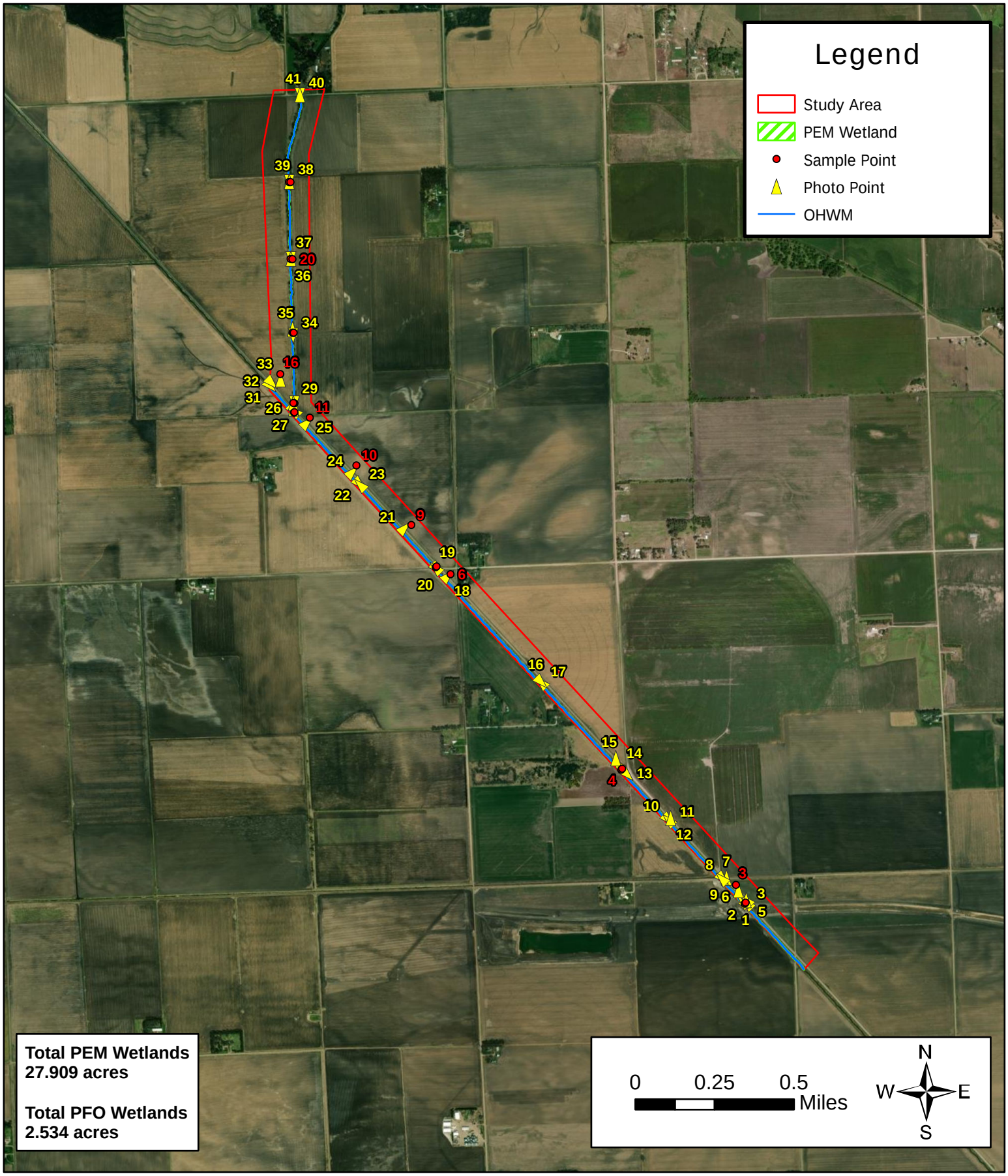

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Figure 6b - Delineated Wetlands/WOTUS
Dodge County, Nebraska

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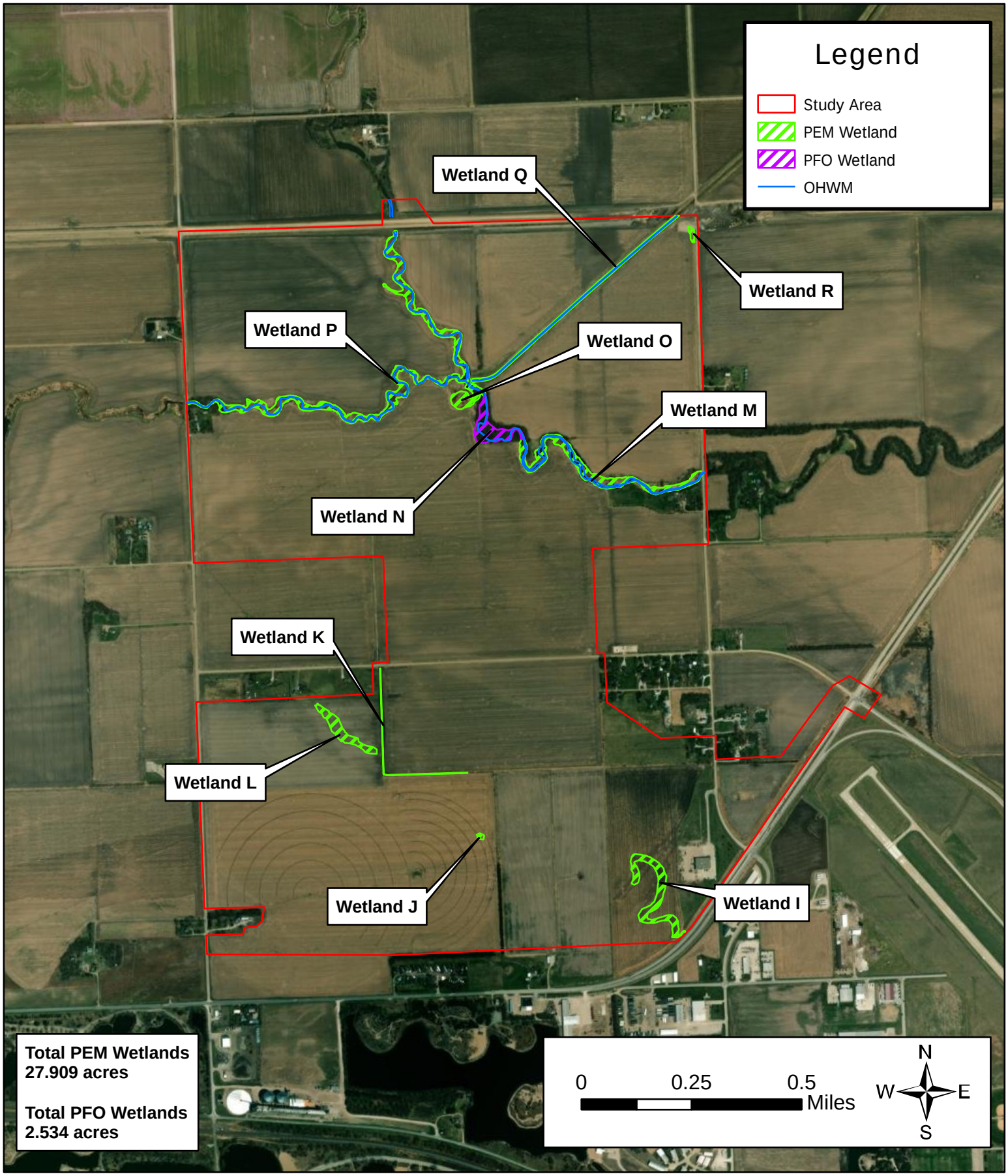

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Rawhide Creek WFPO

Figure 6c - Delineated Wetlands/WOTUS
Dodge County, Nebraska

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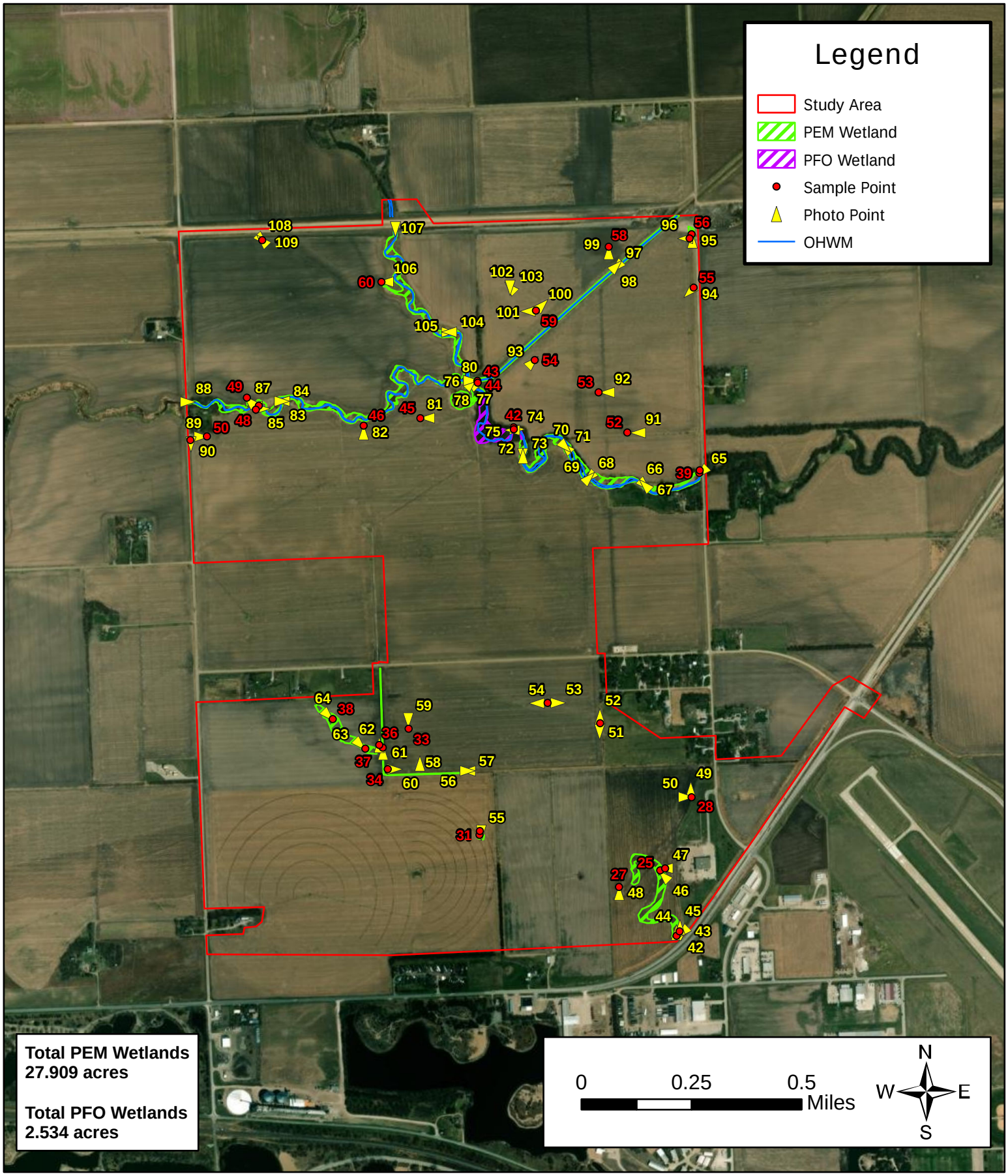

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Rawhide Creek WFPO

Figure 6d - Delineated Wetlands/WOTUS
Dodge County, Nebraska

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Appendix B: Site Photographs

Photo 1 – View looking southeast from Sample Point 1. Photo depicts the OHWM of the Fremont Cutoff Ditch and PEM Wetlands A and B.

Photo 2 – View looking northwest from Sample Point 1. Photo depicts the OHWM of Fremont Cutoff Ditch and PEM Wetlands A and B.

Photo 3 – View looking northwest from Sample Point 2 on the west side of Cutoff Road. Photo depicts upland vegetation.

Photo 4 – View looking north on the east side of Cutoff Road. Photo depicts an upland area.

Photo 5 – View looking northwest on the east side of Cutoff Road. Photo depicts an upland roadside ditch.

Photo 6 – View looking north from Sample Point 3. Photo depicts an upland area.

Photo 7 – View looking north from the intersection of County Road S and Cutoff Road. Photo depicts an agriculture field.

Photo 8 – View looking southeast on the south side of County Road S. Photo depicts the OHWM of Fremont Cutoff Ditch and PEM Wetlands A and B.

Photo 9 – View looking northwest along Fremont Cutoff Ditch. Photo depicts the OHWM of the stream and the OHWM of an unnamed stream and PEM Wetlands A and C.

Photo 10 – View looking southeast along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 11 – View looking northwest along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 12 – View looking north on the east side of Cutoff Road. Photo depicts upland vegetation bordering an agriculture field.

Photo 13 – View looking southeast from Sample Point 4 along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 14 – View looking northwest from Sample Point 4 along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 15 – View looking north on the east side of Cutoff Road. Photo depicts upland vegetation bordering an agricultural field.

Photo 16 – View looking southeast along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 17 – View looking northwest along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 18 – View looking northeast from Sample Point 6. Photo depicts an upland area.

Photo 19 – View looking southeast on the south side of County Road R. Photo depicts the OHWM of Fremont Cutoff Ditch and PEM Wetlands A and C along the banks.

Photo 20 – View looking northwest along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 21 – View looking northeast towards Sample Point 9. Photo depicts and agricultural field.

Photo 22 – View looking southeast along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 23 – View looking northwest from Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 24 – View looking northeast toward Sample Point 10. Photo depicts an agricultural field.

Photo 25 – View looking northeast toward Sample Point 11. Photo depicts an agricultural field.

Photo 26 – View looking southeast along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands A and C along the banks.

Photo 27 – View looking northwest along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands C and D along the banks.

Photo 28 – View looking north along an unnamed stream. Photo depicts the OHWM of the stream and the upland/wetland boundary to PEM Wetlands E and F along the banks.

Photo 29 – View looking south from Sample Point 14. Photo depicts the upland/wetland boundary to PEM Wetlands E and F.

Photo 30 – View looking north from Sample Point 15. Photo depicts the upland area adjacent to PEM Wetland F.

Photo 31 – View looking southeast along Fremont Cutoff Ditch. Photo depicts the OHWM of the channel and PEM Wetlands C and D along the banks.

Photo 32 – View looking southeast on the east side of Cutoff Road. Photo depicts an upland roadside ditch adjacent to an agricultural field.

Photo 33 – View looking north from Sample Point 16. Photo depicts an agricultural field.

Photo 34 – View looking south towards Sample Point 17. Photo depicts the upland/wetland boundary to PEM Wetland E.

Photo 35 – View looking north toward Sample Point 17. Photo depicts the upland/wetland boundary to PEM Wetlands E and F.

Photo 36 – View looking south from Sample Point 19. Photo depicts the OHWM of the unnamed stream and PEM Wetlands E and F along the banks.

Photo 37 – View looking north from Sample Point 19. Photo depicts the OHWM of the unnamed stream and PEM Wetlands E and F along the banks.

Photo 38 – View looking south from Sample Point 21. Photo depicts the upland/wetland boundary to PEM Wetlands E and F.

Photo 39 – View looking north from Sample Point 21. Photo depicts the upland/wetland boundary to PEM Wetlands E and F.

Photo 40 – View looking south from County Road P. Photo depicts an upland area.

Photo 41 – View looking north on the north side of County Road P. Photo depicts the OHWM of the unnamed stream and PEM Wetlands G and H along the banks.

Photo 42 – View looking northeast on the west side of Highway 30. Photo depicts the upland/wetland boundary to PEM Wetland I.

Photo 43 – View looking southwest on north side of Highway 30. Photo depicts PEM Wetland I.

Photo 44 – View looking north from Sample Point 23. Photo depicts PEM Wetland I within an agricultural field.

Photo 45 – View looking north from Sample Point 24. Photo depicts the upland area adjacent to PEM Wetland I.

Photo 46 – View looking northwest from Sample Point 25. Photo depicts PEM Wetland I within an agricultural field.

Photo 47 – View looking west from Sample Point 26. Photo depicts the upland area adjacent to PEM Wetland I.

Photo 48 – View looking north from Sample Point 27. Photo depicts an upland agricultural area.

Photo 49 – View looking north from Sample Point 28. Photo depicts an upland agricultural area.

Photo 50 – View looking east from Sample Point 28. Photo depicts an upland area adjacent to the agricultural field.

Photo 51 – View looking south from Sample Point 29. Photo depicts an upland agricultural area.

Photo 52 – View looking north from Sample Point 29. Photo depicts an upland agricultural area.

Photo 53 – View looking east from Sample Point 30. Photo depicts an upland agricultural area.

Photo 54 – View looking west from Sample Point 30. Photo depicts an upland agricultural area.

Photo 55 – View looking south from Sample Point 31. Photo depicts PEM Wetland J within an agricultural field.

Photo 56 – View looking east within a swale. Photo depicts an upland area.

Photo 57 – View looking west within a swale. Photo depicts the upland/wetland boundary to PEM Wetland K.

Photo 58 – View looking north within an agriculture field. Photo depicts an upland area.

Photo 59 – View looking south from Sample Point 33. Photo depicts an upland agricultural area.

Photo 60 – View looking east from Sample Point 34. Photo depicts an upland agricultural area.

Photo 61 – View looking north from Sample Point 35. Photo depicts PEM Wetland K within a swale.

Photo 62 – View looking north from Sample Point 36. Photo depicts the upland area adjacent to PEM Wetland K.

Photo 63 – View looking southeast from Sample Point 37. Photo depicts the upland/wetland boundary to PEM Wetland L.

Photo 64 – View looking southeast from Sample Point 38. Photo depicts PEM Wetland L within an agricultural field.

Photo 65 – View looking southwest toward Sample Point 39. Photo depicts the OHWM of Rawhide Creek and the upland/wetland boundary to PEM Wetland M.

Photo 66 – View looking southeast on the east side of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland M.

Photo 67 – View looking northwest on the east side of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland M.

Photo 68 – View looking southwest within PEM Wetland M. Photo depicts the upland/wetland boundary and the OHWM of Rawhide Creek.

Photo 69 – View looking northeast within PEM Wetland M. Photo depicts the upland/wetland boundary.

Photo 70 – View looking southeast near the center of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland M.

Photo 71 – View looking northwest near the center of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland M.

Photo 72 – View looking south near the center of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland M.

Photo 73 – View looking north near the center of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland M.

Photo 74 – View looking east from Sample Point 41. Photo depicts the OHWM of Rawhide Creek and PFO Wetland N.

Photo 75 – View looking west near Sample Point 41. Photo depicts the OHWM of Rawhide Creek and PFO Wetland N.

Photo 76 – View looking east towards Sample Point 44. Photo depicts an upland area.

Photo 77 – View looking northeast near the center of the study area. Photo depicts the OHWM of the unnamed stream and PEM Wetland Q.

Photo 78 – View looking northwest near the center of the study area. Photo depicts the OHWM of Rawhide Creek and the unnamed stream as well as PEM Wetland P.

Photo 79 – View looking west near the center of the study area. Photo depicts the OHWM of Rawhide Creek and the unnamed stream as well as PEM Wetland P.

Photo 80 – View looking east towards Sample Point 43. Photo depicts the OHWM of the unnamed stream and PEM Wetland Q.

Photo 81 – View looking west from Sample Point 45. Photo depicts an upland agricultural area.

Photo 82 – View looking north from Sample Point 46. Photo depicts an upland agricultural area.

Photo 83 – View looking east at the west side of the study area. Photo depicts PEM Wetland P.

Photo 84 – View looking west at the west side of the study area. Photo depicts the OHWM of the unnamed stream and PEM Wetland P.

Photo 85 – View looking east from Sample Point 47. Photo depicts the OHWM of the unnamed stream and PEM Wetland P.

Photo 86 – View looking west from Sample Point 47. Photo depicts the OHWM of the unnamed stream and PEM Wetland P.

Photo 87 – View looking northwest towards Sample Point 49. Photo the upland area adjacent to PEM Wetland P.

Photo 88 – View looking east from County Road 19. Photo depicts the OHWM of the unnamed stream and the upland/wetland boundary to PEM Wetland P.

Photo 89 – View looking east from Sample Point 50. Photo depicts an upland agricultural area.

Photo 90 – View looking south from Sample Point 51. Photo depicts an upland roadside ditch on the east side of County Road 19.

Photo 91 – View looking west from Sample Point 52. Photo depicts an upland agricultural area.

Photo 92 – View looking west from Sample Point 53. Photo depicts an upland agricultural area.

Photo 93 – View looking northeast towards Sample Point 54. Photo depicts an upland agricultural area.

Photo 94 – View looking southwest towards Sample Point 55. Photo depicts an upland agricultural area.

Photo 95 – View looking north towards Sample Point 56. Photo depicts the upland/wetland boundary to PEM Wetland R.

Photo 96 – View looking west towards Sample Point 57. Photo depicts the upland area adjacent to PEM Wetland R.

Photo 97 – View looking southwest at the northeast side of the study area. Photo depicts the OHWM of the unnamed stream and PEM Wetland Q.

Photo 98 – View looking northeast at the northeast side of the study area. Photo depicts the OHWM of the unnamed stream and PEM Wetland Q.

Photo 99 – View looking north from Sample Point 58. Photo depicts an upland agricultural area.

Photo 100 – View looking northeast from Sample Point 59. Photo depicts an upland agricultural area.

Photo 101 – View looking west from Sample Point 59. Photo depicts an upland agricultural area.

Photo 102 – View looking south at the north side of the study area. Photo depicts an upland agricultural area.

Photo 103 – View looking northwest at the north side of the study area. Photo depicts an upland agricultural area.

Photo 104 – View looking east at the center of the study area. Photo depicts PEM Wetland P.

Photo 105 – View looking west at the center of the study area. Photo depicts the OHWM of Rawhide Creek and PEM Wetland P.

Photo 106 – View looking west from Sample Point 60. Photo depicts an upland agricultural area.

Photo 107 – View looking south on the south side of Highway 30. Photo depicts the OHWM of Rawhide Creek and PEM Wetland P.

Photo 108 – View looking southeast from Sample Point 61. Photo depicts an upland agricultural area.

Photo 109 – View looking northwest from Sample Point 61. Photo depicts an upland agricultural area.

Appendix C: USACE Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 1

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 4, Township 17 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of Bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.479635° Long: -96.629109° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: R4SBCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix exigua*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Sagittaria latifolia*	15	Yes	OBL
3. *Scirpus atrovirens*	15	Yes	OBL
4. *Apocynum cannabinum*	10	No	FAC
5. *Lemna minor*	10	No	OBL
6. *Persicaria lapathifolia*	10	No	FACW
7. *Rumex crispus*	10	No	FAC
8. *Solidago altissima*	5	No	FACU
9. *Urtica dioica*	5	No	FACW
10.			
	110	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	50	x 2 =	100
FAC species	20	x 3 =	60
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	115 (A)		220 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/1	100	-	-	-	-	Clay loam	
4-8	10YR 3/1	98	5YR 4/6	2	C	M	Clay loam	
8-10	5YR 2.5/1	100	-	-	-	-	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- × High Water Table (A2)
- × Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 2

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 4, Township 17 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of Bank Local relief (concave, convex, none): None

Slope (%): 0-4 Lat: 41.479678° Long: -96.629049° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	35	Yes	FACU
2. *Ambrosia artemisiifolia*	20	Yes	FACU
3. *Asclepias syriaca*	20	Yes	FACU
4. *Helianthus tuberosus*	10	No	FACU
5. *Rosa arkansana*	10	No	FACU
6. *Physalis virginiana*	5	No	UPL
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	95	x 4 =	380
UPL species	5	x 5 =	25
Column Totals:	100 (A)		405 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ **No** X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 3

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 4, Township 17 North, Range 7 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.480503° Long: -96.629597° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Hibiscus trionum*	20	Yes	UPL
2. *Abutilon theophrasti*	15	Yes	FACU
3. *Bouteloua curtipendula*	15	Yes	UPL
4. *Helianthus annuus*	15	Yes	FACU
5. *Lactuca serriola*	10	No	FACU
6. *Setaria viridis*	10	No	UPL
7. *Thlaspi arvense*	10	No	FACU
8. *Gaillardia pulchella*	5	No	FACU
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	45	x 5 =	180
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/1	100	-	-	-	-	Silt loam	
4-16	10YR 2/1	100	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 4

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 32, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of Bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.485964° Long: -96.636289° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: R4SBCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix exigua*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Sagittaria latifolia*	15	Yes	OBL
3. *Scirpus atrovirens*	15	Yes	OBL
4. *Apocynum cannabinum*	10	No	FAC
5. *Lemna minor*	10	No	OBL
6. *Persicaria lapathifolia*	10	No	FACW
7. *Rumex crispus*	10	No	FAC
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	45	x 2 =	90
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		190 (B)

Prevalence Index = B/A = 1.80

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100	-	-	-	-	Clay loam	
3-9	10YR 3/1	97	5YR 4/6	3	C	M	Clay loam	
9-15	10YR 3/1	100	-	-	-	-	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- x Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 5

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 32, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of Bank Local relief (concave, convex, none): None

Slope (%): 0-4 Lat: 41.486009° Long: -96.636229° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	35	Yes	FACU
2. *Ambrosia artemisiifolia*	20	Yes	FACU
3. *Asclepias syriaca*	20	Yes	FACU
4. *Helianthus tuberosus*	10	No	FACU
5. *Rosa arkansana*	10	No	FACU
6. *Physalis virginiana*	5	No	UPL
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	95	x 4 =	380
UPL species	5	x 5 =	25
Column Totals:	100 (A)		405 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 6

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 32, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.495189° Long: -96.646192° Datum: NAD83

Soil Map Unit Name: Coleridge silty clay loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Juniperus virginiana*	10	Yes	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	110 (A)		440 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 3/2	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 7

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 32, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of Bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.495534° Long: -96.647075° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: R4SBCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	70	Yes	FACW
2. *Urtica dioica*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100	-	-	-	-	Clay loam	
4-8	10YR 3/1	98	5YR 4/6	2	C	M	Clay loam	
8-10	5YR 2.5/1	100	-	-	-	-	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- × High Water Table (A2)
- × Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 8

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 32, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of Bank Local relief (concave, convex, none): None

Slope (%): 0-4 Lat: 41.495568° Long: -96.647025° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	35	Yes	FACU
2. *Ambrosia artemisiifolia*	20	Yes	FACU
3. *Asclepias syriaca*	20	Yes	FACU
4. *Helianthus tuberosus*	10	No	FACU
5. *Rosa arkansana*	10	No	FACU
6. *Physalis virginiana*	5	No	UPL
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	95	x 4 =	380
UPL species	5	x 5 =	25
Column Totals:	100 (A)		405 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 9

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 29, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Ag Field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.497507° Long: -96.648457° Datum: NAD83

Soil Map Unit Name: Cass loam, rarely flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 10

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 29, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Ag Field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.500321° Long: -96.651653° Datum: NAD83

Soil Map Unit Name: Cass fine sandy loam, 0 to 2 percent slopes, rarely flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

One parameter met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Glycine max*	65	Yes	UPL
2. *Panicum virgatum*	35	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	65	x 5 =	325
Column Totals:	100 (A)		430 (B)

Prevalence Index = B/A = 4.30

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100	-	-	-	-	Silty clay loam	
6-16	10YR 3/2	98	7.5YR 3/4	2	C	M	Loamy sand	
16-20	10YR 4/3	95	7.5YR 3/4	5	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ×__ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 11

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 29, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Ag Field Local relief (concave, convex, none): None

Slope (%): 1-3 Lat: 41.502582° Long: -96.654368° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 5/2	100	-	-	-	-	Silt loam	
1-10	10YR 3/2	100	-	-	-	-	Silty clay loam	
10-18	10YR 3/2	98	7.5YR 3/4	2	C	M	Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 12

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of Bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.502842° Long: -96.655312° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: R4SBCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	50	Yes	FACW
2. *Bromus inermis*	20	Yes	FACU
3. *Lemna minor*	10	No	OBL
4. *Echinocystis lobata*	5	No	UPL
5. *Equisetum hyemale*	5	No	FACW
6. *Physalis longifolia*	5	No	UPL
7. *Sisymbrium loeselii*	5	No	UPL
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	55	x 2 =	110
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	15	x 5 =	75
Column Totals:	100 (A)		275 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100	-	-	-	-	Clay loam	
5-10	10YR 3/1	95	5YR 4/6	5	C	M	Clay loam	
10-16	5YR 2.5/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- × High Water Table (A2)
- × Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No - Depth (inches): 0

Water Table Present? Yes X No - Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes X No - Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 13

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of Bank Local relief (concave, convex, none): None

Slope (%): 5-8 Lat: 41.502859° Long: -96.655289° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Morus alba*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	60	Yes	FACU
2. *Convolvulus arvensis*	10	No	UPL
3. *Phalaris arundinacea*	10	No	FACW
4. *Cannabis sativa*	5	No	UPL
5. *Helianthus tuberosus*	5	No	FACU
6. *Rumex crispus*	5	No	FAC
7. *Sisymbrium loeselii*	5	No	UPL
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	65	x 4 =	260
UPL species	20	x 5 =	100
Column Totals:	105 (A)		410 (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 14

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.503265° Long: -96.655266° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Gleditsia triacanthos*	10	Yes	FACU
2. *Salix exigua*	5	Yes	FACW
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	25	Yes	FACW
2. *Convolvulus arvensis*	15	Yes	UPL
3. *Lemna minor*	15	Yes	OBL
4. *Scirpus atrovirens*	15	Yes	OBL
5. *Sagittaria latifolia*	10	No	OBL
6. *Urtica dioica*	10	No	FACW
7. *Apocynum cannabinum*	5	No	FAC
8. *Echinocystis lobata*	5	No	FACW
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	45	x 2 =	90
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	15	x 5 =	75
Column Totals:	115 (A)		260 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soils assumed hydric. Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- × Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 15

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.503280° Long: -96.655333° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: PEM1Cx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	45	Yes	FACU
2. *Helianthus tuberosus*	15	Yes	FACU
3. *Convolvulus arvensis*	10	No	UPL
4. *Echinocystis lobata*	10	No	FACW
5. *Phalaris arundinacea*	10	No	FACW
6. *Urtica dioica*	10	No	FACW
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	60	x 4 =	240
UPL species	10	x 5 =	50
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	60	-	-	-	-	Silt loam	
	10YR 3/3	40	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 16

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.504624° Long: -96.656059° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	100	-	-	-	-	Silty clay loam	
10-16	10YR 3/1	80	-	-	-	-	Silty clay loam	
	10YR 4/2	20	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 17

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.506495° Long: -96.655214° Datum: NAD83

Soil Map Unit Name: Janude loam, clayey substratum, rarely flooded NWI classification: PEM1Cx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Morus rubra*	5	Yes	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	60	Yes	FACW
2. *Echinocystis lobata*	20	Yes	FACW
3. *Convolvulus arvensis*	10	No	UPL
4. *Urtica dioica*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	105 (A)		250 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soil assumed hydric. Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- × Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 18

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.506486° Long: -96.655148° Datum: NAD83

Soil Map Unit Name: Janude loam, clayey substratum, rarely flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	60	-	-	-	-	Silt loam	
	10YR 3/3	40	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 19

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.509860° Long: -96.655161° Datum: NAD83

Soil Map Unit Name: Janude loam, clayey substratum, rarely flooded NWI classification: PEM1Cx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Morus rubra*	5	Yes	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	60	Yes	FACW
2. *Echinocystis lobata*	20	Yes	FACW
3. *Convolvulus arvensis*	10	No	UPL
4. *Urtica dioica*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	105 (A)		250 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soils assumed hydric. Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- × Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 20

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 30, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.509848° Long: -96.655051° Datum: NAD83

Soil Map Unit Name: Janude loam, clayey substratum, rarely flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	60	-	-	-	-	Silt loam	
	10YR 3/3	40	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 21

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 19, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Toe of Bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.513374° Long: -96.655077° Datum: NAD83

Soil Map Unit Name: Janude loam, rarely flooded NWI classification: PEM1Cx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Morus rubra*	5	Yes	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	60	Yes	FACW
2. *Echinocystis lobata*	20	Yes	FACW
3. *Convolvulus arvensis*	10	No	UPL
4. *Urtica dioica*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	105 (A)		250 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soils assumed hydric. Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- × Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- × Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 07/13/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 22

Investigator(s): E. Marrow, K. Boden, R. Simmons, A. Mongar Section, Township, Range: Section 20, Township 18 North, Range 7 East

Landform (hillslope, terrace, etc.): Top of bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.513369° Long: -96.654988° Datum: NAD83

Soil Map Unit Name: Janude loam, rarely flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	60	-	-	-	-	Silt loam	
	10YR 3/3	40	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 23

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None

Slope (%): 2-4 Lat: 41.453091° Long: -96.538158° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Zea mays*	65	Yes	UPL
2. *Sorghum bicolor*	25	Yes	UPL
3. *Eleocharis palustris*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	90	x 5 =	450
Column Totals:	100 (A)		460 (B)

Prevalence Index = B/A = 4.60

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation assumed hydrophytic due to soil and hydrology factors, parameter met.

SOIL

Sampling Point: 23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100	-	-	-	-	Silty clay loam	
6-14	10YR 3/1	96	5YR 4/6	4	C	M	Clay	
14-20	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- × Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 24

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.453233° Long: -96.538022° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 25

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 2-4 Lat: 41.455261° Long: -96.538761° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation assumed hydrophytic due to soil and hydrology factors, parameter met.

SOIL

Sampling Point: 25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100	-	-	-	-	Silty Clay	
6-12	10YR 3/1	98	5YR 4/6	2	C	M	Clay	
12-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- × Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- × Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 26

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.455319° Long: -96.538542° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 27

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 1-4 Lat: 41.454770° Long: -96.540588° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-10	10YR 3/1	100	-	-	-	-	Silty clay loam	
10-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
X Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 28

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 0-4 Lat: 41.457624° Long: -96.537261° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 29

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 9, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.460175° Long: -96.541127° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ **No** X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 30

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 0-4 Lat: 41.460912° Long: -96.543386° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 30

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 31

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.456666° Long: -96.546593° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation assumed hydrophytic due to soil and hydrology factors, parameter met.

SOIL

Sampling Point: 31

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	80	-	-	-	-	Sandy clay loam	
	10YR 4/2	20	-	-	-	-	Sandy clay loam	
8-12	10YR 4/2	95	7.5YR 4/3	2	C	M	Sandy clay loam	
12-18	10YR 6/3	95	7.5YR 4/3	5	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 32

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.456792° Long: -96.546570° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 32

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 33

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.460245° Long: -96.549505° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 33

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100	-	-	-	-	Silty clay	
12-16	10YR 2/1	50	-	-	-	-	Silty clay	
	10YR 3/2	50	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
X Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 34

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.458945° Long: -96.550488° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 34

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 35

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave

Slope (%): 3-7 Lat: 41.459658° Long: -96.550669° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Ambrosia trifida*	30	Yes	FAC
2. *Elymus canadensis*	20	Yes	FACU
3. *Setaria verticillata*	20	Yes	FAC
4. *Schedonorus arundinaceus*	15	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	85	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	85 (A)		290 (B)

Prevalence Index = B/A = 3.41

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Bare ground = 15%
Parameter met.

SOIL

Sampling Point: 35

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	99	7.5YR 3/4	1	C	M	Silty clay	
8-16	10YR 3/1	95	7.5YR 3/4	5	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- × Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 36

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.459751° Long: -96.550815° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 36

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100	-	-	-	-	Silty clay	
6-12	10YR 2/1	99	7.5YR 3/4	1	C	M	Silty clay	
12-16	10YR 2/1	49	7.5YR 3/4	1	C	M	Sandy clay	
	10YR 6/3	50	-	-	-	-	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 37

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.459648° Long: -96.551432° Datum: NAD83

Soil Map Unit Name: Gibbon loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation assumed hydrophytic due to soil and hydrology factors, parameter met.

SOIL

Sampling Point: 37

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100	-	-	-	-	Silty clay loam	
4-12	10YR 2/1	98	7.5YR 3/4	2	C	M	Silty clay loam	
12-16	10YR 6/3	98	7.5YR 3/4	2	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- [x] Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- [x] Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 38

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 8, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.460663° Long: -96.552803° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation assumed hydrophytic due to soil and hydrology factors, parameter met.

SOIL

Sampling Point: 38

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100	-	-	-	-	Silty clay loam	
4-12	10YR 2/1	98	7.5YR 3/4	2	C	M	Silty clay loam	
12-16	10YR 6/3	98	7.5YR 3/4	2	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- × Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 39

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Stream bank Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.468268° Long: -96.536354° Datum: NAD83

Soil Map Unit Name: Kennebec and Colo soils, channeled, frequently flooded NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	80	Yes	FACW
2. *Persicaria pensylvanica*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 39

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100	-	-	-	-	Silty clay loam	
8-18	10YR 2/1	95	5YR 4/6	5	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 40

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 5-10 Lat: 41.468353° Long: -96.536333° Datum: NAD83

Soil Map Unit Name: Kennebec and Colo soils, channeled, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Morus rubra*	5	Yes	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	45	Yes	FACW
2. *Bromus inermis*	25	Yes	FACU
3. *Cannabis sativa*	10	No	UPL
4. *Persicaria pensylvanica*	10	No	FACW
5. *Rumex crispus*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	10	x 5 =	50
Column Totals:	105 (A)		310 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 40

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 41

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave

Slope (%): 0-2 Lat: 41.469947° Long: -96.544385° Datum: NAD83

Soil Map Unit Name: Kennebec and Colo soils, channeled, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	10	Yes	FACW
2. *Gleditsia triacanthos*	5	Yes	FACU
3. *Morus rubra*	5	Yes	FACU
4.			
5.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	70	Yes	FACW
2. *Urtica dioica*	20	Yes	FACW
3. *Ambrosia trifida*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	120 (A)		270 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 41

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100	-	-	-	-	Silty clay loam	
8-18	10YR 2/1	95	5YR 4/6	5	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 42

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 5-10 Lat: 41.470010° Long: -96.544391° Datum: NAD83

Soil Map Unit Name: Kennebec and Colo soils, channeled, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	5	Yes	FACW
2. *Gleditsia triacanthos*	5	Yes	FACU
3. *Morus rubra*	5	Yes	FACU
4.			
5.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	70	Yes	FACW
2. *Ageratina altissima*	20	Yes	FACU
3. *Urtica dioica*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	115 (A)		290 (B)

Prevalence Index = B/A = 2.52

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 42

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	100	-	-	-	-	Silty clay loam	
10-18	10YR 3/1	99	5YR 4/6	1	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 43

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave

Slope (%): 0-1 Lat: 41.471586° Long: -96.545892° Datum: NAD83

Soil Map Unit Name: Kennebec and Colo soils, channeled, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Typha latifolia*	80	Yes	OBL
2. *Phalaris arundinacea*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		120 (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 43

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100	-	-	-	-	Silt loam	
4-18	10YR 4/1	95	5YR 5/8	5	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 10

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 44

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 30-40 Lat: 41.471524° Long: -96.545882° Datum: NAD83

Soil Map Unit Name: Kennebec and Colo soils, channeled, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus drummondii*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	110 (A)		430 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 44

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 45

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.470434° Long: -96.548451° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 45

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 46

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.470264° Long: -96.550942° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 46

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 47

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave

Slope (%): 0-2 Lat: 41.471056° Long: -96.555487° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Typha latifolia*	65	Yes	OBL
2. *Persicaria pensylvanica*	20	Yes	FACW
3. *Sicyos angulatus*	10	No	FACW
4. *Cannabis sativa*	5	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		125 (B)

Prevalence Index = B/A = 1.50

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter met.

SOIL

Sampling Point: 47

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100	-	-	-	-	Loam	
2-8	10YR 3/1	98	5YR 3/4	2	C	M	Sandy clay loam	
8-16	10YR 3/1	95	5YR 3/4	5	C	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- × FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 48

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.470930° Long: -96.555624° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Comus drummondii*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	90	Yes	FACU
2. *Asclepias syriaca*	5	No	FACU
3. *Helianthus annuus*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	105 (A)		415 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 48

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100	-	-	-	-	Silty clay loam	
2-16	10YR 2/1	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/01/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 49

Investigator(s): R. Joe, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.471336° Long: -96.555996° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

One parameter met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 49

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100	-	-	-	-	Sandy clay	
10-18	10YR 2/1	99	5YR 4/6	1	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
× Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
× Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 50

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 41.470116° Long: -96.557809° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 50

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 51

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): None

Slope (%): 3-5 Lat: 41.470018° Long: -96.558538° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	60	Yes	FACU
2. *Spartina pectinata*	40	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	100 (A)		320 (B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 51

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 52

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.469692° Long: -96.539432° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 52

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
× Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 53

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.471049° Long: -96.540615° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 53

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 54

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.472194° Long: -96.543350° Datum: NAD83

Soil Map Unit Name: Zook silt loam, overwash, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 54

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100	-	-	-	-	Clay loam	
12-18	10YR 3/1	85	-	-	-	-	Clay loam	
	10YR 5/1	15	-	-	-	-	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ **No** X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 55

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None

Slope (%): 1-5 Lat: 41.474366° Long: -96.536280° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Zea mays*	90	Yes	UPL
2. *Bromus inermis*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	90	x 5 =	450
Column Totals:	100 (A)		490 (B)

Prevalence Index = B/A = 4.90

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 55

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 56

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None

Slope (%): 2-4 Lat: 41.476121° Long: -96.536276° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

All parameters met, area is a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	85	Yes	UPL
2. *Spartina pectinata*	15	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	85	x 5 =	425
Column Totals:	100 (A)		455 (B)

Prevalence Index = B/A = 4.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation assumed hydrophytic due to soil and hydrology factors, parameter met.

SOIL

Sampling Point: 56

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100	-	-	-	-	Silty clay loam	
6-14	10YR 3/1	96	5YR 4/6	4	C	M	Clay	
14-20	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- × Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

Parameter met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- × Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- × Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): -

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 57

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 0-4 Lat: 41.475988° Long: -96.536370° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 57

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 58

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 4, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field / low area Local relief (concave, convex, none): None

Slope (%): 0-3 Lat: 41.475819° Long: -96.539918° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 58

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/1	100	-	-	-	-	Clay loam	
12-18	10YR 3/1	85	-	-	-	-	Clay loam	
	10YR 5/1	15	-	-	-	-	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
X Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/21/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 59

Investigator(s): J. Cherovsky, K. Boden Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 41.473818° Long: -96.543211° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Zea mays*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 59

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100	-	-	-	-	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 60

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None

Slope (%): 3-5 Lat: 41.474962° Long: -96.549913° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 60

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100	-	-	-	-	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -

Water Table Present? Yes _____ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial Photos

Remarks:

Parameter not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Rawhide Creek WFPO City/County: Dodge County Sampling Date: 11/16/2023

Applicant/Owner: Dodge County State: NE Sampling Point: 61

Investigator(s): E. Marrow, K. Boden, S. Anderson Section, Township, Range: Section 5, Township 17 North, Range 8 East

Landform (hillslope, terrace, etc.): Ag field Local relief (concave, convex, none): None

Slope (%): 0-1 Lat: 41.476490° Long: -96.555051° Datum: NAD83

Soil Map Unit Name: Luton silty clay, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No parameters met, area is not a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. *None*			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Parameter not met.

SOIL

Sampling Point: 61

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: -
Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:
Parameter not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
× Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): -
Water Table Present? Yes _____ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): -

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial Photos

Remarks:
Parameter not met.

Appendix D: Farmed Wetland Analysis

WETS Table

WETS Station: FREMONT, NE

Requested years: 1971 - 2022

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	33.0	13.0	23.0	0.78	0.43	0.95	2	6.8
Feb	37.5	16.8	27.2	0.82	0.42	1.00	2	7.6
Mar	50.9	28.2	39.5	1.94	0.99	2.35	4	5.0
Apr	64.1	39.1	51.6	2.89	1.74	3.50	6	1.6
May	74.3	50.7	62.5	4.59	3.10	5.49	8	0.0
Jun	84.6	61.2	72.9	4.41	2.77	5.32	6	0.0
Jul	87.9	65.5	76.7	3.14	1.70	3.84	6	0.0
Aug	85.5	62.9	74.2	3.57	2.02	4.35	5	0.0
Sep	78.8	53.5	66.2	3.13	1.69	3.82	5	0.0
Oct	65.9	40.9	53.4	2.33	1.00	2.84	4	0.5
Nov	49.8	28.4	39.1	1.37	0.58	1.65	3	2.8
Dec	36.3	17.6	27.0	1.11	0.57	1.34	3	6.5
Annual:					26.42	33.28		
Average	62.4	39.8	51.1	-	-	-	-	-
Total	-	-	-	30.08			55	30.8

GROWING SEASON DATES

Years with missing data:	24 deg = 0	28 deg = 0	32 deg = 0
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 52	28 deg = 52	32 deg = 52
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	4/2 to 10/31: 212 days	4/12 to 10/20: 191 days	4/24 to 10/10: 169 days
70 percent *	3/29 to 11/5: 221 days	4/7 to 10/25: 201 days	4/20 to 10/15: 178 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1893	0.28	0.94	1.72	2.38	M4.24	4.00	4.58	4.51					22.65
1894													
1895													
1896							7.04	1.50	5.48	2.68	1.04	0.41	18.15
1897	0.92	M0.60	M1.88	5.61	0.86	2.68	1.23	2.27	0.56	2.77	0.22	2.05	21.65
1898	0.50	0.67	1.75	2.50	6.85	6.72	2.56	2.06	1.95	2.05	0.90	M0.70	29.21
1899	0.15	0.81	0.87	2.15	6.90	10.17	2.95	9.78	0.61	0.78	1.28	1.53	37.98
1900	0.24	1.10	1.34	3.75	2.00	1.22	5.36	6.37	4.81	M5.20	0.13	0.66	32.18
1901	0.40	0.80	2.41	1.17	2.75	5.50	2.11	1.14	7.59	1.79	0.75	0.90	27.31
1902	0.85	0.08	0.86	1.27	2.36	6.68	7.90	2.89	2.90		1.24	2.20	29.23

1903	T	0.97	0.73	2.64	10.94	3.15	4.87	11.08	2.89	2.08	1.46	0.17	40.98
1904	0.27	T	0.96	2.75	5.10	5.09	4.82	3.85	1.58	1.54	0.20	0.25	26.41
1905	1.60	0.95	0.93	4.48	4.80	3.93	1.83	3.45	7.63	2.59	3.22	0.02	35.43
1906	0.73	0.90	2.07	6.18	4.63	5.62	5.11	4.66	5.80	2.61	0.43	1.12	39.86
1907	0.32	1.02	0.35	1.40	3.26	6.94	6.83	3.52	2.52	1.20	0.60	0.48	28.44
1908	0.30	2.79	0.77	0.86	4.64	10.85	5.39	3.55	1.08	3.49	0.82	0.10	34.64
1909	0.53	1.70	0.57	1.40	2.64	7.64	7.14	1.89	6.19	0.89	7.01	2.78	40.38
1910	0.80	0.30	T	0.33	3.05	0.45	1.07	10.14	3.87	1.06	0.10	1.00	22.17
1911	0.40	1.48	0.70	2.22	3.08	M1.38	2.39	1.34	1.10	1.88	0.15	2.60	18.72
1912	M1.00	1.15	3.85	2.43	1.17	2.96	2.46	4.18	3.32	2.65	0.60	0.10	25.87
1913	1.15	0.85	1.99	2.52	4.88	6.11	2.28	0.82	3.06	1.18	0.72	2.29	27.85
1914	0.28	0.95	2.45	2.66	2.93	5.26	0.38	3.77	3.51	1.83	0.08	1.18	25.28
1915	1.68	2.74	1.73	1.54	6.97	5.99	8.95	9.65	3.67	0.56	0.98	0.69	45.15
1916	1.50	0.55	M1.08	1.99	5.01	2.49	0.40	4.72	0.55	1.13	1.32	0.92	21.66
1917	0.55	0.17	1.36	4.68	2.95	6.80	1.11	4.06	0.84	0.46	0.16	0.58	23.72
1918	1.01	0.79	T	1.02	5.69	2.72	1.48	0.38	1.05	4.77	2.13	1.06	22.10
1919	0.14	2.68	1.34	5.48	2.68	6.92	1.22	3.85	2.17	1.58	3.70	0.60	32.36
1920	0.05	0.35	2.23	3.64	4.13	1.73	7.68	5.54	1.69	3.36	3.00	0.72	34.12
1921	0.36	0.90	2.38	4.36	4.49	1.83	7.84	1.62	4.11	1.31	0.21	0.15	29.56
1922	1.10	0.33	1.98	2.44	3.98	3.99	5.21	1.35	0.78	1.15	4.63	0.08	27.02
1923	0.79	0.04	3.06	3.53	3.08	5.06	2.44	6.29	5.74	0.76	0.37	0.71	31.87
1924	0.18	1.28	1.88	1.78	2.22	8.63	4.96	3.28	2.86	1.38	0.03	1.63	30.11
1925	0.65	1.54	1.16	2.40	3.07	8.59	2.21	4.40	2.18	M2.10	0.18	1.75	30.23
1926	0.32	0.78	0.71	0.54	6.02	2.44	3.12	5.19	5.73	0.40	3.16	1.19	29.60
1927	T	1.23	2.17	5.81	3.03	3.44	2.42	4.25	3.46	0.43	0.30	0.05	26.59
1928	0.04	1.67	0.61	0.96	2.60	5.59	2.63	1.72	1.27	5.07	3.63	0.31	26.10
1929	0.31	1.03	T	M4.21	2.78	2.82	M4.56	1.41	1.57	M3.49	1.61	0.04	23.83
1930	0.99	0.29	0.17	4.12	5.70	2.31	0.47	7.06	0.36	0.81	3.28	0.12	25.68
1931	0.42	0.03	1.38	2.09	3.43	2.22	2.45	5.14	6.81	0.65	M4.80	M3.04	32.46
1932	3.09	0.61	0.76	1.21	4.11	4.49	1.03	5.40	2.76	1.29	M0.03	0.86	25.64
1933	0.60	0.18	3.63	0.41	0.61	0.42	3.89	2.67	7.33	0.16	0.96	1.55	22.41
1934	M0.38	1.25	M1.10	0.56	0.32	3.41	1.02	1.84	2.60	1.82	1.95	0.39	16.64
1935	0.27	M1.23	1.04	2.65	5.46	2.75	2.94	5.71	1.44	2.52	1.78	M0.15	27.94
1936	M2.13	2.03	0.15	0.45	1.52	2.16	0.21	3.11	3.32	0.24	0.10	M1.09	16.51

1937	M1.72	0.27	2.52	2.76	2.58	5.55	2.06	1.08	0.51	2.54	0.10	0.10	21.79
1938	0.80	1.25	1.37	2.77	5.78	2.18	4.93	3.75	3.59	0.11	1.52	0.22	28.27
1939	M0.41	M2.00	M0.80	0.95	1.95	3.16	4.91	M1.98	0.47	M0.47	0.03	1.28	18.41
1940	1.75	M0.68	M1.86	M3.09	0.71	3.96	0.31	3.87	0.85	2.38	M1.50	M0.04	21.00
1941	M2.78	M0.62	M0.32	3.52	2.13	4.63	1.88	2.88	M6.06	M2.47	1.64	M0.61	29.54
1942	0.52	2.05	M1.37	M0.70	2.04	M4.94	2.35	2.60	M4.96	0.43	0.50	1.01	23.47
1943	0.18	0.66	1.05	2.00	3.71	M4.70	6.39	0.66	0.36	0.97	0.89	0.02	21.59
1944	0.78	1.03	2.91	7.66	4.83	10.53	4.32	5.51	0.54	0.73	1.45	M0.84	41.13
1945	M0.89	1.84	1.93	4.47	8.85	6.11	4.49	0.86	3.75	0.10	0.11	1.23	34.63
1946	0.76	0.43	2.36	0.77	4.40	7.48	1.39	3.74	2.36	M4.45	M1.46	0.30	29.90
1947	1.47		1.19	5.34	5.64	10.16	2.34	1.08	2.18	2.44	1.68	1.60	35.12
1948	0.41	2.13	2.86	1.32	2.62	5.21	4.95	4.93	3.11	1.91	2.49	M1.65	33.59
1949	3.34	0.90	1.56	1.05	3.96	6.52	4.07	3.01	2.45	3.13	0.03	0.32	30.34
1950	1.18	2.07	0.91	1.31	4.17	2.30	7.58	6.08	0.58	1.34	0.71	0.50	28.73
1951	0.75	2.97	2.86	4.83	5.37	3.47	5.12	5.97	2.18	2.46	0.17	M1.74	37.89
1952	0.85	1.28	3.41	3.74	3.58	4.41	3.00	7.04	1.37	0.00	1.26	0.85	30.79
1953	1.23	1.25	1.73	2.72	1.85	2.94	0.96	3.01	1.14	1.21	1.67	1.79	21.50
1954	0.43	1.69	1.06	2.72	3.01	2.34	0.59	4.59	1.62	4.22	0.09	0.20	22.56
1955	0.78	0.85	1.07	3.31	1.58	4.85	2.21	0.94	3.79	0.29	0.07	0.59	20.33
1956	0.93	0.65	0.16	1.32	3.25	3.41	2.46	4.57	1.22	0.65	1.38	0.22	20.22
1957	0.63	0.25	3.00	1.18	2.16	9.04	3.87	6.06	3.40	3.32	2.57	0.40	35.88
1958	1.22	1.40	1.09	5.59	1.28	3.18	9.75	8.51	1.03	0.00	0.82	0.05	33.92
1959	0.54	0.62	3.72	4.28	8.83	4.05	3.48	10.63	2.67	2.19	0.50	1.01	42.52
1960	2.17	1.53	3.65	1.57	7.48	8.73	3.18	7.73	M3.20	0.34	0.36	0.15	40.09
1961	0.37	0.93	3.26	1.64	3.25	4.55	2.21	M3.88	4.70	2.77	1.54	1.71	30.81
1962	0.28	1.85	1.56	0.84	5.26	4.68	5.27	4.43	3.78	2.57	0.29	0.66	31.47
1963	1.65	0.29	3.17	1.57	1.88	10.73	1.48	3.36	2.42	0.52	0.05	0.65	27.77
1964	0.40	0.47	1.84	5.30	3.58	6.44	4.07	8.69	2.26		0.98	1.07	35.10
1965	0.74	1.38	2.91	3.98	5.91	5.84	4.14	1.22	13.66	0.72	0.77	0.94	42.21
1966	0.39	1.31	1.20	0.71	2.86	4.81	3.50	5.19	3.73	0.50	0.11	0.82	25.13
1967	0.65	0.20	0.51	2.11	3.74	12.60	1.99	2.41	3.54	2.38	0.12	0.94	31.19
1968	0.45	0.20	0.73	3.26	4.25	4.34	1.33	3.22	3.82	4.97	0.90	2.13	29.60
1969	0.99	1.22	0.57	2.88	3.25	2.48	2.72	4.28	1.40	2.90	0.15	1.38	24.22
1970	0.15	0.15	2.54	2.46	4.34	6.72	3.58	2.19	4.03	5.12	1.25	0.39	32.92

1971	1.68	3.63	0.86	0.88	7.56	5.13	2.52	0.77	1.31	3.70	2.24	0.79	31.07
1972	0.25	0.36	0.98	4.43	7.09	1.26	2.97	2.54	6.07	2.95	3.23	1.73	33.86
1973	1.69	0.80	4.16	2.67	6.33	1.90	4.91	0.61	7.67	3.63	2.45	1.33	38.15
1974	0.76	0.05	1.08	3.19	4.05	2.04	0.08	5.74	2.30	1.90	0.45	0.77	22.41
1975	2.01	1.04	1.54	3.32	4.13	4.30	1.73	4.21	2.06	0.13	4.03	0.64	29.14
1976	0.34	1.23	2.41	2.44	2.92	1.22	0.92	0.79	2.05	0.51	T	0.25	15.08
1977	0.59	0.11	3.16	2.47	7.76	2.07	4.50	9.12	4.71	2.94	3.27	1.30	42.00
1978	0.40	1.15	1.15	6.11	2.42	1.46	3.11	2.90	3.66	0.82	1.33	0.71	25.22
1979	1.31	0.27	4.46	3.85	2.58	2.82	3.02	4.51	0.87	5.59	1.04	0.44	30.76
1980	1.17	0.49	1.70	1.56	1.47	8.26	0.61	4.54	0.31	4.77	0.14	0.30	25.32
1981	T	0.47	1.56	1.31	4.65	2.34	2.65	7.44	2.03	0.88	2.08	0.98	26.39
1982	0.89	0.32	2.96	1.12	10.80	4.43	4.33	4.82	2.97	2.50	1.68	2.55	39.37
1983	1.40	1.01	4.85	2.24	4.50	6.24	0.77	2.62	3.34	2.21	3.68	0.77	33.63
1984	M0.29	1.22	2.57	6.69	6.17	7.97	2.37	0.66	1.30	7.04	1.15	3.14	40.57
1985	0.41	0.66	1.74	2.47	5.25	3.74	6.90	1.95	3.89	2.19	1.05	0.51	30.76
1986	MT	0.90	2.95	6.23	3.48	6.64	1.87	3.23	5.92	3.87	1.00	0.70	36.79
1987	0.11	0.31	7.29	1.28	5.10	4.32	2.71	7.00	2.59	0.58	1.16	0.97	33.42
1988	0.56	M0.23	T	2.14	2.83	2.80	2.18	0.89	6.21	0.05	2.15	0.92	20.96
1989	1.05	0.73	0.27	1.18	1.45	4.17	2.59	3.73	8.05	0.81	0.05	M0.42	24.50
1990	M0.42	0.08	2.62	0.22	3.32	4.20	7.00	M0.25	0.64	1.71	0.91	1.01	22.38
1991	1.10	0.20	3.12	3.79	3.19	9.88	3.12	2.28	1.24	1.35	3.38	1.94	34.59
1992	1.08	0.97	4.35	1.24	2.72	2.16	6.81	3.20	2.30	2.34	M2.46	0.80	30.43
1993	1.17	1.22	1.61	3.12	4.10	7.14	7.93	3.39	2.18	1.58	0.94	0.48	34.86
1994	0.58	0.37	0.07	1.34	1.45	6.62	3.97	3.28	3.36	2.22	2.21	1.18	26.65
1995	1.06	0.41	2.22	4.20	6.95	1.90	0.97	1.80	3.18	1.85	0.56	M0.49	25.59
1996	1.11	0.27	M1.06	2.00	7.41	4.32	1.47	3.68	2.29	0.53	0.84	0.42	25.40
1997	0.50	0.63	0.58	3.36	1.28	2.62	2.87	3.10	7.03	4.00	1.01	0.58	27.56
1998	1.26	0.35	2.71	3.85	2.55	7.25	6.89	1.46	0.71	2.67	1.64	0.42	31.76
1999	0.61	1.72	1.62	4.36	4.93	6.87	1.69	4.67	1.85	0.04	0.73	0.74	29.83
2000	0.32	1.94	0.61	1.90	1.68	4.59	7.22	1.84	0.79	M1.60	2.34	0.81	25.64
2001	M1.31	1.83	0.92	3.85	9.32	4.06	3.53	2.51	2.79	1.08	M1.94	0.35	33.49
2002	0.28	0.80	0.94	2.27	4.14	1.07	2.39	M5.32	0.74	3.50	0.20	T	21.65
2003	0.39	1.42	M0.54	2.73	6.36	5.68	2.21	1.01	3.14	1.35	1.25	0.61	26.69
2004	0.89	0.81	1.03	0.29	4.23	2.31	4.93	1.75	3.20	0.42	2.14	0.02	22.02

2005	0.62	M0.85	0.67	4.92	2.07	3.36	M3.12	2.01	2.12	1.68	1.39	0.95	23.76
2006	1.09	0.14	3.56	4.23	1.97	1.43	2.05	6.40	9.34	0.71	0.25	2.30	33.47
2007	0.93	1.54	2.30	4.62	6.30	1.90	2.47	10.33	2.21	4.01	0.01	2.30	38.92
2008	0.24	0.89	0.45	4.56	5.60	4.46	M1.47	0.46	4.03	5.40	1.12	M0.54	29.22
2009	0.32	0.59	0.38	2.20	0.81	7.04	1.57	6.36	2.26	3.99	0.02	2.70	28.24
2010	1.03	0.90	1.85	3.09	2.11	10.18	5.28	5.48	3.09	0.48	1.40	0.48	35.37
2011	1.55	0.43	0.81	3.35	5.89	5.52	3.00	4.16	0.60	0.67	0.67	1.38	28.03
2012	0.08	1.77	0.99	2.44	4.26	2.36	0.09	2.28	0.46	1.98	0.47	1.04	18.22
2013	0.24	0.55	1.87	4.72	6.75	3.30	0.56	2.88	0.94	5.73	1.23	0.15	28.92
2014	0.09	0.62	0.42	2.04	4.72	12.51	0.74	6.07	6.04	2.60	0.27	1.74	37.86
2015	0.08	1.14	0.26	4.72	8.56	3.73	3.36	4.02	3.90	0.74	2.82	4.34	37.67
2016	0.98	1.08	1.23	6.57	5.81	8.50	3.76	6.41	3.02	0.83	1.03	1.26	40.48
2017	1.00	0.72	2.22	2.28	7.33	2.90	3.12	4.37	4.71	4.54	0.32	0.43	33.94
2018	1.43	0.70	3.21	0.50	3.30	6.88	3.55	4.25	5.68	2.82	0.83	3.80	36.95
2019	0.24	1.64	2.47	1.24	7.55	6.10	2.38	4.54	5.84	4.78	1.43	2.20	40.41
2020	1.30	0.07	2.38	0.62	3.13	1.95	3.33	1.43	3.50	1.32	1.69	1.21	21.93
2021	1.40	0.86	5.29	2.34	4.39	2.15	7.33	4.84	0.40	5.67	0.23	0.61	35.51
2022	0.26	0.26	0.84	1.53	3.91	1.23	2.53	1.66	1.84	M0.08			14.14
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2022-10-28													

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	10/28/2022	**Landowner/Project**	Rawhide Creek
Weather Station	FREMONT, NE	**State**	Nebraska
County	Dodge	**Growing Season**	4/20 to 10/15
Photo/obs Date	11-Sep-10	**Soil Name**	See Figure 4, Appendix A

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

	Month	30% chance <	30% chance >	Precip	Condition **D**ry, **W**et, **N**ormal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	August	2.02	4.35	5.48	W	3	3	9
2nd Prior Month*	July	1.70	3.84	5.28	W	3	2	6
3rd Prior Month*	June	2.77	5.32	10.18	W	3	1	3
							Sum	**18**

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been wetter than normal**

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	10/28/2022	**Landowner/Project**	Rawhide Creek
Weather Station	FREMONT, NE	**State**	Nebraska
County	Dodge	**Growing Season**	4/20 to 10/15
Photo/obs Date	8-Aug-12	**Soil Name**	See Figure 4, Appendix A

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

	Month	30% chance <	30% chance >	Precip	Condition Dry, Wet, Normal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	July	1.70	3.84	0.09	D	1	3	3
2nd Prior Month*	June	2.77	5.32	2.36	D	1	2	2
3rd Prior Month*	May	3.10	5.49	4.26	N	2	1	2
							Sum	**7**

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been drier than normal**

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	10/28/2022	**Landowner/Project**	Rawhide Creek
Weather Station	FREMONT, NE	**State**	Nebraska
County	Dodge	**Growing Season**	4/20 to 10/15
Photo/obs Date	22-Oct-14	**Soil Name**	See Figure 4, Appendix A

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

	Month	30% chance <	30% chance >	Precip	Condition **D**ry, **W**et, **N**ormal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	September	1.69	3.82	6.04	W	3	3	9
2nd Prior Month*	August	2.02	4.35	6.07	W	3	2	6
3rd Prior Month*	July	1.70	3.84	0.74	D	1	1	1
							Sum	**16**

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been wetter than normal**

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	10/28/2022	**Landowner/Project**	Rawhide Creek
Weather Station	FREMONT, NE	**State**	Nebraska
County	Dodge	**Growing Season**	4/20 to 10/15
Photo/obs Date	17-Nov-18	**Soil Name**	See Figure 4, Appendix A

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

	Month	30% chance <	30% chance >	Precip	Condition **D**ry, **W**et, **N**ormal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	October	1.00	2.84	2.82	N	2	3	6
2nd Prior Month*	September	1.69	3.82	5.68	W	3	2	6
3rd Prior Month*	August	2.02	4.35	4.25	N	2	1	2
							Sum	**14**

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been normal**

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	10/28/2022	**Landowner/Project**	Rawhide Creek
Weather Station	FREMONT, NE	**State**	Nebraska
County	Dodge	**Growing Season**	4/20 to 10/15
Photo/obs Date	12-Sep-20	**Soil Name**	See Figure 4, Appendix A

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

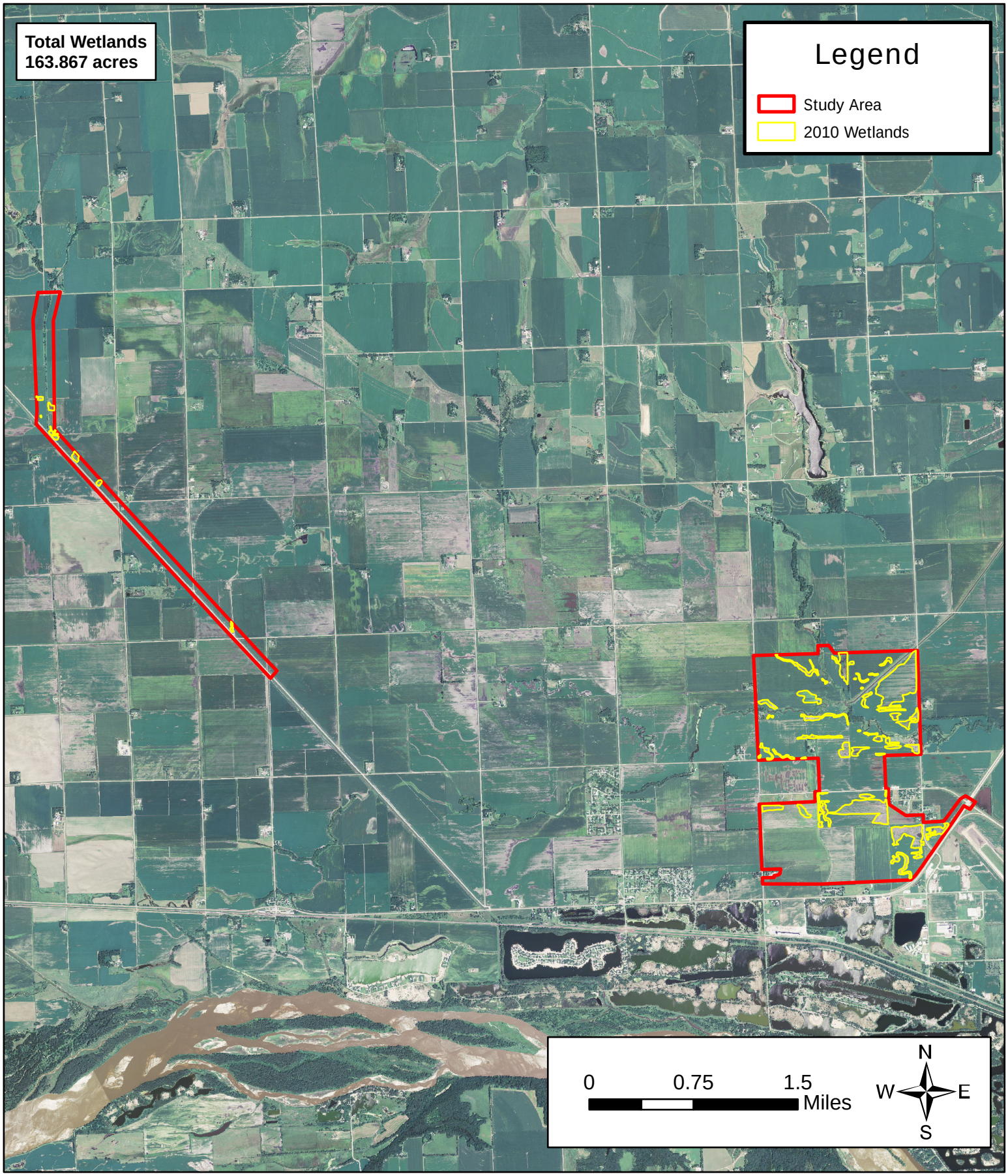
	Month	30% chance <	30% chance >	Precip	Condition **D**ry, **W**et, **N**ormal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	August	2.02	4.35	1.43	D	1	3	3
2nd Prior Month*	July	1.70	3.84	3.33	N	2	2	4
3rd Prior Month*	June	2.77	5.32	1.95	D	1	1	1
							Sum	**8**

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been drier than normal**



Created By: S. Anderson
Date: 1/8/2024
Software: ArcGIS Pro 3.1.1
File: 200881 Rawhide WFPO.aprx

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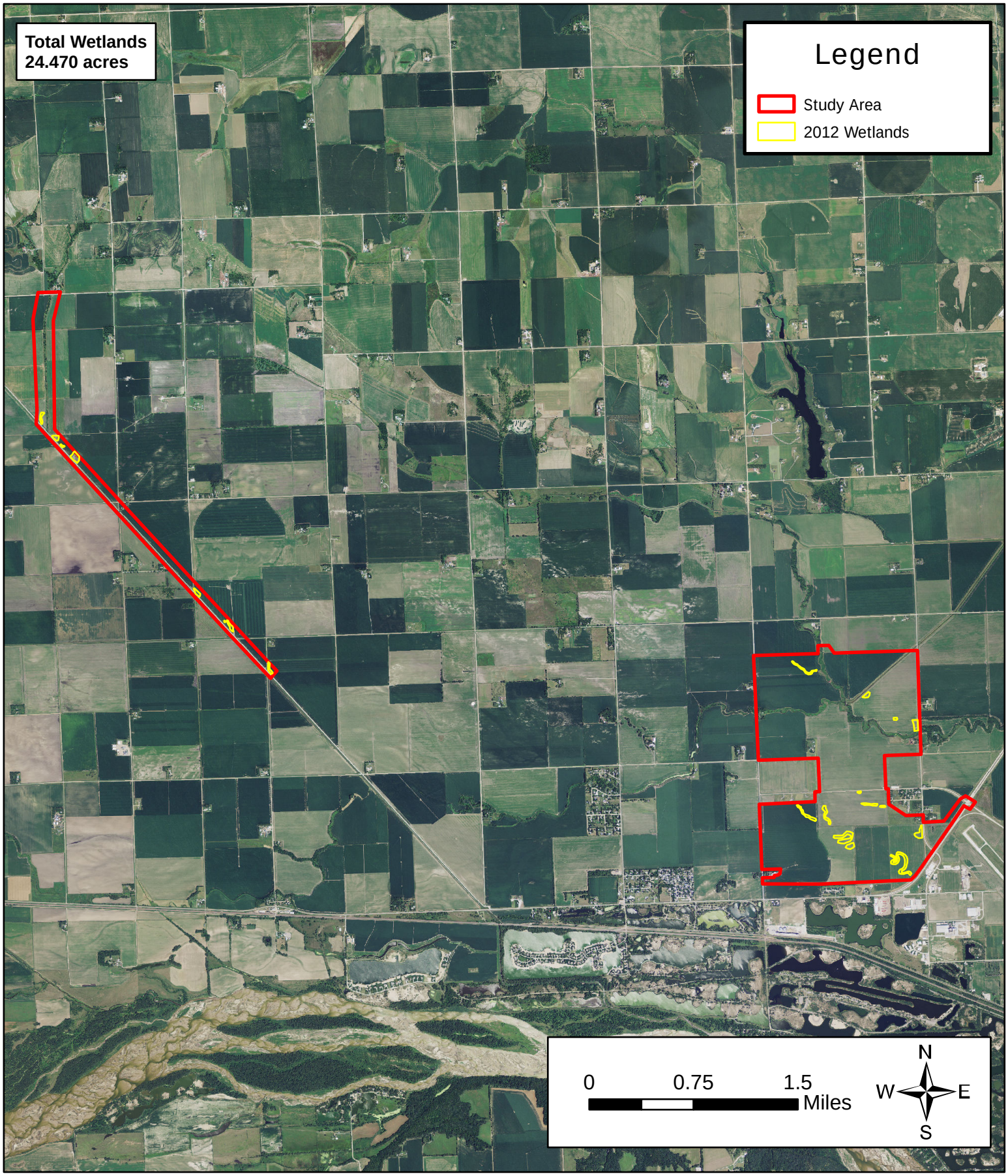
Rawhide Creek WFPO

Figure 1 - 2010 NAIP Imagery
Dodge County, Nebraska

JEO CONSULTING GROUP INC



Created By: S. Anderson
Date: 1/8/2024
Software: ArcGIS Pro 3.1.1
File: 200881 Rawhide WFPO.aprx

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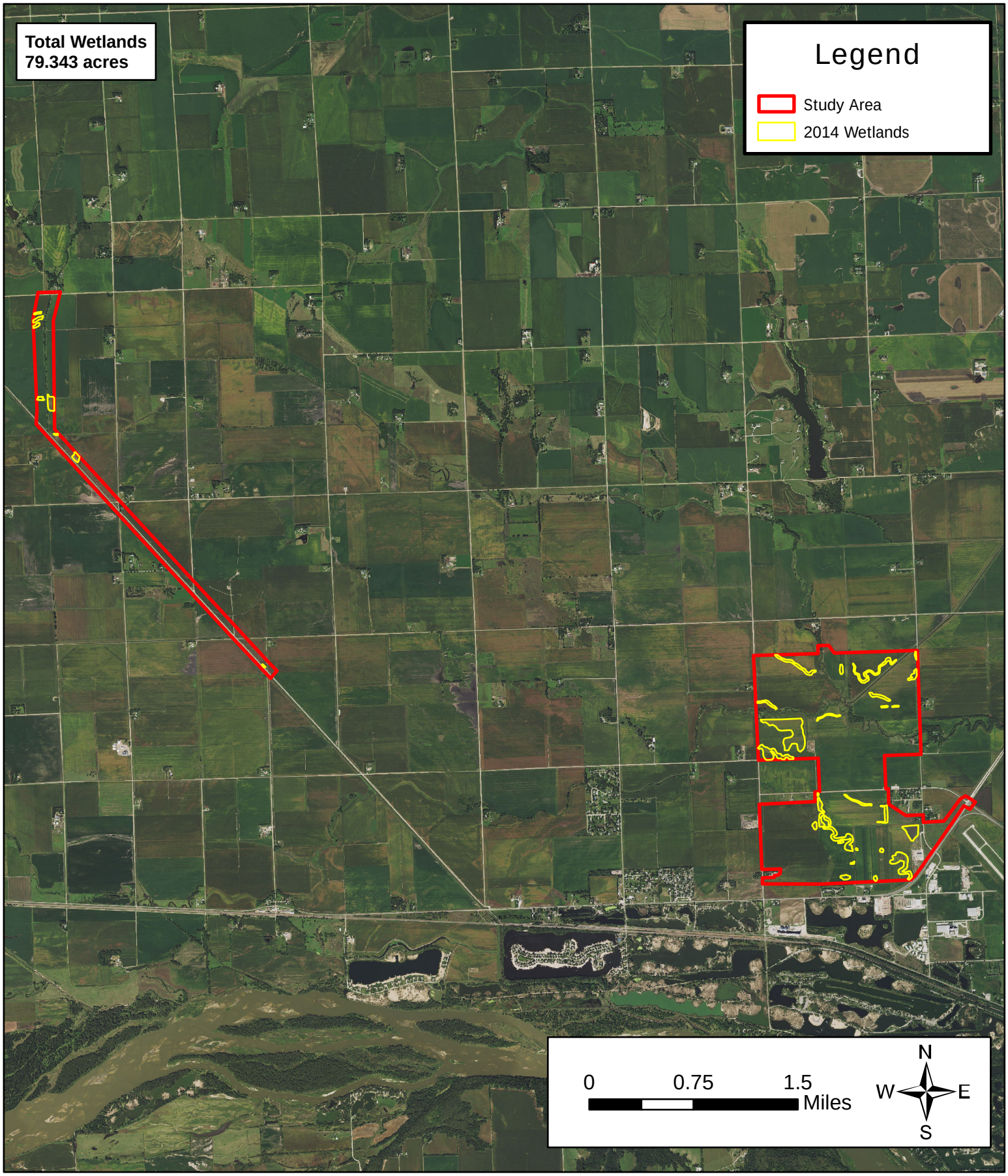
Rawhide Creek WFPO

Figure 2 - 2012 NAIP Imagery
Dodge County, Nebraska

JEO CONSULTING GROUP INC



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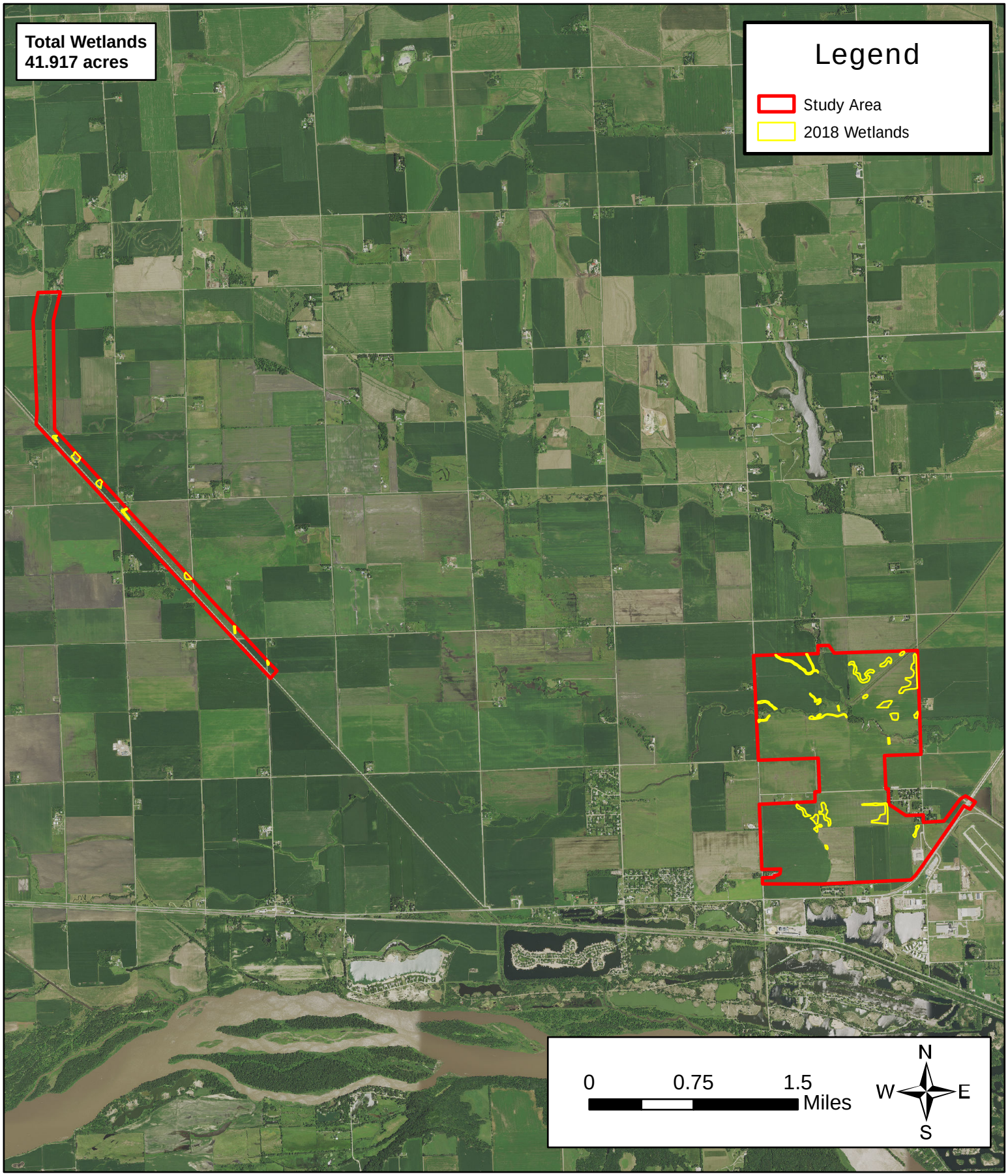
Rawhide Creek WFPO

Figure 3 - 2014 NAIP Imagery
Dodge County, Nebraska

JEO CONSULTING GROUP INC



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Software: ArcGIS Pro 3.1.1
File: 200881 Rawhide WFPO.aprx

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Rawhide Creek WFPO

Figure 4 - 2018 NAIP Imagery
Dodge County, Nebraska

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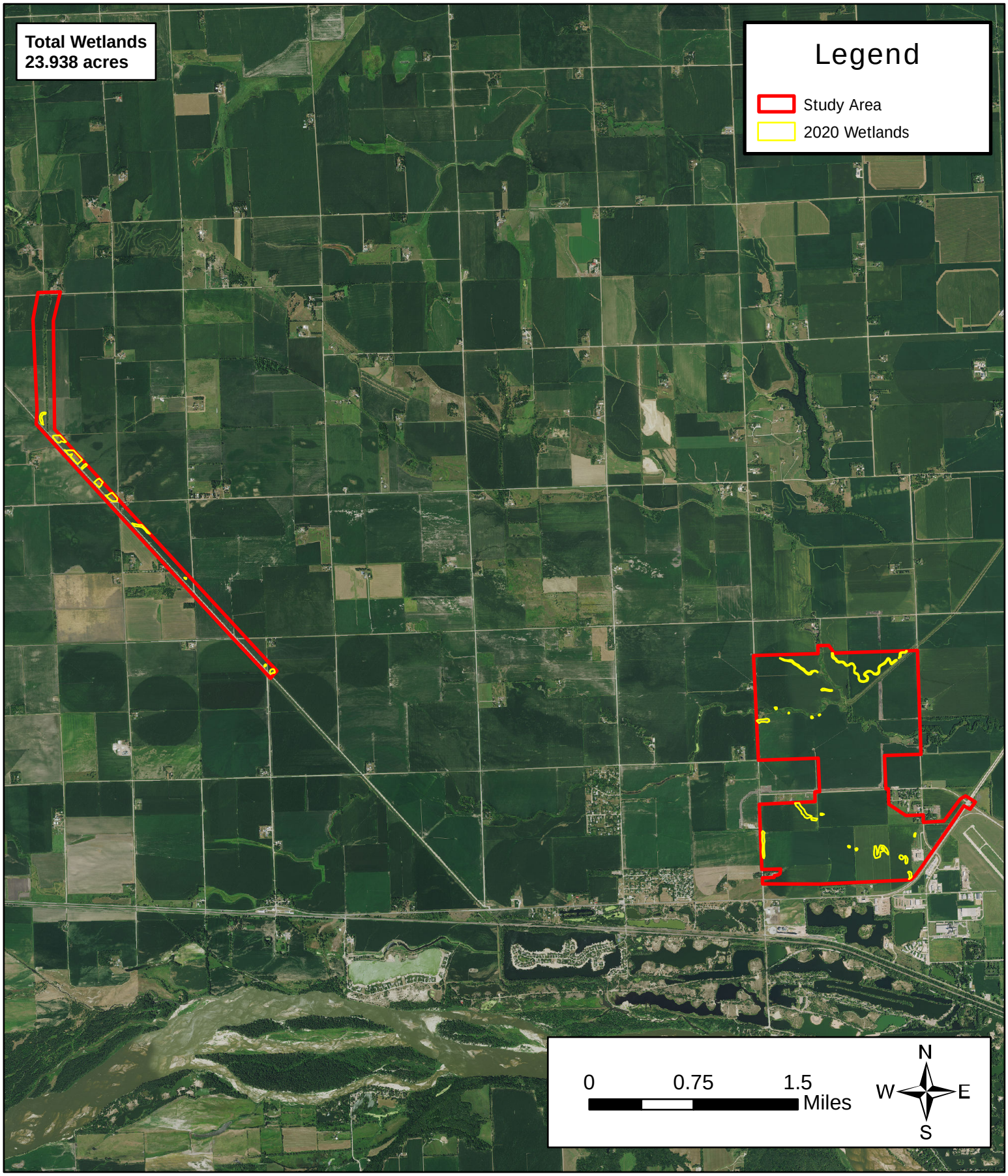

Created By: S. Anderson
Date: 1/8/2024
Software: ArcGIS Pro 3.1.1
File: 200881 Rawhide WFPO.aprx

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Rawhide Creek WFPO

Figure 5 - 2020 NAIP Imagery
Dodge County, Nebraska

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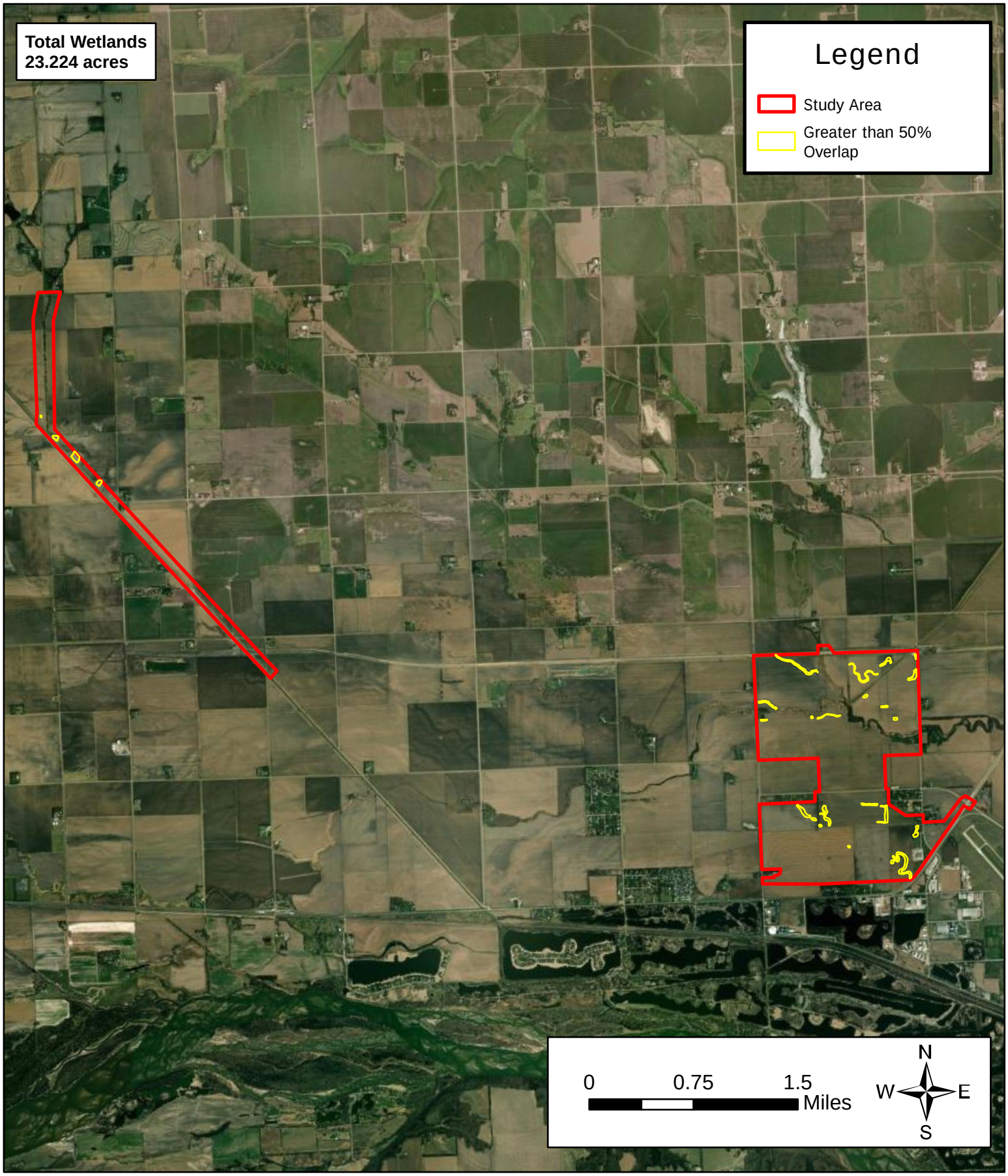

Created By: S. Anderson
Date: 1/8/2024
Software: ArcGIS Pro 3.1.1
File: 200881 Rawhide WFPO.aprx

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Rawhide Creek WFPO

Figure 6 - Greater than 50% Overlap
Dodge County, Nebraska

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Rawhide Creek WFPO - Aquatic Resources Impact Summary
Alternative: Detention Cell and Berm Improvements

Cutoff Road Raise and Brush Creek Dam Outfall Berm Improvements

Aquatic Resource Name	Cowardin Classification or Stream Type	Wetland Subclass	Avoidance and Minimization Measures Taken	Total Impacted Area (AC)	Impacts to USACE Jurisdictional Resources					Impacts to Non-USACE Jurisdictional Resources					
					Impact Area (AC)	Impact Type and Description	Compliance with Clean Water Act Section 404	Anticipated Mitigation Action*	Anticipated Mitigation Area (AC)*	Impact Area (AC)	Impact Type and Description	Compliance with Food Security Act (FSA) Swampbuster	Compliance with Executive Order (EO) 11990	Mitigation Action (if needed)	Mitigation Area (AC)
Wetland A	PEMA/C	Riverine Channel	All impacts have been avoided.	0.000	0.000	N/A	Project will be reviewed under CWA Section 404, a Nationwide Permit is anticipated from the USACE.	N/A	0.000	0.000	N/A	These wetlands are not currently farmed. Proposed activities will not increase the farmability of these wetlands or result in any conversion under FSA provisions. Potential lateral effects were analyzed using NRCS procedures to ensure there would be no induced draining of wetlands.	There will be no impact to these wetlands, and therefore no mitigation. As there is no change, this is not detrimental under EO 11990 provisions.	N/A	N/A
Wetland B	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland C	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland D	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland E	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland F	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland G	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland H	PEMA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Fremont Cutoff Ditch	Intermittent	N/A		0.000	0.000	N/A		N/A	0.000	0.000	N/A	No wetlands are present within this stream channel. FSA conversion effects to adjacent wetlands were analyzed separately.	No wetlands are present within this stream channel. EO 11990 effects to adjacent wetlands were analyzed separately.	N/A	N/A
Rawhide Creek	Intermittent	N/A		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Unnamed Stream	Intermittent	N/A		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A

Detention Cell

Aquatic Resource Name	Cowardin Classification or Stream Type	Wetland Subclass	Avoidance and Minimization Measures Taken	Total Impacted Area (AC)	Impacts to USACE Jurisdictional Resources					Impacts to Non-USACE Jurisdictional Resources					
					Impact Area (AC)	Impact Type and Description	Compliance with Clean Water Act Section 404	Anticipated Mitigation Action*	Anticipated Mitigation Area (AC)*	Impact Area (AC)	Impact Type and Description	Compliance with Food Security Act (FSA) Swampbuster	Compliance with Executive Order (EO) 11990	Mitigation Action (if needed)	Mitigation Area (AC)
Wetland I	PEMA/C	Floodplain Depression	Impacts have been minimized to the greatest extent possible by limiting the grading extents of the detention cell.	3.201	3.201	Fill placement of spoil materials.	Project will be reviewed under CWA Section 404, an Individual Permit is anticipated from the USACE.	3:1 wetland creation	9.603	0.000	N/A	These wetlands are currently farmed. Proposed activitities will not increase the farmability or result in any coversion under FSA provisions.	Impacts to these wetlands will be adequately replaced by new wetlands which will be established for the purpose of mitigation. Therefore, this change is not detrimental under EO 11990 provisions.	N/A	N/A
Wetland J	PEMA/C	Floodplain Depression		0.109	0.109	Potential lateral drainage.		3:1 wetland creation	0.327	0.000	N/A			N/A	N/A
Wetland K	PEMA/C	Riverine Channel		0.268	0.268	Excavation of detention cell and fill placement for berm.		3:1 wetland creation	0.804	0.000	N/A	This wetland is not currently farmed. Proposed activities will not increase the farmability or result in any conversion under FSA provisions.		N/A	N/A
Wetland L	PEMA/C	Floodplain Depression		1.932	1.932			3:1 wetland creation	5.796	0.000	N/A	This wetland is currently farmed. Proposed activities will not increase the farmability or result in any conversion under FSA provisions.		N/A	N/A
Wetland M	PEMA/C	Riverine Channel	All impacts have been avoided.	0.000	0.000	N/A		N/A	0.000	0.000	N/A	These wetlands are not currently farmed. Proposed activities will not increase the farmability or result in any conversion under FSA provisions.		N/A	N/A
Wetland N	PFOA/C	Riverine Channel		0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Wetland O	PEMA/C	Riverine Channel	Impacts have been minimized to the greatest extent possible by limiting the grading extents of the detention cell.	1.035	1.035	Excavation, fill placement for berm, and lateral drainage.		3:1 wetland creation	3.105	0.000	N/A			N/A	N/A
Wetland P	PEMA/C	Riverine Channel		0.908	0.908			3:1 wetland creation	2.724	0.000	N/A			N/A	N/A
Wetland Q	PEMA/C	Riverine Channel		0.041	0.041			3:1 wetland creation	0.123	0.000	N/A			N/A	N/A
Wetland R	PEMA/C	Floodplain Depression	All impacts have been avoided.	0.000	0.000	N/A		N/A	0.000	0.000	N/A			N/A	N/A
Rawhide Creek	Intermittent	N/A	Impacts have been minimized to the greatest extent possible by not grading below the ordinary high water mark except where unavoidable.	0.076	0.076	Excavation & fill placement for installation of outlet features.		Channel improvements	N/A	0.000	N/A	Wetlands are present within this stream channel. FSA conversion effects to adjacent wetlands were analyzed separately.	Wetlands are present within this stream channel. EO 11990 effects to adjacent wetlands were analyzed separately.	N/A	N/A
Unnamed Stream	Intermittent	N/A		0.019	0.019			Channel improvements	N/A	0.000	N/A			N/A	N/A

Total Project Impacts

Aquatic Resource	Cutoff Rd / Berms (AC)	Detention Cell (AC)	Total (AC)
Wetlands by Cowardin Classification			
PEMA/C	0.000	7.494	7.494
PFOA/C	0.000	0.000	0.000
Wetlands by Subclass			
Floodplain Depression	0.000	5.242	5.242
Riverine Channel	0.000	2.252	2.252
Streams and Waterbodies			
Intermittent Stream	0.000	0.095	0.095

***Note: Anticipated mitigation ratios are subject to change during final permitting.**

-Impacts, avoidance and minimization details, and compliance information is included in the accompanying table.

Total Direct Wetland Impact: 0.000 ac
Total Stream Impact: 0.000 ac
Total Lateral Drainage Impact: 0.000 ac

Legend
- Affected Resource Area
- Grading Extents
- Ordinary High Water Mark
- PEM Wetlands

Co Rd 14
Co Rd P Blvd
Wetland H
Wetland G
Wetland F
Wetland E
Co Rd 14 Blvd
Co Rd 15
Cutoff Rd
Wetland D
DRAFT
Co Rd R
Wetland A
Wetland C
Co Rd 14
Co Rd S
Co Rd 14 Blvd
Wetland B
Co Rd 15 Blvd

0 0.25 0.5 Miles
N

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Date: 1/17/2024
Software: ArcGIS 10.8.1

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Berm/Road Raise Aquatic Impacts

Rawhide Creek WFPO

JEO CONSULTING GROUP INC

-Impacts, avoidance and minimization details, and compliance information is included in the accompanying table.

Total Wetland Impact: 7.494 ac
Total Stream Impact: 0.095 ac

Co Rd S
Co Rd 19
County Rd 20 Ave
E Co Rd T
T Rd
T Blvd
County Rd T Ave
US Hwy 30
W Hwy 30
W Military Ave

Wetland Q
Wetland R
Wetland P
Wetland N
Wetland M
Wetland O
Wetland K
Wetland L
Wetland J
Wetland I

DRAFT

Legend
- Impacted Areas
- Affected Resource Area
- PEM Wetlands
- PFO Wetlands
- Ordinary High Water Mark
- Grading Extents
- Spoil Materials

0 0.25 0.5 Miles
N

Created By: DJV
Date: 4/9/2024
Software: ArcGIS 10.8.1

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Detention Cells Aquatic Impacts

Rawhide Creek WFPO

JEO CONSULTING GROUP INC

-Impacts, avoidance and minimization details, and compliance information is included in the accompanying table.

Total Wetland Impact: 7.494 ac
Total Stream Impact: 0.095 ac

Potential areas for mitigation of wetland impacts.

Potential stream reach for mitigation of stream impacts.

Potential stream reach for mitigation of stream impacts.

Potential areas for mitigation of wetland impacts.

Co Rd S

Co Rd 19

County Rd 20 Ave

E Co Rd T

T Rd

County Rd T Ave

T Blvd

US Hwy 30

W Hwy 30

W Military Ave

DRAFT

0 0.25 0.5 Miles

N

Legend

- Potential Mitigation Areas
- Impacted Areas
- Affected Resource Area
- PEM Wetlands
- PFO Wetlands
- Ordinary High Water Mark
- Grading Extents
- Spoil Materials

Created By: DJV
Date: 4/9/2024
Software: ArcGIS 10.8.1

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Detention Cells Aquatic Impacts

Rawhide Creek WFPO

JEO CONSULTING GROUP INC

Summary of Consumptive Use Calculations - Rawhide Creek WFPO - Detention Cell with Berm Improvements Alternative

		Evapotranspiration (ac-ft)									
Site	**Condition**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**Total**
Detention Cell	Prior	12.120	38.113	69.532	117.875	188.073	171.831	109.224	40.180	3.998	**750.946**
	Post	10.890	34.220	83.741	158.780	164.326	136.048	71.878	26.331	3.593	**689.807**
	Monthly Depletion	0.000	0.000	14.209	40.905	0.000	0.000	0.000	0.000	0.000	**55.114**

ID Rawhide Detention Cell Date 4/22/2024

Soil Type Silt Loam

Area 7

Prior or Post Prior

Fw = 1 Rain / Sprinkler

Fw = 0.5 Every Other Row Furrow

Month	Cover	Days	Acres	Time Weighting Factor	Month #	Residue %	Days Residue	Wet Int. (days)	Fw Fraction	Kcb	Ksoil	Kw cover	Kw soil	Ka	Eto (in)	Etc (in)	Evap. (acre feet)
March	Bare Soil	31	0.07	1	3	0	31	8	1	0.250	0.250	0.211	0.345	0.595	0.031	0.572	0.003
March	C Corn	31	299.7	1	3	40	31	8	1	0.000	0.200	0.000	0.276	0.476	0.031	0.458	11.432
March	WetEast Cattail/Bulrush Moist	31	20.32	1	3	95	31	8	1	0.000	0.131	0.000	0.181	0.313	0.031	0.300	0.509
March	Water Shallow	31	0.97	1	3	0	0	8	1	1.050	0.000	0.000	0.000	1.050	0.031	1.009	0.082
March	Grass Pasture Good	31	3.77	1	3	95	31	8	1	0.000	0.131	0.000	0.181	0.313	0.031	0.300	0.094
March		0		1	3	0	0	8	1	0.000	0.000	0.000	0.000	0.000	0.031	0.000	0.000
April	Bare Soil	30	0.07	1	4	0	30	6	1	0.250	0.250	0.281	0.347	0.597	0.100	1.792	0.010
April	C Corn	30	299.7	1	4	40	30	6	1	0.000	0.200	0.000	0.278	0.478	0.100	1.434	35.805
April	WetEast Cattail/Bulrush Moist	30	20.32	1	4	95	11	6	1	0.308	0.131	0.136	0.182	0.327	0.100	0.981	1.661
April	Water Shallow	30	0.97	1	4	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.100	3.150	0.255
April	Grass Pasture Good	30	3.77	1	4	95	10	6	1	0.429	0.131	0.112	0.182	0.405	0.100	1.216	0.382
April	0	0	0	1	4	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.100	0.000	0.000
May	Bare Soil	31	0.07	1	5	0	31	4	1	0.250	0.250	0.402	0.338	0.588	0.151	2.750	0.016
May	C Corn	31	299.7	1	5	40	5	4	1	0.253	0.200	0.320	0.270	0.515	0.151	2.410	60.194
May	WetEast Cattail/Bulrush Moist	31	20.32	1	5	95	0	4	1	0.950	0.000	0.014	0.000	0.956	0.151	4.476	7.579
May	Water Shallow	31	0.97	1	5	0	0	4	1	1.050	0.000	0.000	0.000	1.050	0.151	4.915	0.397
May	Grass Pasture Good	31	3.77	1	5	95	0	4	1	0.904	0.000	0.027	0.000	0.915	0.151	4.285	1.346
May	0	0	0	1	5	0	0	4	1	0.000	0.000	0.000	0.000	0.000	0.151	0.000	0.000
June	Bare Soil	30	0.07	1	6	0	30	5	1	0.250	0.250	0.338	0.306	0.556	0.213	3.553	0.021
June	C Corn	30	299.7	1	6	40	0	5	1	0.493	0.000	0.183	0.000	0.642	0.213	4.101	102.412
June	WetEast Cattail/Bulrush Moist	30	20.32	1	6	95	0	5	1	1.200	0.000	0.000	0.000	1.200	0.213	7.668	12.984
June	Water Shallow	30	0.97	1	6	0	0	5	1	1.050	0.000	0.000	0.000	1.050	0.213	6.710	0.542
June	Grass Pasture Good	30	3.77	1	6	95	0	5	1	0.950	0.000	0.012	0.000	0.954	0.213	6.095	1.915
June	0	0	0	1	6	0	0	5	1	0.000	0.000	0.000	0.000	0.000	0.213	0.000	0.000
July	Bare Soil	31	0.07	1	7	0	31	6	1	0.250	0.250	0.281	0.241	0.491	0.215	3.274	0.019
July	C Corn	31	299.7	1	7	40	0	6	1	1.033	0.000	0.000	0.000	1.033	0.215	6.885	171.952
July	WetEast Cattail/Bulrush Moist	31	20.32	1	7	95	0	6	1	1.200	0.000	0.000	0.000	1.200	0.215	7.998	13.543
July	Water Shallow	31	0.97	1	7	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.215	6.998	0.566
July	Grass Pasture Good	31	3.77	1	7	95	0	6	1	0.950	0.000	0.010	0.000	0.952	0.215	6.345	1.993
July	0	0	0	1	7	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.215	0.000	0.000
August	Bare Soil	31	0.07	1	8	0	31	6	1	0.250	0.250	0.281	0.259	0.509	0.178	2.806	0.016
August	C Corn	31	299.7	1	8	40	0	6	1	1.150	0.000	0.000	0.000	1.150	0.178	6.346	158.484
August	WetEast Cattail/Bulrush Moist	31	20.32	1	8	95	0	6	1	1.200	0.000	0.000	0.000	1.200	0.178	6.622	11.213
August	Water Shallow	31	0.97	1	8	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.178	5.794	0.468
August	Grass Pasture Good	31	3.77	1	8	95	0	6	1	0.950	0.000	0.010	0.000	0.952	0.178	5.253	1.650
August	0	0	0	1	8	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.178	0.000	0.000
September	Bare Soil	30	0.07	1	9	0	30	6	1	0.250	0.250	0.281	0.283	0.533	0.127	2.030	0.012
September	C Corn	30	299.7	1	9	40	0	6	1	1.051	0.000	0.000	0.000	1.051	0.127	4.004	100.008
September	WetEast Cattail/Bulrush Moist	30	20.32	1	9	95	0	6	1	1.200	0.000	0.000	0.000	1.200	0.127	4.572	7.742
September	Water Shallow	30	0.97	1	9	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.127	4.001	0.323
September	Grass Pasture Good	30	3.77	1	9	95	0	6	1	0.950	0.000	0.010	0.000	0.952	0.127	3.627	1.139
September	0	0	0	1	9	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.127	0.000	0.000
October	Bare Soil	31	0.07	1	10	0	31	8	1	0.250	0.250	0.211	0.221	0.471	0.076	1.110	0.006
October	C Corn	31	299.7	1	10	40	11	8	1	0.694	0.200	0.069	0.177	0.613	0.076	1.444	36.054
October	WetEast Cattail/Bulrush Moist	31	20.32	1	10	95	0	8	1	0.875	0.000	0.018	0.000	0.874	0.076	2.058	3.485
October	Water Shallow	31	0.97	1	10	0	0	8	1	1.050	0.000	0.000	0.000	1.050	0.076	2.474	0.200
October	Grass Pasture Good	31	3.77	1	10	95	16	8	1	0.950	0.131	0.007	0.116	0.587	0.076	1.383	0.435
October	0	0	0	1	10	0	0	8	1	0.000	0.000	0.000	0.000	0.000	0.076	0.000	0.000
November	Bare Soil	30	0.07	1	11	0	30	15	1	0.250	0.250	0.113	0.198	0.448	0.014	0.188	0.001
November	C Corn	30	299.7	1	11	40	30	15	1	0.000	0.200	0.000	0.159	0.359	0.014	0.151	3.763
November	WetEast Cattail/Bulrush Moist	30	20.32	1	11	95	30	15	1	0.000	0.131	0.000	0.104	0.235	0.014	0.099	0.167
November	Water Shallow	30	0.97	1	11	0	0	15	1	1.050	0.000	0.000	0.000	1.050	0.014	0.441	0.036
November	Grass Pasture Good	30	3.77	1	11	95	30	15	1	0.000	0.131	0.000	0.104	0.235	0.014	0.099	0.031
November	0	0	0	1	11	0	0	15	1	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000

Total All Months (acre ft) 750.947

Total Feb - July (acre ft) 425.713

For Covers Listed in Order	**Total (acre ft)**	0.11
All 9 Month Totals	**Total (acre ft)**	680.10
	Total (acre ft)	58.88
	Total (acre ft)	2.87
	Total (acre ft)	8.99
	Total (acre ft)	0.00

For Covers Listed in Order	**Total (acre ft)**	0.07
Feb - July Month Totals	**Total (acre ft)**	381.79
	Total (acre ft)	36.28
	Total (acre ft)	1.84
	Total (acre ft)	5.73
	Total (acre ft)	0.00

ID Rawhide Detention Cell Date 4/22/2024

Soil Type Silt Loam

Area 7

Fw = 1 Rain / Sprinkler

Fw = 0.5 Every Other Row Furrow

Prior or Post				Time Weighting		Residue	Days	Wet Int.	Fw	Kcb	Ksoil	Kw	Kw	Ka	Eto	Etc	Evap.
Month	Post Cover	Days	Acres	Factor	Month #	%	Residue	(days)	Fraction			cover	soil		(in)	(in)	(acre feet)
March	Bare Soil	31	0.13	1	3	0	31	8	1	0.250	0.250	0.211	0.345	0.595	0.031	0.572	0.006
March	WetEast Short Veg Moist	31	22.482	1	3	95	31	8	1	0.000	0.131	0.000	0.181	0.313	0.031	0.300	0.563
March	WetEast Cattail/Bulrush Moist	31	18.118	1	3	95	31	8	1	0.000	0.131	0.000	0.181	0.313	0.031	0.300	0.454
March	Water Shallow	31	0.93	1	3	0	0	8	1	1.050	0.000	0.000	0.000	1.050	0.031	1.009	0.078
March	Grass Warm Short	31	283.17	1	3	55	31	8	1	0.000	0.181	0.000	0.250	0.432	0.031	0.415	9.789
March		0		1	3	0	0	8	1	0.000	0.000	0.000	0.000	0.000	0.031	0.000	0.000
April	Bare Soil	30	0.13	1	4	0	30	6	1	0.250	0.250	0.281	0.347	0.597	0.100	1.792	0.019
April	WetEast Short Veg Moist	30	22.482	1	4	95	11	6	1	0.302	0.131	0.137	0.182	0.323	0.100	0.970	1.817
April	WetEast Cattail/Bulrush Moist	30	18.118	1	4	95	11	6	1	0.308	0.131	0.136	0.182	0.327	0.100	0.981	1.481
April	Water Shallow	30	0.93	1	4	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.100	3.150	0.244
April	Grass Warm Short	30	283.17	1	4	55	30	6	1	0.000	0.181	0.000	0.252	0.433	0.100	1.299	30.658
April	0	0	0	1	4	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.100	0.000	0.000
May	Bare Soil	31	0.13	1	5	0	31	4	1	0.250	0.250	0.402	0.338	0.588	0.151	2.750	0.030
May	WetEast Short Veg Moist	31	22.482	1	5	95	0	4	1	0.877	0.000	0.035	0.000	0.892	0.151	4.176	7.824
May	WetEast Cattail/Bulrush Moist	31	18.118	1	5	95	0	4	1	0.950	0.000	0.014	0.000	0.956	0.151	4.476	6.758
May	Water Shallow	31	0.93	1	5	0	0	4	1	1.050	0.000	0.000	0.000	1.050	0.151	4.915	0.381
May	Grass Warm Short	31	283.17	1	5	55	0	4	1	0.463	0.000	0.209	0.000	0.622	0.151	2.913	68.749
May	0	0	0	1	5	0	0	4	1	0.000	0.000	0.000	0.000	0.000	0.151	0.000	0.000
June	Bare Soil	30	0.13	1	6	0	30	5	1	0.250	0.250	0.338	0.306	0.556	0.213	3.553	0.038
June	WetEast Short Veg Moist	30	22.482	1	6	95	0	5	1	1.100	0.000	0.000	0.000	1.100	0.213	7.029	13.169
June	WetEast Cattail/Bulrush Moist	30	18.118	1	6	95	0	5	1	1.200	0.000	0.000	0.000	1.200	0.213	7.668	11.577
June	Water Shallow	30	0.93	1	6	0	0	5	1	1.050	0.000	0.000	0.000	1.050	0.213	6.710	0.520
June	Grass Warm Short	30	283.17	1	6	55	0	5	1	0.850	0.000	0.049	0.000	0.885	0.213	5.656	133.476
June	0	0	0	1	6	0	0	5	1	0.000	0.000	0.000	0.000	0.000	0.213	0.000	0.000
July	Bare Soil	31	0.13	1	7	0	31	6	1	0.250	0.250	0.281	0.241	0.491	0.215	3.274	0.035
July	WetEast Short Veg Moist	31	22.482	1	7	95	0	6	1	1.100	0.000	0.000	0.000	1.100	0.215	7.332	13.736
July	WetEast Cattail/Bulrush Moist	31	18.118	1	7	95	0	6	1	1.200	0.000	0.000	0.000	1.200	0.215	7.998	12.076
July	Water Shallow	31	0.93	1	7	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.215	6.998	0.542
July	Grass Warm Short	31	283.17	1	7	55	0	6	1	0.850	0.000	0.041	0.000	0.877	0.215	5.845	137.937
July	0	0	0	1	7	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.215	0.000	0.000
August	Bare Soil	31	0.13	1	8	0	31	6	1	0.250	0.250	0.281	0.259	0.509	0.178	2.806	0.030
August	WetEast Short Veg Moist	31	22.482	1	8	95	0	6	1	1.100	0.000	0.000	0.000	1.100	0.178	6.070	11.372
August	WetEast Cattail/Bulrush Moist	31	18.118	1	8	95	0	6	1	1.200	0.000	0.000	0.000	1.200	0.178	6.622	9.998
August	Water Shallow	31	0.93	1	8	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.178	5.794	0.449
August	Grass Warm Short	31	283.17	1	8	55	0	6	1	0.850	0.000	0.041	0.000	0.877	0.178	4.839	114.199
August	0	0	0	1	8	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.178	0.000	0.000
September	Bare Soil	30	0.13	1	9	0	30	6	1	0.250	0.250	0.281	0.283	0.533	0.127	2.030	0.022
September	WetEast Short Veg Moist	30	22.482	1	9	95	0	6	1	1.100	0.000	0.000	0.000	1.100	0.127	4.191	7.852
September	WetEast Cattail/Bulrush Moist	30	18.118	1	9	95	0	6	1	1.200	0.000	0.000	0.000	1.200	0.127	4.572	6.903
September	Water Shallow	30	0.93	1	9	0	0	6	1	1.050	0.000	0.000	0.000	1.050	0.127	4.001	0.310
September	Grass Warm Short	30	283.17	1	9	55	15	6	1	0.850	0.181	0.041	0.205	0.632	0.127	2.407	56.792
September	0	0	0	1	9	0	0	6	1	0.000	0.000	0.000	0.000	0.000	0.127	0.000	0.000
October	Bare Soil	31	0.13	1	10	0	31	8	1	0.250	0.250	0.211	0.221	0.471	0.076	1.110	0.012
October	WetEast Short Veg Moist	31	22.482	1	10	95	0	8	1	0.913	0.000	0.013	0.000	0.912	0.076	2.149	4.026
October	WetEast Cattail/Bulrush Moist	31	18.118	1	10	95	0	8	1	0.875	0.000	0.018	0.000	0.874	0.076	2.058	3.108
October	Water Shallow	31	0.93	1	10	0	0	8	1	1.050	0.000	0.000	0.000	1.050	0.076	2.474	0.192
October	Grass Warm Short	31	283.17	1	10	55	31	8	1	0.000	0.181	0.000	0.160	0.342	0.076	0.805	18.994
October	0	0	0	1	10	0	0	8	1	0.000	0.000	0.000	0.000	0.000	0.076	0.000	0.000
November	Bare Soil	30	0.13	1	11	0	30	15	1	0.250	0.250	0.113	0.198	0.448	0.014	0.188	0.002
November	WetEast Short Veg Moist	30	22.482	1	11	95	30	15	1	0.000	0.131	0.000	0.104	0.235	0.014	0.099	0.185
November	WetEast Cattail/Bulrush Moist	30	18.118	1	11	95	30	15	1	0.000	0.131	0.000	0.104	0.235	0.014	0.099	0.149
November	Water Shallow	30	0.93	1	11	0	0	15	1	1.050	0.000	0.000	0.000	1.050	0.014	0.441	0.034
November	Grass Warm Short	30	283.17	1	11	55	30	15	1	0.000	0.181	0.000	0.144	0.325	0.014	0.137	3.222
November	0	0	0	1	11	0	0	15	1	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000
																Total All Months (acre ft)	689.808
																Total Feb - July (acre ft)	451.957

For Covers Listed in Order	**Total (acre ft)**	0.20
All 9 Month Totals	**Total (acre ft)**	60.54
	Total (acre ft)	52.50
	Total (acre ft)	2.75
	Total (acre ft)	573.82
	Total (acre ft)	0.00

For Covers Listed in Order	**Total (acre ft)**	0.13
Feb - July Month Totals	**Total (acre ft)**	37.11
	Total (acre ft)	32.35
	Total (acre ft)	1.77
	Total (acre ft)	380.61
	Total (acre ft)	0.00

Thiele Geotech Inc

Preliminary Geotechnical Exploration Report

Rawhide Creek Watershed WFPO

Various Locations
Fremont, Nebraska

Prepared for:
JEO Consulting Group
11213 Davenport Street, Suite 200
Omaha, NE 68154

April 25, 2024
TG Project No. 23215.01

NE Firm #CA-0080E

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Preliminary Geotechnical Exploration Report

Rawhide Creek Watershed WFPO

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INTRODUCTION

Thiele Geotech, Inc. has completed a preliminary geotechnical exploration study for the proposed Rawhide Creek Watershed WFPO project to be located near Fremont, Nebraska. The purpose of this study was to discuss the general soil and ground water conditions underlying the site; to present the relevant engineering properties of the existing soils; provide preliminary earthwork and site preparation recommendations; and discuss general geotechnical considerations for the proposed improvements. Additional borings will be required to develop final recommendations after more design information is available.

This study included soil borings, laboratory testing, and engineering analysis. A series of 18 test borings was spaced across the project site at strategic locations. The field and laboratory data are presented in the Appendix, along with a description of investigative methods.

The drilling and testing performed for this study were conducted solely for geotechnical analysis. No analytical testing or environmental assessment has been conducted. Any statements or observations in this report regarding odors, discoloration, or suspicious conditions are strictly for the information of our client. If an evaluation of environmental conditions is desired, a separate environmental assessment should be conducted. This study did not include biological assessment (e.g. mold, fungi, bacteria) or evaluation of measures for their control.

It should also be noted that this report was prepared for design purposes only, and may not be sufficient for a contractor in bid preparation. Prospective contractors should evaluate potential construction problems on the basis of their own knowledge and experience in the local area and on similar projects, taking into account their own intended construction methods and procedures.

This report is an instrument of service prepared for use by our client on this specific project. The report may be duplicated as necessary and distributed to those directly associated with this project, including members of the design team and prospective contractors. However, the technical approach and report format shall be considered proprietary and confidential, and this report may not be distributed in whole or in part to any third party not directly associated with this project. By using and relying on this report, all other parties agree to the same terms, conditions, and limitations to which the client has agreed.

PROJECT DESCRIPTION

Our understanding of the project is based upon information provided by JEO Consulting Group.

The project consists of evaluating soil conditions at several potential project sites within the Rawhide Creek watershed near Fremont, Nebraska. At the time of this report, various alternative options are being considered as part of the Watershed and Flood Prevention Operations (WFPO) program. These options include raising existing roads, constructing berms, construction of detention basins, and constructing various structures, which are summarized below.

- ***Project 1 – Cutoff Road***
  Cutoff Road, which runs parallel with the Fremont Cutoff Ditch, will be raised and widened to the north along an approximate 2.3-mile stretch between County Road 15 Boulevard and the Brush Creek Dam outfall ditch. These improvements will require fill placement of up to 5 feet to establish proposed roadway grades.

- ***Project 2 – Brush Creek Earthen Berms***
  Earthen berms will be constructed along the east side of the Brush Creek Dam outfall ditch. The berms are anticipated to be approximately 2 feet tall across its entire approximately 1-mile length and have a top width of 10 feet with 3(H):1(V) side slopes. Berm construction will primarily consist of fill placement, with maximum depths estimated at approximately 8 feet.

- ***Project 3 – Detention Basins***
  Two detention basins will be constructed northwest of the City of Fremont. The north basin will be located in the western half of the square mile section located southeast of the County Roads S and 19 intersection. The south basin will be situated on the south side of County Road T Avenue to the east of County Road 19. The north and south basins will have approximate footprints of 125 and 105 acres, respectively, with overall depths ranging from 4 to 8 feet below existing grades and 1 to 6-feet tall, 10-feet wide perimeter berms along the sides as needed. A box culvert and culvert pipes will be constructed where the basin will tie into the Rawhide Creek Diversion channel on the east side of the north basin.

  A 20-feet wide channel will be excavated connecting the two detention basins, which will require construction of a box culvert at the County Road T Avenue crossing. A 10-feet-wide berm with 3(H):1(V) side slopes will be constructed along the east side of the connecting channel. Another 20-feet wide outlet channel will be excavated on the east side of the south basin and run east to tie into the existing box culvert at County Road 20 Avenue.

SURFACE AND SUBSURFACE CONDITIONS

SITE CONDITIONS

The overall project area covering the three noted projects is split into two main project sites, both of which are located northwest of the City of Fremont in Dodge County, Nebraska. In general, the area has historically been primarily utilized for agricultural production. The Platte River is situated approximately 1 mile south of the project area. Both areas are relatively flat, with gradual grade changes.

The west project site includes Projects 1 & 2, which spans along Cutoff Road from County Road 15 Boulevard to the Brush Creek Dam outfall ditch and 1 mile north along the Brush Creek Dam outfall ditch. Cutoff Road was gravel surfaced at the time of the exploration.

The east project site includes Project 3, which is generally bound by U.S. Highway 30 to the north, County Road 20 Avenue to the east, Old U.S. 30 to the south, and County Road 19 to the west. Both basin areas were surfaced with corn stubble at the time of the exploration.

LOCAL GEOLOGY

In Dodge County, loess, till, and alluvium are at the surface, or near the surface. The Fremont area, and the southern portion of the county, are located within the historic floodplain of the Platte River. Throughout the area, deposits of sand and gravel overlie the bedrock. The site lithology is generally alluvial sediments deposited by the Platte River. Alluvium in the valleys consists mostly of clayey silt or silty clay washed from adjacent uplands. Close to the river, alluvium typically consists of sandy loam, sand, or gravelly sand that derived mostly from upgradient areas outside Dodge County. Bedrock throughout the area is of Cretaceous age.

BORING LOCATIONS

The test borings were conducted at the project locations identified by JEO Consulting Group as shown on the Boring Location Plan included in the Appendix and presented in Table 1. Coordinates of the borings are approximate and based on as-drilled locations following completion of the borings.

Table 1 – Boring Locations

Boring Number	Coordinates		Project Location
	Latitude	Longitude	
B-1	41° 30' 9.88" N	96° 39' 18.22" W	Cutoff Road
B-2	41° 29' 51.80" N	96° 38' 57.61" W	Cutoff Road
B-3	41° 29' 33.52" N	96° 38' 37.07" W	Cutoff Road
B-4	41° 29'15.32" N	96° 38'16.45" W	Cutoff Road

Table 1 (cont.) – Boring Locations

Boring Number	Coordinates		Project Location
	Latitude	Longitude	
B-5	41° 28' 57.21" N	96° 37' 55.85" W	Cutoff Road
B-6	41° 28' 38.87" N	96° 37' 35.09" W	Cutoff Road
B-7	41° 30' 32.10" N	96° 39' 17.83" W	Brush Creek Dam outfall ditch
B-8	41° 30' 53.37" N	96° 39' 17.08" W	Brush Creek Dam outfall ditch
B-9	41° 28' 33.70" N	96° 33' 17.51" W	North detention basin
B-10	41° 28' 24.07" N	96° 33' 6.36" W	North detention basin
B-11	41° 28' 12.10" N	96° 33' 17.73" W	North detention basin
B-12	41° 28' 11.07" N	96° 32' 48.75" W	North detention basin
B-13	41° 27' 58.81" N	96° 32' 46.46" W	Basin connecting channel
B-14	41° 27' 44.56" N	96° 32' 46.38" W	Co. Rd. T Avenue box culvert
B-15	41° 27' 35.66" N	96° 33' 20.94" W	South detention basin
B-16	41° 27' 37.12" N	96° 32' 57.35" W	South detention basin
B-17	41° 27' 33.78" N	96° 32' 39.38" W	South detention basin
B-18	41° 27' 30.44" N	96° 32' 10.86" W	Basin outlet channel

SOIL AND BEDROCK CONDITIONS

The soils encountered in the test borings generally consisted of man-placed fill underlain by alluvial and Kansan-aged glacial till deposits. Weathered sandstone was encountered below the glacial till.

Man-placed fill was encountered throughout the entirety of boring B-1 and at the surface of borings B-2 to B-6, B-8, and B-14, extending to depths of 3 to 10 feet below existing grades. It was described as a dark gray, gray, brown, or dark brown, dry to very moist, firm to hard, silt or lean and fat clay with varying amounts of sand and gravel.

Fine-grained alluvium was encountered beneath the fill in borings B-2 to B-6, B-8, and B-14, at the surface of the remaining borings, and interbedded within the coarse-grained alluvium. It generally ranged in thickness from 3 to 8 feet, and extended to the termination depths of borings B-3 to B-6. It

was generally described as various shades of gray and brown, slightly moist to wet, soft to very hard, lean and fat clay.

Course-grained alluvium was encountered beneath the fine-grained alluvium in borings B-2, B-7, and B-9 to B-18, ranging in thickness from 8.5 to 13.5 feet. It was generally described as a light gray, gray, light brown, or brown, slightly moist to wet, very loose to medium dense, silty sand, poorly-graded sand with silt, and poorly-graded sand.

Kansan glacial till was encountered beneath the alluvium in borings B-14 and B-18, ranging from 10 to 30 feet in thickness. It was generally described as a reddish brown, grayish brown, or light brown, wet, soft to firm, lean and fat clay with minor sand. A layer of medium dense silty sand was encountered beneath the fine-grained till in boring B-14.

Weathered sandstone was encountered beneath the till in borings B-14 and B-18.

Ranges of engineering properties from laboratory tests on selected samples are presented in Table 2.

Table 2 – Laboratory Results

Soil Layer	Moisture Content (%)	Dry Unit Weight (pcf)	Unconfined Compressive Strength (tsf)	Standard Penetration Values (N)*	Classification *(LL/PI)*
Man-placed fill	6 to 29	76 to 120	1.3 to 2.7	--	ML (22/6, 24/10) CL (40/24, 44/23) CH (*visual*)
Alluvium (fine-grained)	14 to 32	78 to 114	0.3 to 5.3	5 to 6	CL (46/23, 35/16, 48/30) CH (72/50, 53/32, 55/34)
Alluvium (coarse-grained)	2 to 21	--	--	0 to 19	SM (*visual*) SP-SM (P200: 6%) SP (P200: 1 to 5%)
Kansan till	18 to 29	67 to 101	0.7 to 0.9	3 to 15	CL (45/28; P200: 59 to 98%) CH (*visual*) SM (P200: 14%)
Weathered sandstone	14 to 21	--	--	17 to 50/5"	--

** Standard Penetration Values are actual field recorded values and have not been corrected for hammer energy.*

GROUND WATER OBSERVATIONS

Ground water levels were observed in the borings as presented in Table 3. Note that ground water levels may fluctuate due to seasonal variations and other factors. The materials encountered in the test borings have relatively low permeabilities and observations over an extended period of time through use of piezometers or cased borings would be required to better define current ground water conditions.

Table 3 – Water Level Observations

Boring Number	Water Level (ft. below grade)	
	During Drilling	End of Drilling
B-7	9.0	9.2
B-9*	8.0	8.2
B-10*	7.0	6.5
B-11	8.0	14.4
B-12	8.0	10.3
B-13	9.0	N/E**
B-14*	9.0	9.9
B-15*	9.0	7.9
B-16	7.5	17.3
B-17	10.0	N/E**
B-18*	9.0	8.1

* *Boring conducted with hollow-stem augers.*
** *Boring caved in and ground water could not be measured.*
N/E = None Encountered

Ground water observations were made in the borings both during and after completion of drilling operations. The borings were drilled with hollow stem augers limiting observation during drilling operations. Upon removal of the augers, partial filling of the boring occurred due to the loss of cuttings into the boring. Water level observations taken after completion of the borings were limited to the remaining depth of the open boring. The water level observations include the condition observed (such as cave in) and the depth to which the observations could be made.

ANALYSIS AND RECOMMENDATIONS

GENERAL

This preliminary geotechnical exploration consisted of widely spaced borings to determine the general soil conditions within the proposed project area. An additional geotechnical exploration(s) consisting of more strategically placed borings should be conducted more design information is available. The borings performed during this preliminary study may be used to supplement a final geotechnical exploration.

The proposed project is fairly significant in scope and scale, and as would be expected for a site contained in an alluvial setting, the soil conditions vary moderately across the site due to their mode of deposition. The existing soils encountered primarily consisted of alluvial deposits ranging in moisture content, consistency, and plasticity. These soil conditions appear generally suitable for support of the proposed improvements. However, we have provided site preparation considerations that may be necessary depending on the final design of the improvements. There are several potential geotechnical engineering concerns for this project site, including: high moisture contents of excavated materials, consolidation of the alluvium that could occur under the induced stresses of structural fill placement, shallow ground water, and moderately low strength alluvial deposits. These concerns are discussed in the remaining sections of this report.

SITE PREPARATION CONSIDERATIONS

General Earthwork

Topsoil and vegetation should be stripped to a depth of 4 to 6 inches in areas to be disturbed during grading, including borrow and fill areas. Stripping depths will likely vary and should be adjusted to remove all vegetation and root systems. Care should be exercised to separate these materials to avoid incorporation of the organic matter in structural fill sections.

Excavated Site Soils

The excavated site soils will generally be suitable for reuse as structural fill; however, moderate to significant moisture conditioning should be anticipated. It may be impractical to dry some of the wetter soils excavated near the ground water table sufficiently. It is anticipated that soils above 30 percent moisture content cannot be reasonably dried. Therefore, it may be necessary to replace some of the excavated natural soil with off-site borrow. Any off-site borrow should be a clean, inorganic silt or lean clay with a liquid limit less than 45 and a plasticity index less than 20. Borrow material should not contain an appreciable amount of roots, rock, or debris, and should not contain any foreign material with a dimension greater than 3 inches.

Fill-Induced Settlement

Based on preliminary design documents, fill placement of up to 5 feet will be required to establish proposed roadway grades along Cutoff Road and up to 8 feet will be necessary for berm construction

along the Brush Creek Dam outfall ditch. The existing alluvial soils encountered in the test borings are compressible, and the addition of fill to raise grades will cause these soils to consolidate. The amount of settlement is dependent upon the extent and magnitude of the fill to be placed. The time rate of settlement is largely dependent on the degree of saturation and aerial extent of the fill. The amount of settlement and length of delay prior to construction of any drainage structures can be determined during the final geotechnical exploration and development of a grading plan.

Ground Water

Ground water was encountered in 11 out of the 18 test borings conducted on-site, with at end of drilling depths ranging from 6.5 to 17.3 feet below existing grades. The presence of shallow ground water is anticipated to impact excavations near or below these depths. It is likely that stabilization of soft subgrades will be necessary for excavations that extend close to or below the ground water. A combination of dewatering and stabilization with layers of geotextile and coarse aggregate would likely be required if excavations extend near or below the ground water table. A dewatering contractor should be consulted if dewatering is deemed necessary.

DETENTION BASIN CONSIDERATIONS

Two detention basins will be constructed northwest of the City of Fremont. The north and south basins will have approximate footprints of 125 and 105 acres, respectively. Both basins will have overall depths ranging from 4 to 8 feet below existing grades, sloped to drain to the east, and have 1 to 6-feet tall, 10-feet wide perimeter berms. Borings B-9 to B-12 were drilled within the north basin and borings B-15 to B-17 were drilled within the south basin. In general, low to high plasticity alluvial clay deposits with minor to appreciable amounts of intermixed sand exhibiting moist conditions and soft to hard consistencies were encountered in these areas.

Based on limited laboratory testing conducted on composite samples taken from both basins, it appears that recompacting the existing soils as a clay liner will allow water to permeate through the matrix at rates faster than the recommended permeability rate of $1x10^{-7}$ cm/sec. If a near-impermeable condition is required, which is slower than the recommended rate, some consideration should be given to treating the entire base of each basin with bentonite to limit water infiltration.

However, it should be noted that the composite samples were taken from very widely spaced borings conducted in a moderately variable alluvial setting. In addition, the permeability rates determined are likely faster due to the higher sand content of the composite samples obtained. Based on the boring logs and previous experience in the area, we anticipate that high plasticity alluvial clay soils with lower sand content and assumed lower permeabilities are present within each basin footprint, which could be mined and compacted as a suitable clay liner. Additional borings would be necessary to identify and delineate such soils.

BOX CULVERT CONSTRUCTION CONSIDERATIONS

At this time, it is our understanding that a reinforced concrete box culvert will be constructed at the detention basin channel crossing with County Road T Avenue near boring B-14. It is anticipated that the bearing surface of the culvert may be soft to firm, very moist to wet, and unstable during culvert installation. Placement of geogrid followed by coarse aggregate will likely be required. The aggregate would consist of crushed limestone or recycled concrete.

It is assumed that there will be no net fill increase at the culvert location, as it is anticipated that construction will consist entirely of cuts within the existing roadway embankment. However, if fill placement is anticipated outside of the existing embankment, surcharging and an associated delay period may be necessary to control fill-induced settlements to within tolerances that will not damage the box culvert.

Based on boring B-14, ground water control should be anticipated throughout the entire culvert construction process. A dewatering professional should be consulted.

OTHER RECOMMENDATIONS

During detailed design, additional issues may arise and possible conflicts may occur with our recommendations. Such issues and conflicts should be resolved through dialogue between the geotechnical engineer and designers. It is recommended that the geotechnical engineer perform additional borings to develop final recommendations for construction of any drainage improvements, basins, structures, or pavements for this project.

The analysis and preliminary recommendations in this report are based upon borings at specific locations. The nature and extent of variation between boring locations is impossible to predict. Because of this, geotechnical recommendations are preliminary until they have been confirmed through observation of site excavation and earthwork preparation. If variations appear during subsequent exploration or during construction, we may reevaluate our recommendations and modify them, if appropriate. The geotechnical engineer should be retained during construction to observe compliance with the recommendations of this and subsequent final geotechnical exploration reports and to provide quality control testing of earthwork construction. If these services are provided by others, including the contractor, the entity that provides construction phase observation and testing shares responsibility as the geotechnical engineer of record for implementing or modifying these recommendations.

Respectfully submitted,
Thiele Geotech, Inc.

Prepared by,

Heath E. Cutler, P.E.
Nebraska License E-16142

Reviewed by,

Raeanna C. D. Thiele, P.E.
Nebraska License E-16864

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APPENDIX

Subsurface Exploration Methods

Legend of Terms

Site Vicinity Plan

Boring Location Plan

Boring Logs

Soil Test Summary

Moisture-Density Tests

Hydraulic Conductivity Tests

SUBSURFACE EXPLORATION METHODS

The fieldwork for this study was conducted between August 24, 2023 and January 22, 2024. The exploratory program consisted of 18 test borings drilled at the approximate locations shown on the Boring Location Plan. Boring locations were selected to provide the desired site coverage and were adjusted to accommodate access conditions. The boring locations were laid out in the field using a handheld GPS and coordinates interpreted from Google Earth. The boring locations and elevations should only be considered accurate to the degree implied by the methods used to define them.

Test borings were advanced using flight and hollow-stem augers powered by a truck-mounted drill rig. Soil samples were obtained at selected depths as indicated on the boring logs. A 3-inch nominal diameter thin-walled sampler was hydraulically pushed to obtain undisturbed samples. Disturbed samples were obtained by driving a 2-inch nominal diameter split barrel sampler while conducting standard penetration tests (SPT). The SPT values presented on the boring logs are actual field recorded numbers and have not been corrected for hammer energy or overburden. Auger samples were obtained directly from the drill cuttings.

The boring logs were prepared based on visual classification of the samples and drill cuttings, and by observation of the drilling characteristics of the subsurface formations. The logs have been supplemented and modified based on the laboratory test results and further examination of the recovered samples. The stratification lines on the boring logs represent the approximate boundary between soil types, but the in-situ transition may be gradual.

Water level observations were made at the times stated on the boring logs. The borings were backfilled with drill cuttings at the completion of the fieldwork.

The field boring logs were reviewed to outline the depths, thicknesses, and extent of the soil strata. A laboratory testing program was then developed to further classify the basic soils and to evaluate the engineering properties for use in our analysis.

Laboratory tests to further classify the soils included visual classification, moisture content, dry unit weight, Atterberg limits, and fraction passing the #200 sieve. The shear strengths of cohesive samples were evaluated using the unconfined compression test. The remolded moisture-density relationship was evaluated by performing both Standard and Modified Proctor tests. Soil hydraulic conductivity rates were evaluated using the permeability test.

The boring logs and related information in this report are indicators of subsurface conditions only at the specific locations and times noted. Subsurface conditions, including ground water levels, at other locations of the site may differ significantly from conditions that exist at the sampling locations. Also note that the passage of time may affect conditions at the sampling locations.

Thiele Geotech Inc

LEGEND OF TERMS

Soil Description Terms

Consistency - Fine Grained	Consistency - Coarse Grained	Moisture Conditions
Very Soft, Soft, Firm, Hard, Very Hard	Very Loose, Loose, Medium Dense, Dense, Very Dense	Dry, Slightly Moist, Moist Very Moist, Wet (Saturated)

Sample Identification

Sample Type	Sample Data	Laboratory Data
U -- Undisturbed (Shelby Tube)	No. -- Number	MC -- Moisture content
S -- Split barrel (disturbed)	SPT -- Standard penetration test	γ_d -- Dry unit weight
C -- Continuous sample	bpf -- blows per foot	q_u -- Unconfined compression
A -- Auger cuttings (disturbed)	Rec -- Recovery	LL/PI -- Liquid limit & plasticity index

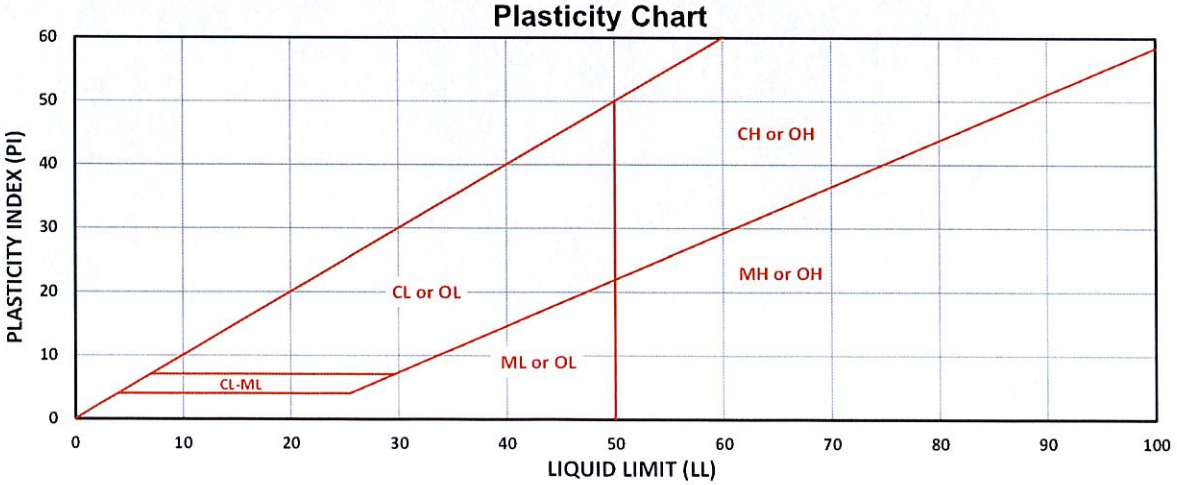
Unified Soil Classification System

Peat	Pt	Highly organic soils	50% or more smaller than No. 200 sieve
Fat Clay	CH	Clay - Liquid Limit > 50 *	
Elastic Silt	MH	Silt - Liquid Limit > 50 *	
Lean Clay	CL	Clay - Liquid Limit < 50 *	
Silt	ML	Silt - Liquid Limit < 50 *	
Silty Clay	CL-ML	Silty Clay *	
Clayey Sand	SC	Sands with 12 to 50 percent smaller than No. 200 sieve *	More than 50% larger than No. 200 sieve and % sand > % Gravel
Silty Sand	SM		
Poorly-Graded Sand with Clay	SP-SC	Sands with 5 to 12 percent smaller than No. 200 Sieve *	
Poorly-Graded Sand with Silt	SP-SM		
Well-Graded Sand with Clay **	SW-SC		
Well-Graded Sand with Silt **	SW-SM		
Poorly-Graded Sand	SP	Sands with less than 5 percent smaller than No. 200 sieve *	
Well-Graded Sand **	SW		
Clayey Gravel	GC	Gravels with 12 to 50 percent smaller than No. 200 Sieve *	More than 50% larger than No. 200 sieve and % gravel > % sand
Silty Gravel	GM		
Poorly-Graded Gravel with Clay	GP-GC	Gravels with 5 to 12 percent smaller than No. 200 sieve *	
Poorly-Graded Gravel with Silt	GP-GM		
Well-Graded Gravel with Clay **	GW-GC		
Well-Graded Gravel with Silt **	GW-GM		
Poorly-Graded Gravel	GP	Gravels with less than 5 percent smaller than No. 200 sieve *	
Well-Graded Gravel **	GW		

* *See Plasticity Chart for definition of silts and clays*

** *See Criteria for Sands and Gravels for definition of well-graded*

Plasticity Chart

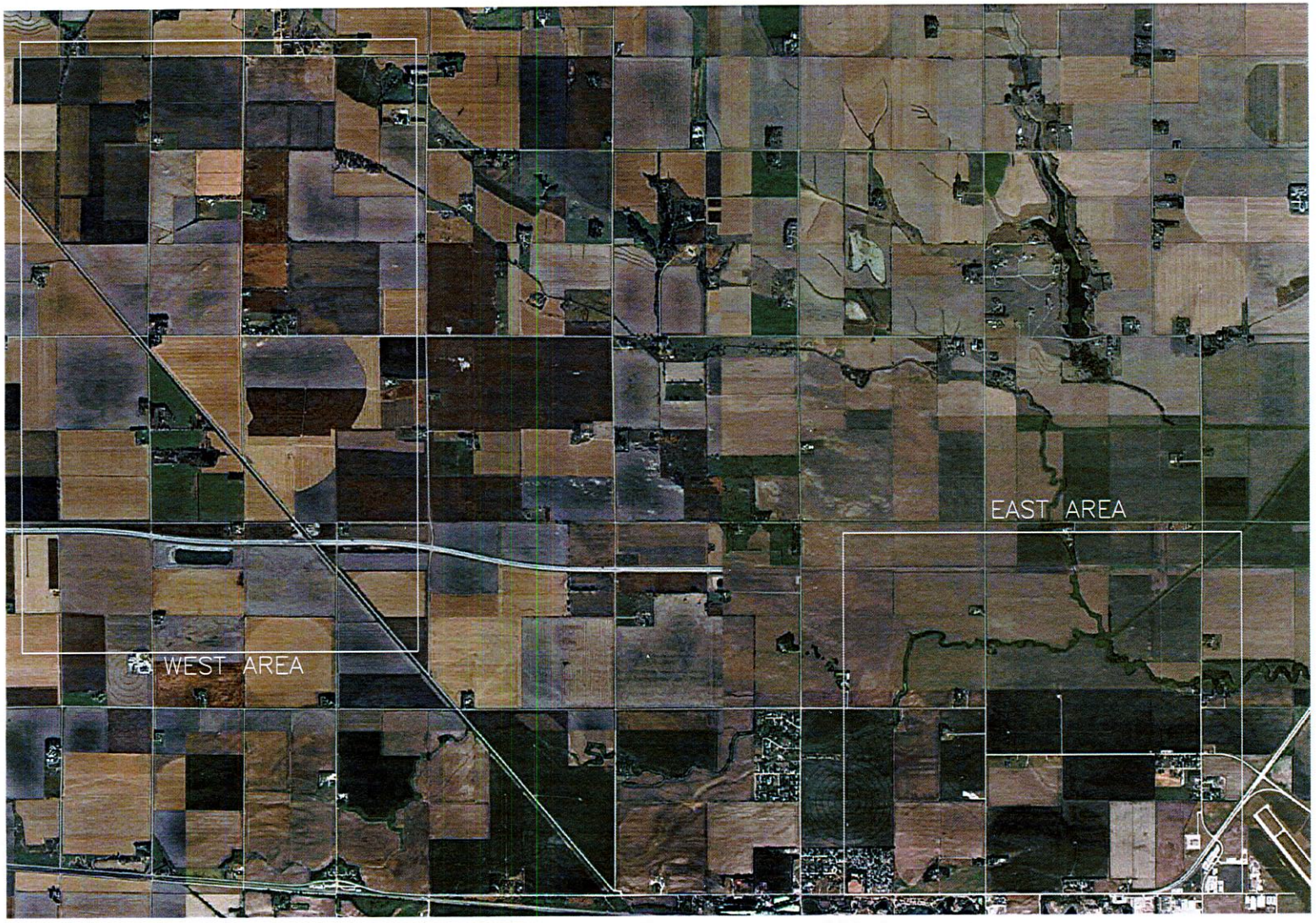


Criteria for Sands and Gravels

Boulders	Cobbles	Coarse Gravel	Fine Gravel	Coarse Sand	Medium Sand	Fine Sand	FINES (silt or clay)
Sieve size	12"	3"	¾"	#4	#10	#40	#200

Well-graded sands (SW) $C_u=D_{60}/D_{10}\geq 6$ and $C_c=(D_{30})^2/(D_{10} \times D_{60}) \leq 3$ and ≥ 1

Well-graded gravels (GW) $C_u=D_{60}/D_{10}\geq 4$ and $C_c=(D_{30})^2/(D_{10} \times D_{60}) \leq 3$ and ≥ 1



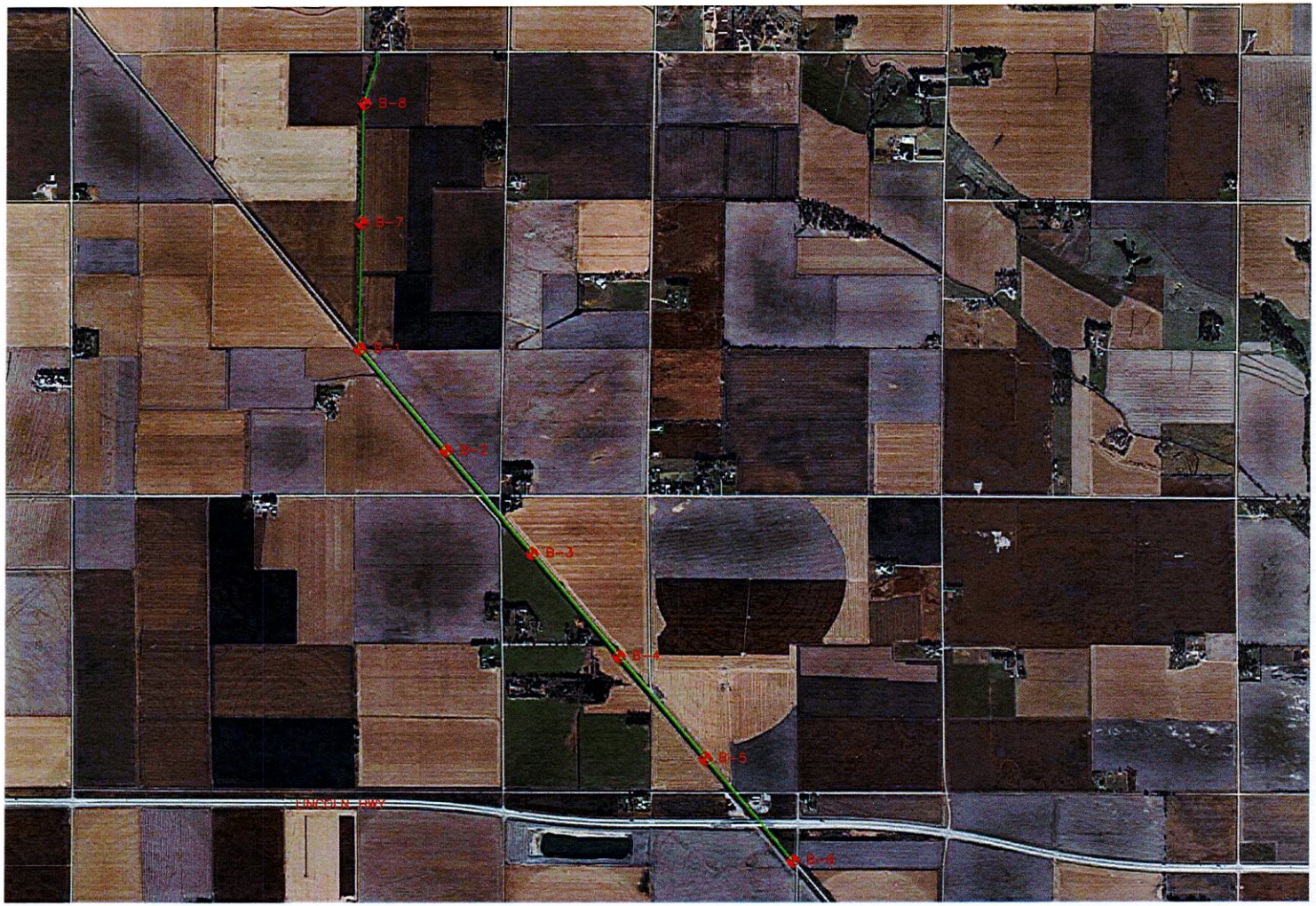
N

0 1500 3000
SCALE: 1"=3000'

Thiele Geotech Inc

PROJECT
RAWHIDE CREEK WATERSHED WFPO
VARIOUS LOCATIONS
FREMONT, NE
JOB # 23215.01 DATE: 4/23/24

SITE VICINITY PLAN



N

0 1000 2000

SCALE: 1"=2000'

LEGEND:

BORING LOCATION

BERM/CUTOFF ROAD RAISE

Thiele Geotech Inc

PROJECT

RAWHIDE CREEK WATERSHED WFPO
VARIOUS LOCATIONS
FREMONT, NE

JOB # 23215.01 DATE: 4/23/24

BORING LOCATION PLAN—WEST AREA

N

0 500 1000

SCALE: 1"=1000'

LEGEND:

- BORING LOCATION
- CHANNEL
- BASIN

Thiele Geotech Inc

PROJECT

RAWHIDE CREEK WATERSHED WFPO
VARIOUS LOCATIONS
FREMONT, NE

JOB # 23215.01 DATE: 4/23/24

BORING LOCATION PLAN—EAST AREA

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-1

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/24/2023
SURFACE Gravel
GROUND ELEVATION _____
BORING DEPTH 10.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER John Livingston
DRILL RIG CME 55 # 176
DURING DRILLING None encountered
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING _____
EASTING _____
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark gray	firm	fat clay	fill	trace gravel										
								U-1	12			21.2	98.6	1.26			
5								U-2	12			23.1	93.2				
			gray	hard													
10								U-3	12			22.7	100.3				

Bottom of borehole at 10.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
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Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-2

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/24/2023
SURFACE Gravel
GROUND ELEVATION _____
BORING DEPTH 10.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER John Livingston
DRILL RIG CME 55 # 176
DURING DRILLING None encountered
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING _____
EASTING _____
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark brown	hard	lean clay	fill	minor sand, trace gravel	U-1	12			21.8	106.9		40	24	
		very moist	dark gray	soft	fat clay	alluvium	roots	U-2	12			26.2	88.0	0.43			
5		slightly moist	light brown	medium dense	poorly graded sand		medium grained										
								S-3		5-8-10 (18)		2.4					
10																	

Bottom of borehole at 10.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
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BORING NUMBER B-3

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/24/2023
SURFACE Gravel
GROUND ELEVATION _____
BORING DEPTH 10.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER John Livingston
DRILL RIG CME 55 # 176
DURING DRILLING None encountered
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING _____
EASTING _____
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark gray	hard	lean clay	fill	minor sand										
								U-1	12			20.3	105.2	1.98			
		very moist	dark gray	soft	lean clay	alluvium	roots										
5								U-2	12			25.3	77.7	0.58			
		moist	gray	hard	fat clay		minor sand										
10								U-3	12			18.3	105.9				

Bottom of borehole at 10.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-4

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/24/2023
SURFACE Grass
GROUND ELEVATION
BORING DEPTH 10.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER John Livingston
DRILL RIG CME 55 # 176
DURING DRILLING None encountered
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		slightly moist	gray	hard	silt	fill	trace sand, trace gravel	U-1	12			12.3	115.3	2.70	22	6	
5		very moist	dark brown	firm	lean clay	alluvium	roots	U-2	12			29.6	89.0	1.21			
			gray		fat clay												
10								U-3	12			29.4	87.9				

Bottom of borehole at 10.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
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Omaha, NE 68138
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Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-5

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/24/2023
SURFACE Grass
GROUND ELEVATION
BORING DEPTH 10.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER John Livingston
DRILL RIG CME 55 # 176
DURING DRILLING None encountered
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		dry	gray	hard	lean clay	fill	appreciable gravel, minor sand	U-1	12			5.9	117.8	2.38			
5		very moist	dark gray	firm	fat clay	alluvium	roots	U-2	12			30.2	91.1	1.46			
10		moist	gray		lean clay		appreciable sand, calcium nodules	U-3	12			15.5	114.2				

Bottom of borehole at 10.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-6

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/24/2023
SURFACE Gravel
GROUND ELEVATION
BORING DEPTH 10.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER John Livingston
DRILL RIG CME 55 # 176
DURING DRILLING None encountered
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		dry	dark gray	hard	silt	fill	much sand, pockets fat clay	U-1	12			9.4	119.8		24	10	
5		very moist	dark gray	hard	fat clay	alluvium	roots	U-2	12			26.0	90.2	1.77			
			gray	firm	lean clay		calcium nodules										
10								U-3	12			26.2	94.6				

Bottom of borehole at 10.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-7

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/22/2024
SURFACE Corn Stubble
GROUND ELEVATION _____
BORING DEPTH 15.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 #176
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Jose Guerrero
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 9.2 ft
NORTHING _____
EASTING _____
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		slightly moist	dark brown	hard	lean clay	alluvium	roots										
								U-1	12			14.7	81.7	2.83	46	23	
		moist			fat clay												
5								U-2	12			19.4	90.8	2.14			
			light brown	medium dense	poorly graded sand		fine grained										
▽		wet						S-3		3-4-9 (13)		18.3					4.5
10																	
							medium grained, trace gravel	S-4		3-6-9 (15)		14.3					
15																	

Bottom of borehole at 15.0 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-8

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/22/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 15.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER Jon Livingston
DRILL RIG CME 750 ATV
DURING DRILLING None encountered
LOGGED BY Nick Phillips
CHECKED BY Broc Burmeister
END OF DRILLING None encountered
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		slightly moist	brown	hard	lean clay	fill	silty										
								U-1	8			10.6	105.7				
				soft			minor rubble (concrete, cinders)										
5								U-2	12			12.1	75.6				
		moist	grayish brown	hard	fat clay	alluvium	roots										
10								U-3	12			21.7	96.1	2.42			
		very moist		firm	lean clay												
15								U-4	12			28.2	93.8				

Bottom of borehole at 15.0 feet.

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BORING NUMBER B-9

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/22/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 20.0 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 #176
▽ **DURING DRILLING** 8.0 ft
LOGGED BY Jose Guerrero
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 8.2 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		very moist	dark gray	hard	fat clay	alluvium	roots	U-1	12			31.9	86.2	0.98			
		moist	dark brown	very hard			calcium nodules	U-2	12			23.9	99.2	4.08	72	50	
5																	
		wet	light brown	medium dense	poorly graded sand		fine grained	S-3		5-6-6 (12)		18.1					
10																	
							medium grained	S-4		3-5-9 (14)		13.9					0.7
15																	
							coarse grained, trace gravel	S-5		3-4-8 (12)		11.2					
20																	

Bottom of borehole at 20.0 feet.

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BORING NUMBER B-10

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/22/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 20.0 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 #176
▽ **DURING DRILLING** 7.0 ft
LOGGED BY Jose Guerrero
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 6.5 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		very moist	dark gray	firm	fat clay	alluvium	trace sand, roots	U-1	12			26.3	94.0	1.41			
5		moist	gray	hard			calcium nodules	U-2	12			19.7	105.2	2.34			
		wet	light brown	medium dense	poorly graded sand		fine grained	S-3		3-5-5 (10)		21.1					
10																	
			light gray				coarse grained	S-4		3-4-7 (11)		12.6					0.7
15																	
			gray				medium grained, trace gravel	S-5		3-5-7 (12)		16.4					
20																	

Bottom of borehole at 20.0 feet.

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BORING NUMBER B-11

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/18/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 20.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER Jon Livingston
DRILL RIG CME 750 ATV
▽ **DURING DRILLING** 8.0 ft
LOGGED BY Nick Phillips
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 14.4 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		very moist	dark gray	soft	fat clay	alluvium	roots	U-1	12			29.1	85.9	0.44			
		moist	grayish brown	hard			appreciable sand	U-2	6			19.8	107.8				
5																	
▽		wet	light brown	loose	poorly graded sand		medium grained	S-3		3-4-4 (8)		13.6					
10																	
▼							coarse grained	S-4		4-3-4 (7)		9.8					0.9
15																	
								S-5		4-4-5 (9)		10.8					
20							Bottom of borehole at 20.0 feet.										

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BORING NUMBER B-12

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 12/20/2023
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 20.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER Jon Livingston
DRILL RIG CME 55 #48
▽ **DURING DRILLING** 8.0 ft
LOGGED BY Nick Phillips
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 10.3 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark brown	hard	fat clay	alluvium	roots	U-1	10			22.1	99.4	2.52	53	32	
5		very moist	gray	firm			calcium nodules	U-2	12			28.7	88.1	1.09			
10		wet		loose	silty sand		fine grained	U-3	2			15.3					
15			brown		poorly graded sand w/ silt		medium grained	S-4		4-3-3 (6)		11.5					5.8
20					poorly graded sand			S-5		4-3-2 (5)		4.4					

Bottom of borehole at 20.0 feet.

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BORING NUMBER B-13

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/22/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 15.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER Jon Livingston
DRILL RIG CME 750 ATV
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Nick Phillips
CHECKED BY Broc Burmeister
END OF DRILLING None encountered, cave in at 13.0 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		very moist	dark gray	soft	fat clay	alluvium	roots										
								U-1	12			30.2	83.6	0.37			
5			gray					U-2	12			25.1	86.9	0.27			
			light brown	loose	poorly graded sand		fine grained										
▽ 10		wet						S-3		3-4-4 (8)		16.5					0.9
15							medium grained, trace gravel	S-4		3-5-4 (9)		15.4					

Bottom of borehole at 15.0 feet.

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BORING NUMBER B-14

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/29/2023
SURFACE Gravel
GROUND ELEVATION
BORING DEPTH 66.0 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 # 176
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 9.9 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark gray	hard	lean clay	fill	trace gravel										
								U-1	11			20.7	101.2	2.27	44	23	
		very moist			fat clay			U-2	12			29.3	93.0	2.17			
5																	
		very moist	light grayish brown	firm	lean clay	alluvium	lenses of silty sand										
▽		wet						S-3		1-3-3 (6)		22.1					
10 ▼																	
			light gray	medium dense	poorly graded sand		medium grained, trace gravel	S-4		7-9-8 (17)		10.3					3.8
15																	
								S-5		7-7-8 (15)		13.5					
20			brown	firm	lean clay												
								S-6		1-2-3 (5)		30.6					
25																	

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BORING NUMBER B-14

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/29/2023 **SURFACE** Gravel **GROUND ELEVATION** _____ **BORING DEPTH** 66.0 feet
DRILLING METHOD HSA **HOLE SIZE** 8 inches **GROUND WATER LEVELS:**
DRILLER Dan Morrissey **DRILL RIG** CME 55 # 176 ▽ **DURING DRILLING** 9.0 ft
LOGGED BY Randy Schutte **CHECKED BY** Broc Burmeister ▼ **END OF DRILLING** 9.9 ft
NORTHING _____ **EASTING** _____ **AFTER DRILLING** Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
25		wet	brown	firm	lean clay	alluvium											
		wet	reddish brown	firm	fat clay	Kansan glacial till	minor sand										
30								S-7		2-3-4 (7)		28.7					
					lean clay												
35								S-8		1-1-2 (3)		26.2			45	28	97.7
			grayish brown		fat clay												
40								S-9		4-4-4 (8)		26.6					
					lean clay												
45								U-10	12			27.2	96.7	0.87			
				soft													
50								U-11	12			24.2	100.8	0.71			

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BORING NUMBER B-14

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/29/2023
SURFACE Gravel
GROUND ELEVATION _____
BORING DEPTH 66.0 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 # 176
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 9.9 ft
NORTHING _____
EASTING _____
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
50		wet	grayish brown	soft	lean clay	Kansan glacial till	minor sand										
55			light brown	medium dense	silty sand		medium grained	S-12		3-5-6 (11)		18.1					13.7
60		wet	orangeish brown	very hard	bedrock	weathered sandstone		S-13		5-7-10 (17)		20.7					
65								S-14		11-19-29 (48)		13.5					
								S-15		26-50/5.0"							

Bottom of borehole at 66.0 feet.

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BORING NUMBER B-15

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/22/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 20.0 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 #176
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Jose Guerrero
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 7.9 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark brown	firm	lean clay	alluvium	minor sand, roots	U-1	12			22.5	97.3	1.28	35	16	
5		slightly moist	gray	very hard	fat clay		appreciable sand	U-2	10			14.3	111.5	5.27			
10		wet		medium dense	poorly graded sand		fine grained	S-3		3-5-6 (11)		23.0					
15			light brown	loose			coarse grained, trace gravel	S-4		3-4-5 (9)		11.2					1.1
20				medium dense				S-5		4-5-7 (12)		11.5					

Bottom of borehole at 20.0 feet.

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BORING NUMBER B-16

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/18/2024
SURFACE Corn Stubble
GROUND ELEVATION
BORING DEPTH 20.0 feet
DRILLING METHOD Flight
HOLE SIZE 6 inches
GROUND WATER LEVELS:
DRILLER Jon Livingston
DRILL RIG CME 750 ATV
▽ **DURING DRILLING** 7.5 ft
LOGGED BY Nick Phillips
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 17.3 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark brown	firm	fat clay	alluvium	minor sand, roots										
								U-1	12			21.6	100.9	1.06			
			gray														
5								U-2	12			19.0	95.7	1.31			
▽		wet	light brown	loose	poorly graded sand		medium grained, trace gravel										
								S-3		2-3-3 (6)		11.6					
10				very loose			coarse grained										
								S-4		1-2-1 (3)		13.7					2.8
15																	
▼																	
								S-5		0-0-0 (0)		15.3					
20																	

Bottom of borehole at 20.0 feet.

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BORING NUMBER B-17

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 1/18/2024 **SURFACE** Corn Stubble **GROUND ELEVATION** _____ **BORING DEPTH** 20.0 feet
DRILLING METHOD Flight **HOLE SIZE** 6 inches **GROUND WATER LEVELS:**
DRILLER Jon Livingston **DRILL RIG** CME 750 ATV ▽ **DURING DRILLING** 10.0 ft
LOGGED BY Nick Phillips **CHECKED BY** Broc Burmeister **END OF DRILLING** None encountered, cave in at 17.3 ft
NORTHING _____ **EASTING** _____ **AFTER DRILLING** Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark gray	hard	lean clay	alluvium	minor sand, roots, calcium nodules	U-1	12			21.8	103.6	1.65	48	30	
			gray		fat clay		appreciable sand	U-2	12			22.3	98.1	1.88			
5			light brown	loose	poorly graded sand		medium grained	S-3		3-3-3 (6)		17.0					
10▽		wet															
				very loose			coarse grained, trace gravel	S-4		4-2-2 (4)		11.1					1.8
15				loose													
								S-5		5-4-6 (10)		13.9					
20							Bottom of borehole at 20.0 feet.										

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

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BORING NUMBER B-18

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/29/2023
SURFACE Grass
GROUND ELEVATION _____
BORING DEPTH 39.5 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 # 176
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 8.1 ft
NORTHING _____
EASTING _____
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		moist	dark gray	very hard	fat clay	alluvium	trace sand, roots										
								U-1	12			18.8	103.8	5.04	55	34	
				hard			calcium nodules										
5								U-2	12			18.9	103.5	2.88			
		wet	light brown	loose	poorly graded sand		medium grained, trace gravel	S-3		3-4-4 (8)		10.4					
10																	
			light gray					S-4		3-4-5 (9)		10.6					0.7
15																	
				medium dense				S-5		7-10-9 (19)		12.6					
20																	
		wet	reddish gray	firm	fat clay	Kansan glacial till	minor sand										
								S-6		3-2-4 (6)		22.0					
25																	

(Continued Next Page)

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

BORING NUMBER B-18

CLIENT JEO Consulting Group
PROJECT NAME Rawhide Creek Watershed WFPO
PROJECT NUMBER 23215.01
PROJECT LOCATION Various Locations, Fremont, NE
DRILLING DATE 8/29/2023
SURFACE Grass
GROUND ELEVATION
BORING DEPTH 39.5 feet
DRILLING METHOD HSA
HOLE SIZE 8 inches
GROUND WATER LEVELS:
DRILLER Dan Morrissey
DRILL RIG CME 55 # 176
▽ **DURING DRILLING** 9.0 ft
LOGGED BY Randy Schutte
CHECKED BY Broc Burmeister
▼ **END OF DRILLING** 8.1 ft
NORTHING
EASTING
AFTER DRILLING Not measured

DEPTH (ft)	GRAPHIC LOG	VISUAL/MANUAL DESCRIPTION: MOISTURE	COLOR	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE TYPE NUMBER	RECOVERY (IN)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	q_u (tsf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
25		wet	reddish gray	firm	fat clay	Kansan glacial till	minor sand										
			light reddish brown	very hard	lean clay		much sand, trace gravel										
30								S-7		4-4-11 (15)		22.2					58.5
		wet	orangeish brown	very hard	bedrock	weathered sandstone											
35								S-8		13-19-24 (43)		14.4					
								S-9		25-50/5.0"							

Bottom of borehole at 39.5 feet.

HDR LOG NO BULK - GINT STD US LAB.GDT - 4/24/24 12:42 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

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Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

SUMMARY OF LABORATORY RESULTS

CLIENT JEO Consulting Group **PROJECT NAME** Rawhide Creek Watershed WFPO

PROJECT NUMBER 23215.01 **PROJECT LOCATION** Various Locations, Fremont, NE

Boring Number	Sample Number	Depth	Water Content (%)	Unit Weight		Void Ratio	Sat. (%)	Unconfined Compression		Atterberg Limits		%<#200 Sieve	Class.	Other Tests
				Wet Density (pcf)	Dry Density (pcf)			q_u (tsf)	Strain (%)	LL	PI			
B-1	U-1	0.5-2.0'	21.2	119.5	98.6	0.708	81	1.26	4.3					
	U-2	3.5-5.0'	23.1	114.7	93.2	0.808	77							
	U-3	8.5-10.0'	22.7	123.1	100.3	0.679	90							
B-2	U-1	0.5-2.0'	21.8	130.2	106.9	0.575	100			40	24		CL	
	U-2	3.5-5.0'	26.2	111.0	88.0	0.915	77	0.43	3.5					
	S-3	8.5-10.0'	2.4											
B-3	U-1	0.5-2.0'	20.3	126.5	105.2	0.602	91	1.98	4.0					
	U-2	3.5-5.0'	25.3	97.3	77.7	1.169	58	0.58	2.3					
	U-3	8.5-10.0'	18.3	125.3	105.9	0.591	84							
B-4	U-1	0.5-2.0'	12.3	129.4	115.3	0.462	72	2.70	7.7	22	6		ML	
	U-2	3.5-5.0'	29.6	115.3	89.0	0.894	89	1.21	7.8					
	U-3	8.5-10.0'	29.4	113.7	87.9	0.918	87							
B-5	U-1	0.5-2.0'	5.9	124.7	117.8	0.430	37	2.38	6.0					
	U-2	3.5-5.0'	30.2	118.7	91.1	0.849	96	1.46	4.9					
	U-3	8.5-10.0'	15.5	131.9	114.2	0.475	88							
B-6	U-1	0.5-2.0'	9.4	131.0	119.8	0.406	62			24	10		ML	
	U-2	3.5-5.0'	26.0	113.7	90.2	0.867	81	1.77	4.6					
	U-3	8.5-10.0'	26.2	119.5	94.6	0.780	91							
B-7	U-1	0.5-2.0'	14.7	93.7	81.7	1.062	37	2.83	4.3	46	23		CL	
	U-2	3.5-5.0'	19.4	108.4	90.8	0.856	61	2.14	2.0					
	S-3	8.5-10.0'	18.3									4.5	SP	
	S-4	13.5-15.0'	14.3											
B-8	U-1	0.5-2.0'	10.6	116.9	105.7	0.595	48							
	U-2	3.5-5.0'	12.1	84.7	75.6	1.229	27							
	U-3	8.5-10.0'	21.7	117.0	96.1	0.753	78	2.42	2.8					
	U-4	13.5-15.0'	28.2	120.3	93.8	0.795	96							
B-9	U-1	0.5-2.0'	31.9	113.8	86.2	0.953	90	0.98	3.2					
	U-2	3.5-5.0'	23.9	123.0	99.2	0.698	93	4.08	4.2	72	50		CH	
	S-3	8.5-10.0'	18.1											
	S-4	13.5-15.0'	13.9									0.7	SP	
	S-5	18.5-20.0'	11.2											
B-10	U-1	0.5-2.0'	26.3	118.7	94.0	0.793	89	1.41	9.6					
	U-2	3.5-5.0'	19.7	126.0	105.2	0.601	89	2.34	9.0					
	S-3	8.5-10.0'	21.1											
	S-4	13.5-15.0'	12.6									0.7	SP	
	S-5	18.5-20.0'	16.4											
B-11	Bulk-1	0.0-5.0'								21	8		CL	Proctor
	U-1	0.5-2.0'	29.1	110.9	85.9	0.961	82	0.44	3.3					
	U-2	3.5-5.0'	19.8	129.1	107.8	0.563	95							
	S-3	8.5-10.0'	13.6											
	S-4	13.5-15.0'	9.8									0.9	SP	
	S-5	18.5-20.0'	10.8											
B-12	U-1	0.5-2.0'	22.1	121.4	99.4	0.695	86	2.52	9.2	53	32		CH	

TG SOIL TEST SUMMARY - GINT STD US LAB.GDT - 4/24/24 13:00 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
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Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

SUMMARY OF LABORATORY RESULTS

CLIENT JEO Consulting Group **PROJECT NAME** Rawhide Creek Watershed WFPO

PROJECT NUMBER 23215.01 **PROJECT LOCATION** Various Locations, Fremont, NE

Boring Number	Sample Number	Depth	Water Content (%)	Unit Weight		Void Ratio	Sat. (%)	Unconfined Compression		Atterberg Limits		%<#200 Sieve	Class.	Other Tests
				Wet Density (pcf)	Dry Density (pcf)			q_u (tsf)	Strain (%)	LL	PI			
B-12	U-2	3.5-5.0'	28.7	113.4	88.1	0.913	85	1.09	2.5					
	U-3	8.5-10.0'	15.3											
	S-4	13.5-15.0'	11.5									5.8	SP-SM	
	S-5	18.5-20.0'	4.4											
B-13	U-1	0.5-2.0'	30.2	108.9	83.6	1.016	80	0.37	4.4					
	U-2	3.5-5.0'	25.1	108.7	86.9	0.939	72	0.27	1.9					
	S-3	8.5-10.0'	16.5									0.9	SP	
	S-4	13.5-15.0'	15.4											
B-14	U-1	0.5-2.0'	20.7	122.2	101.2	0.665	84	2.27	7.3	44	23		CL	
	U-2	3.5-5.0'	29.3	120.3	93.0	0.811	98	2.17	8.7					
	S-3	8.5-10.0'	22.1											
	S-4	13.5-15.0'	10.3									3.8	SP	
	S-5	18.5-20.0'	13.5											
	S-6	23.5-25.0'	30.6											
	S-7	28.5-30.0'	28.7											
	S-8	33.5-35.0'	26.2							45	28	97.7	CL	Hydro
	S-9	38.5-40.0'	26.6											
	U-10	43.5-45.0'	27.2	123.0	96.7	0.742	99	0.87	14.9					
	U-11	48.5-50.0'	24.2	125.2	100.8	0.672	97	0.71	15.0					
	S-12	55.0-56.5'	18.1									13.7	SM	
	S-13	58.5-60.0'	20.7											
	S-14	63.5-65.0'	13.5											
	S-15	65.0-65.9'												
B-15	Bulk-1	0.0-5.0'											NP	Proctor
	U-1	0.5-2.0'	22.5	119.2	97.3	0.731	83	1.28	7.9	35	16		CL	
	U-2	3.5-5.0'	14.3	127.5	111.5	0.510	76	5.27	7.3					
	S-3	8.5-10.0'	23.0											
	S-4	13.5-15.0'	11.2									1.1	SP	
	S-5	18.5-20.0'	11.5											
B-16	U-1	0.5-2.0'	21.6	122.7	100.9	0.670	87	1.06	11.1					
	U-2	3.5-5.0'	19.0	113.9	95.7	0.760	68	1.31	2.0					
	S-3	8.5-10.0'	11.6											
	S-4	13.5-15.0'	13.7									2.8	SP	
	S-5	18.5-20.0'	15.3											
B-17	Bulk-1	0.0-5.0'								25	12		CL	Proctor
	U-1	0.5-2.0'	21.8	126.2	103.6	0.626	94	1.65	15.0	48	30		CL	
	U-2	3.5-5.0'	22.3	120.0	98.1	0.718	84	1.88	4.7					
	S-3	8.5-10.0'	17.0											
	S-4	13.5-15.0'	11.1									1.8	SP	
	S-5	18.5-20.0'	13.9											
B-18	U-1	0.5-2.0'	18.8	123.3	103.8	0.623	81	5.04	3.8	55	34			
	U-2	3.5-5.0'	18.9	123.1	103.5	0.628	82	2.88	3.4					
	S-3	8.5-10.0'	10.4											

TG SOIL TEST SUMMARY - GINT STD US LAB.GDT - 4/24/24 13:00 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech, Inc.
13478 Chandler Road
Omaha, NE 68138
Telephone: 402.556.2171
Thiele Geotech Inc Fax: 402.556.7831

SUMMARY OF LABORATORY RESULTS

CLIENT JEO Consulting Group **PROJECT NAME** Rawhide Creek Watershed WFPO

PROJECT NUMBER 23215.01 **PROJECT LOCATION** Various Locations, Fremont, NE

Boring Number	Sample Number	Depth	Water Content (%)	Unit Weight		Void Ratio	Sat. (%)	Unconfined Compression		Atterberg Limits		%<#200 Sieve	Class.	Other Tests
				Wet Density (pcf)	Dry Density (pcf)			q_u (tsf)	Strain (%)	LL	PI			
B-18	S-4	13.5-15.0'	10.6									0.7	SP	
	S-5	18.5-20.0'	12.6											
	S-6	23.5-25.0'	22.0											
	S-7	28.5-30.0'	22.2									58.5	CL	
	S-8	33.5-35.0'	14.4											
	S-9	38.5-39.4'												

TG SOIL TEST SUMMARY - GINT STD US LAB.GDT - 4/24/24 13:00 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

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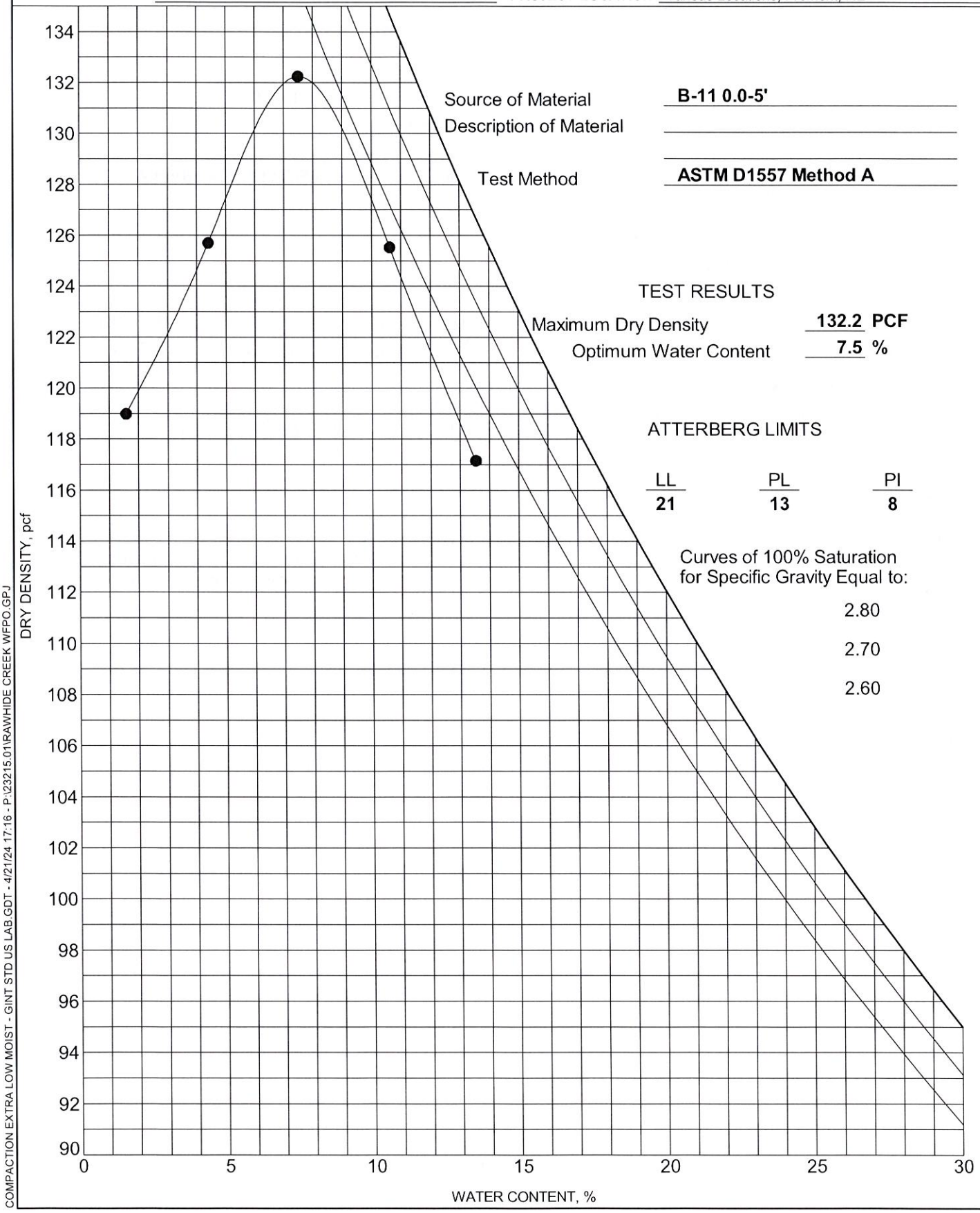
MOISTURE-DENSITY RELATIONSHIP

CLIENT JEO Consulting Group **PROJECT NAME** Rawhide Creek Watershed WFPO

PROJECT NUMBER 23215.01 **PROJECT LOCATION** Various Locations, Fremont, NE



Source of Material **B-11 0.0-5'**

Description of Material

Test Method **ASTM D1557 Method A**

TEST RESULTS

Maximum Dry Density **132.2 PCF**

Optimum Water Content **7.5 %**

ATTERBERG LIMITS

LL	PL	PI
21	13	8

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION EXTRA LOW MOIST - GINT STD US LAB.GDT - 4/21/24 17:16 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

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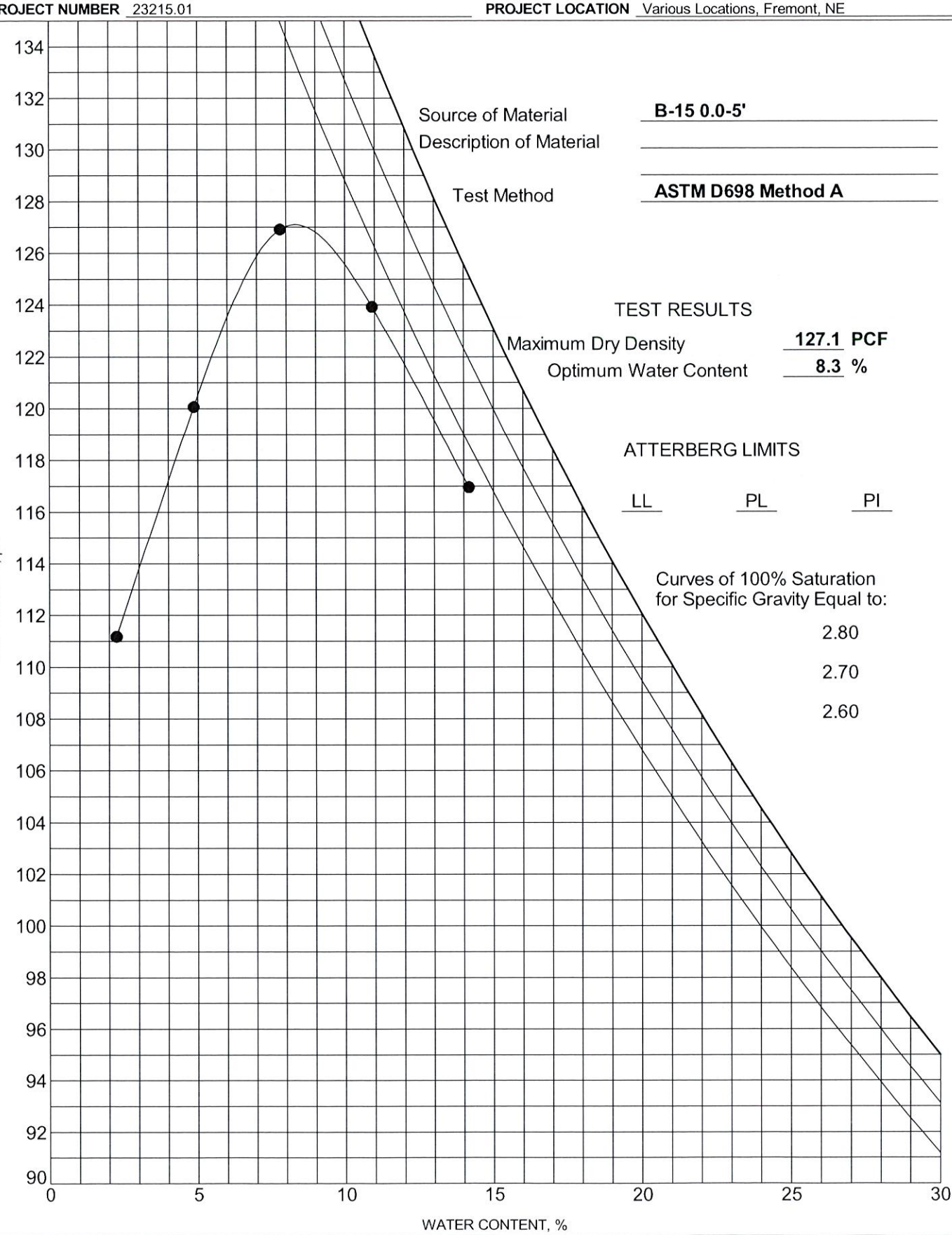
MOISTURE-DENSITY RELATIONSHIP

CLIENT JEO Consulting Group **PROJECT NAME** Rawhide Creek Watershed WFPO

PROJECT NUMBER 23215.01 **PROJECT LOCATION** Various Locations, Fremont, NE



Source of Material **B-15 0.0-5'**

Description of Material

Test Method **ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density **127.1 PCF**

Optimum Water Content **8.3 %**

ATTERBERG LIMITS

LL	PL	PI

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION EXTRA LOW MOIST - GINT STD US LAB.GDT - 4/21/24 17:17 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

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Omaha, NE 68138
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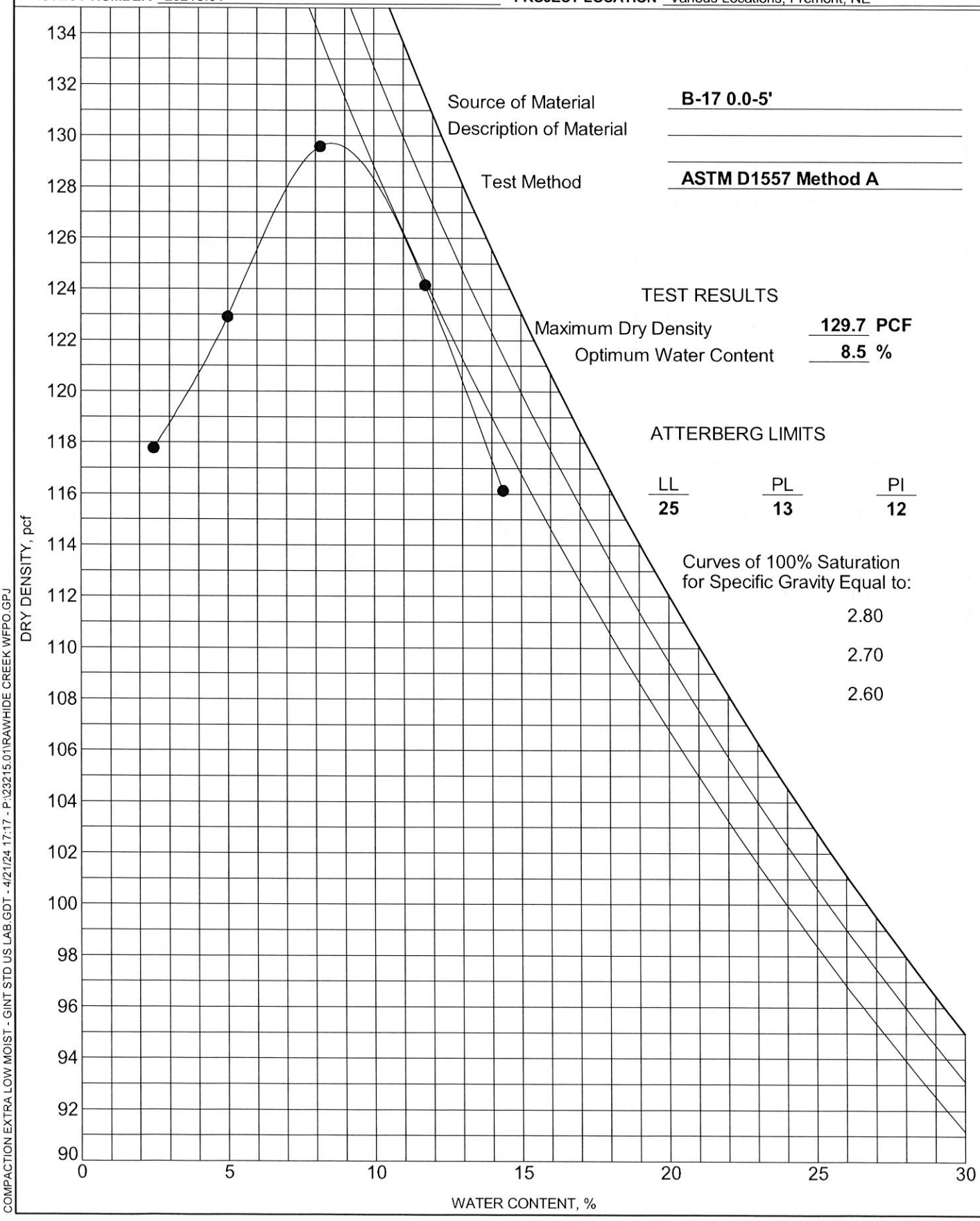
MOISTURE-DENSITY RELATIONSHIP

CLIENT JEO Consulting Group **PROJECT NAME** Rawhide Creek Watershed WFPO

PROJECT NUMBER 23215.01 **PROJECT LOCATION** Various Locations, Fremont, NE



Source of Material **B-17 0.0-5'**

Description of Material

Test Method **ASTM D1557 Method A**

TEST RESULTS

Maximum Dry Density **129.7 PCF**

Optimum Water Content **8.5 %**

ATTERBERG LIMITS

LL	PL	PI
25	13	12

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

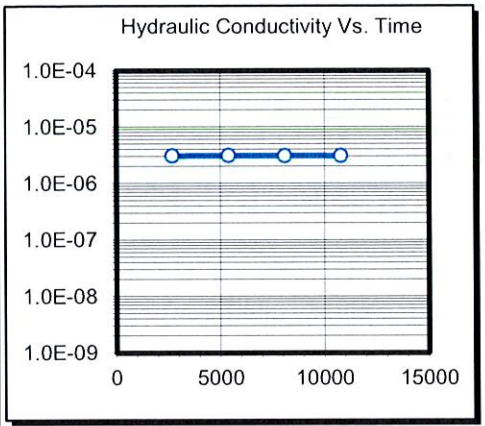
2.60

COMPACTION EXTRA LOW MOIST - GINT STD US LAB.GDT - 4/21/24 17:17 - P:\23215.01\RAWHIDE CREEK WFPO.GPJ

Thiele Geotech Inc

ASTM D 5084-90
HYDRAULIC CONDUCTIVITY (PERMEABILITY)

PROJECT IDENTIFICATION		SAMPLE IDENTIFICATION	
Client	JEO Consulting Group	Sample Descrip	dark grayish brown, lean clay
Project:	Rawhide Creek Watershed WFPO	Sample ID	B-11
Phase:	Geotechnical Exploration	Depth	0-5 feet
Location:	North Basin	Lab #	N/A
City, State	Fremont, NE	Remarks	appreciable sand
Job.:	23215.01	Sample Type	Re-Molded ASTM D 698
Report Date:	**February 22, 2024**	Compaction	Reduced Effort D 698



SPECIMEN PARAMETERS		
INITIAL	**FINAL**	
11.73	11.51	Height (cm) (Min. 2.54 cm)
7.16	7.19	Diameter (cm) (Min 2.54 cm)
132.3	135.3	Wet Density (pcf)
10.6	11.2	Moisture Content, %
119.7	121.6	Dry Density (pcf)
2.65	2.65	*Assumed Specific Gravity*
73.4	82.9	**Degree of Saturation, %**

TEST PARAMETERS

	Interval 1	Interval 2	Interval 3	Interval 4
Lateral (Chamber) Pressure (psi)	40.0	40.0	40.0	40.0
Upper Channel Pressure (psi)	36.0	36.0	36.0	36.0
Lower Channel Pressure (psi)	38.0	38.0	38.0	38.0
Differential Pressure (psi)	2.0	2.0	2.0	2.0
Hydraulic Gradient	12.0	12.0	12.0	12.0
Test Time (sec)	2700	2700	2700	2700
Elapsed Time (sec)	2700	5400	8100	10800
Upper Burette - Inflow - initial	0.00	0.00	0.00	0.00
Upper Burette - Inflow - final	8.90	8.90	8.90	8.90
Lower Burette - Outflow - initial	10.00	10.00	10.00	10.00
Lower Burette - Outflow - final	1.10	1.10	1.10	1.10
Inflow/Outflow Ratio (0.75-1.25)	1.00	1.00	1.00	1.00
Permeability (cm/sec)	3.31E-06	3.31E-06	3.31E-06	3.31E-06
Temperature (C)	23.1	22.6	22.7	23.1
Temperature Correction	0.929	0.941	0.938	0.929
Permeability, K @ 20 C (cm/sec)	3.1E-06	3.1E-06	3.1E-06	3.1E-06
Acceptable Test Limits	PASS LIMITS	PASS LIMITS	PASS LIMITS	PASS LIMITS

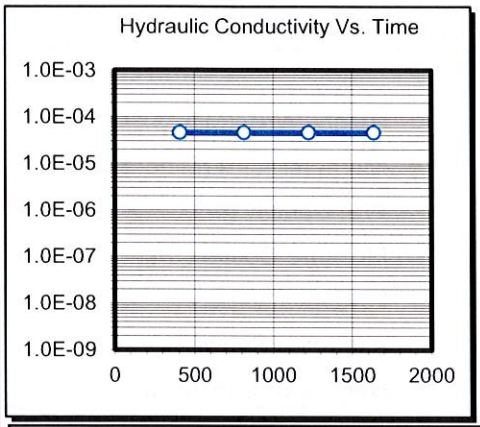
Permeability Four Interval Average **3.1E-06** **cm/sec**

Permeability Requirement < **1.0E-07** **cm/sec**

Thiele Geotech Inc

ASTM D 5084-90
HYDRAULIC CONDUCTIVITY (PERMEABILITY)

PROJECT IDENTIFICATION		SAMPLE IDENTIFICATION	
Client	JEO Consulting Group	Sample Descrip	dark brown, lean clay
Project:	Rawhide Creek Watershed WFPO	Sample ID	B-15
Phase:	Geotechnical Exploration	Depth	0-5 feet
Location:	South Basin	Lab #	N/A
City, State	Fremont, NE	Remarks	appreciable sand
Job.:	23215.01	Sample Type	Re-Molded ASTM D 698
Report Date:	**February 22, 2024**	Compaction	Reduced Effort D 698



SPECIMEN PARAMETERS

INITIAL	FINAL	
11.40	11.38	Height (cm) (Min. 2.54 cm)
7.14	7.09	Diameter (cm) (Min 2.54 cm)
135.5	138.6	Wet Density (pcf)
11.6	12.5	Moisture Content, %
121.4	123.1	Dry Density (pcf)
2.65	2.65	*Assumed Specific Gravity*
85.0	96.9	**Degree of Saturation, %**

TEST PARAMETERS

	Interval 1	Interval 2	Interval 3	Interval 4
Lateral (Chamber) Pressure (psi)	40.0	40.0	40.0	40.0
Upper Channel Pressure (psi)	37.0	37.0	37.0	37.0
Lower Channel Pressure (psi)	38.0	38.0	38.0	38.0
Differential Pressure (psi)	1.0	1.0	1.0	1.0
Hydraulic Gradient	6.2	6.2	6.2	6.2
Test Time (sec)	409	409	410	410
Elapsed Time (sec)	409	818	1228	1638
Upper Burette - Inflow - initial	0.00	0.00	0.00	0.00
Upper Burette - Inflow - final	10.00	10.00	10.00	10.00
Lower Burette - Outflow - initial	10.00	10.00	10.00	10.00
Lower Burette - Outflow - final	0.00	0.00	0.00	0.00
Inflow/Outflow Ratio (0.75-1.25)	1.00	1.00	1.00	1.00
Permeability (cm/sec)	4.68E-05	4.68E-05	4.67E-05	4.67E-05
Temperature (C)	20.5	20.6	20.6	20.7
Temperature Correction	0.992	0.990	0.990	0.987
Permeability, K @ 20 C (cm/sec)	4.6E-05	4.6E-05	4.6E-05	4.6E-05
Acceptable Test Limits	PASS LIMITS	PASS LIMITS	PASS LIMITS	PASS LIMITS

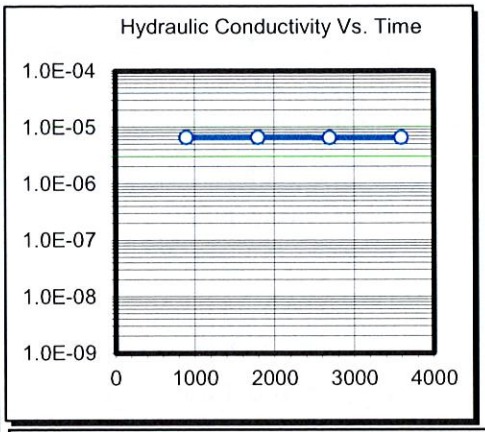
Permeability Four Interval Average **4.6E-05** **cm/sec**

Permeability Requirement < **1.0E-07** **cm/sec**

Thiele Geotech Inc

ASTM D 5084-90
HYDRAULIC CONDUCTIVITY (PERMEABILITY)

PROJECT IDENTIFICATION		SAMPLE IDENTIFICATION	
Client	JEO Consulting Group	Sample Descrip	dark gray, lean clay
Project:	Rawhide Creek Watershed WFPO	Sample ID	B-17
Phase:	Geotechnical Exploration	Depth	0-5 feet
Location:	South Basin	Lab #	N/A
City, State	Fremont, NE	Remarks	
Job.:	23215.01	Sample Type	Re-Molded ASTM D 698
Report Date:	**February 22, 2024**	Compaction	Reduced Effort D 698



SPECIMEN PARAMETERS

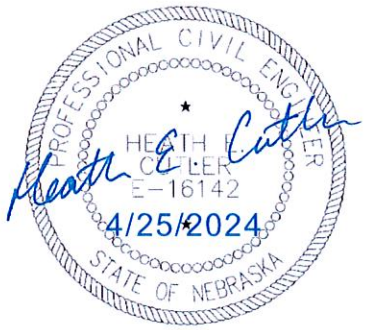
INITIAL	FINAL	
11.58	11.61	Height (cm) (Min. 2.54 cm)
7.21	7.21	Diameter (cm) (Min 2.54 cm)
134.0	137.0	Wet Density (pcf)
11.0	13.9	Moisture Content, %
120.7	120.3	Dry Density (pcf)
2.65	2.65	*Assumed Specific Gravity*
79.0	98.2	**Degree of Saturation, %**

TEST PARAMETERS

	Interval 1	Interval 2	Interval 3	Interval 4
Lateral (Chamber) Pressure (psi)	40.0	40.0	40.0	40.0
Upper Channel Pressure (psi)	36.0	36.0	36.0	36.0
Lower Channel Pressure (psi)	38.0	38.0	38.0	38.0
Differential Pressure (psi)	2.0	2.0	2.0	2.0
Hydraulic Gradient	12.2	12.2	12.2	12.2
Test Time (sec)	900	900	900	900
Elapsed Time (sec)	900	1800	2700	3600
Upper Burette - Inflow - initial	0.00	0.00	0.00	0.00
Upper Burette - Inflow - final	6.60	6.60	6.50	6.50
Lower Burette - Outflow - initial	10.00	10.00	10.00	10.00
Lower Burette - Outflow - final	3.40	3.40	3.50	3.50
Inflow/Outflow Ratio (0.75-1.25)	1.00	1.00	1.00	1.00
Permeability (cm/sec)	7.12E-06	7.12E-06	7.01E-06	7.01E-06
Temperature (C)	23.1	23.1	23	23
Temperature Correction	0.929	0.929	0.931	0.931
Permeability, K @ 20 C (cm/sec)	6.6E-06	6.6E-06	6.5E-06	6.5E-06
Acceptable Test Limits	PASS LIMITS	PASS LIMITS	PASS LIMITS	PASS LIMITS

Permeability Four Interval Average **6.6E-06** **cm/sec**

Permeability Requirement < **1.0E-07** **cm/sec**



NE Firm #CA-0080E

Environmental Review Report

Project Information

Report Generation Date:	1/28/2022 12:01:15 PM
Project Title:	Dodge County Rawhide Creek WFPO
User Project Number(s):	200881.00
System Project ID:	NE-CERT-005651
Project Type:	Water Use/Transfer/Channel Activities, Flood Control Structures
Project Activities:	Levee - New
Project Size:	142,643.82 acres
County(s):	Colfax; Dodge; Douglas; Saunders; Washington
Watershed(s):	Elkhorn; Lower Platte
Watershed(s) HUC 8:	Lower Elkhorn; Lower Platte; Lower Platte-Shell
Watershed(s) HUC 12:	102002010311; Brewery Hill-Shell Creek; City of Nickerson-Maple Creek; Crystal Creek-Maple Creek +
Biologically Unique Landscape(s):	Lower Platte River
Township/Range and/or Section(s):	016N008E; 016N009E; 017N003E; 017N004E; 017N005E; 017N006E; 017N007E; 017N008E; 017N009E; 017N010E; 018N003E; 018N004E; 018N005E; 018N006E; 018N007E; 018N008E; 018N009E
Latitude/Longitude:	41.479337 / -96.678660

Contact Information

Organization:	JEO Consulting Group
Contact Name:	Dillon Vogt
Contact Phone:	4024748798
Contact Email:	dvogt@jeo.com
Contact Address:	2000 Q St Ste 500 Lincoln NE 68503
Prepared By:	
Submitted On Behalf Of:	Dodge County

Project Description

Explore flood mitigation alternatives in the Rawhide Creek Watershed.

Introduction

The Nebraska Game and Parks Commission (Commission) and the U.S. Fish and Wildlife Service (Service) have special concerns for endangered and threatened species, migratory birds, and other fish and wildlife and their habitats. Habitats frequently used by fish and wildlife species are wetlands, streams, riparian areas, woodlands, and grasslands. Special attention is given to proposed projects which modify wetlands, alter streams, result in loss of riparian habitat, convert/remove grasslands, or contaminate habitats. When this occurs, the Commission and Service recommend ways to avoid, minimize, or compensate for adverse effects to fish and wildlife and their habitats.

CONSULTATION PURSUANT TO THE NEBRASKA NONGAME AND ENDANGERED SPECIES CONSERVATION ACT (NESCA)

The Commission has responsibility for protecting state-listed endangered and threatened species under authority of the Nongame and Endangered Species Conservation Act (NESCA) (Neb. Rev. Stat. § 37-801 to 37-811). Pursuant to § 37-807 (3) of NESCA, all state agencies shall, in consultation with the Commission, ensure projects they authorize (i.e., issue a permit for), fund or carry out do not jeopardize the continued existence of state-listed endangered or threatened species or result in the destruction or modification of habitat of such species which is determined by the Commission to be critical. If a proposed project may affect state-listed species or designated critical habitat, further consultation with the Commission is required.

Informal consultation pursuant to NESCA can be completed by using the Conservation and Environmental Review Tool (CERT). The CERT analyzes the project type and location, and based on the analysis, provides information about potential impacts to listed species, habitat questions and/or conservation conditions.

- If project proponents agree to implement conservation conditions, as outlined in the report and applicable to the project type, then this document serves as documentation of consultation and the following actions can be taken to move forward with the project:
    - Sign the report in the designated areas.
    - Upload the signed PDF as part of their "final" project submittal.
    - By agreeing to and implementing the conservation conditions as outlined (if applicable), then further consultation with the Commission is not required.
- If the report indicates the project may have impacts on state-listed species, then the following actions must be taken:
    - Project proponent is required to contact and consult with the Commission. Contact information can be found within this document.

TECHNICAL ASSISTANCE AND CONSULTATION PURSUANT TO THE ENDANGERED SPECIES ACT (ESA)

The Service has responsibility for conservation and management of fish and wildlife resources for the benefit of the American public under the following authorities: 1) Endangered Species Act of 1973 (ESA); 2) Fish and Wildlife Coordination Act; 3) Bald and Golden Eagle Protection Act; and 4) Migratory Bird Treaty Act. The National Environmental Policy Act (NEPA) requires compliance with all of these statutes and regulations.

Pursuant to section 7(a)(2) of ESA, every federal agency, shall in consultation with the Service, ensure that an action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

If a proposed project may affect federally listed species or designated critical habitat, Section 7 consultation is required with the Service. It is the responsibility of the lead federal action agency to fully evaluate all potential effects (direct and indirect) that may occur to federally listed species and critical habitat in the action area. The lead federal agency provides their effect determination to the Service for concurrence. If federally listed species and/or designated/proposed critical habitat would be adversely affected by implementation of the project, the lead federal agency will need to formally request further section 7 consultation with the Service prior to making any irretrievable or

irreversible commitment of federal funds (section 7(d) of ESA), or issuing any federal permits or licenses.

The information generated in this report DOES NOT satisfy consultation obligations between the lead federal agency and the Service pursuant to ESA. For the purposes of ESA, the information in this report should be considered as TECHNICAL ASSISTANCE, and does not serve as the Service's concurrence letter, even if the user signs and agrees to implement conservation conditions in order to satisfy the consultation requirements of NESCA.

Overall Results

The following result is based on a detailed analysis of your project.

- Potential impacts on listed species may occur as a result of this project. Please proceed with the following: Sign and date the certification section. Upload the document as "final." Email a copy of the report with a request for review to the Nebraska Game and Parks Commission (ngpc.envreview@nebraska.gov) and copy the U.S. Fish and Wildlife Service (nebraskaes@fws.gov) for further consultation.

Additional Information

Potential impacts on listed species may occur as a result of this project. Further consultation with the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service is required.

Nebraska Game and Parks Commission Property
This project is within or near a property owned and/or managed by the Nebraska Game and Parks Commission (NGPC). Please contact the Nebraska Game and Parks Commission to determine if this project will have impacts on the property.

Certification

I certify that ALL of the project information in this report (including project location, project size/configuration, project type, project activities, answers to questions) is true, accurate, and complete. If the project type, activities, location, size, or configuration of the project change, or if any of the answers to any questions asked in this report change, then this information is no longer valid and we recommend running the revised project through CERT to get an updated report.

_____ _____

Applicant/project proponent signature Date

Additional Considerations

Bald and Golden Eagle Protection Act

The federal Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668c) provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*). Under the Eagle Act, "take" of eagles, their parts, nests or eggs is prohibited. Disturbance resulting in injury to an eagle or a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior is a form of "take."

Bald eagles use mature, forested riparian areas near rivers, streams, lakes, and wetlands and occur along all the major river systems in Nebraska. The bald eagle southward migration begins as early as October and the wintering period extends from December-March. The golden eagle is found in arid open country with grassland for foraging in western Nebraska and usually near buttes or canyons which serve as nesting sites. Golden eagles are often a permanent resident in the Pine Ridge area of Nebraska. Additionally, many bald and golden eagles nest in Nebraska from mid-February through mid-July. Disturbances within 0.5-miles of an active nest or within line-of-sight of the nest could cause adult eagles to discontinue nest building or to abandon eggs. Both bald and golden eagles frequent river systems in Nebraska during the winter where open water and forested corridors provide feeding, perching, and roosting habitats, respectively. The frequency and duration of eagle use of these habitats in the winter depends upon ice and weather conditions. Human disturbances and loss of wintering habitat can cause undue stress leading to cessation of feeding and failure to meet winter thermoregulatory requirements. These affects can reduce the carrying capacity of preferred wintering habitat and reproductive success for the species.

To comply with the Eagle Act, it is recommended that the project proponent determine if the proposed project would impact bald or golden eagles or their habitats. This can be done by conducting a habitat assessment, surveying nesting habitat for active and inactive nests, and surveying potential winter roosting habitat to determine if it is being used by eagles. The area to be surveyed is dependent on the type of project; however for most projects we recommend surveying the project area and a ½ mile buffer around the project area. If it is determined that either species could be affected by the proposed project, the Commission recommends that the project proponent notify the Nebraska Game and Parks Commission as well as the Nebraska Field Office, U.S. Fish and Wildlife Service for recommendations to avoid "take" of bald and golden eagles.

Migratory Bird Treaty Act and Nebraska Revised Statute §37-540

We recommend the project proponent compliy with the Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 *as amended*) (MBTA). The project proponent should also comply with Nebraska Revised Statute §37-540, which prohibits take and destruction of nests or eggs of protected birds (as defined in Nebraska Revised Statute §37-237.01). Construction activities in grassland, wetland, stream, woodland, and river bank habitats that would result in impacts on birds, their nests or eggs protected under these laws should be avoided. Although the provisions of these laws are applicable year-round, most migratory bird nesting activity in Nebraska occurs during the period of May 1 to July 15. However, some migratory birds are known to nest outside of the aforementioned primary nesting season period. For example, raptors can be expected to nest in woodland habitats during February 1 through July 15, whereas sedge wrens, which occur in some wetland habitats, normally nest from July 15 to September 10. If development in this area is planned to occur during the primary nesting season or at any other time which may result in impacts to birds, their nests or eggs protected under these laws, we request that the project proponent arrange to have a qualified biologist conduct a field survey of the affected habitats to determine the absence or presence of nesting migratory birds. If a field survey identifies the existence of one or more active bird nests that cannot be avoided by the planned construction activities, the Nebraska Game and Parks Commission and the Nebraska Field Office, U.S. Fish and Wildlife Service should be contacted immediately. For more information on avoiding impacts to migratory birds, their nests and eggs, or to report active bird nests that cannot be avoided by planned construction activities, please contact the U.S. Fish and Wildlife Service and/or the Nebraska Game and Parks Commission (contact information within report). Adherence to these guidelines will help avoid unnecessary impacts on migratory birds.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires consultation with the U.S. Fish and Wildlife Service (Service) and the State fish and wildlife agency (i.e., Nebraska Game and Parks Commission) for the purpose of preventing loss of and damage to fish and wildlife resources in the planning, implementation, and operation of federal and federaly funded, permitted, or licensed water resource development projects. This statute requires that federal

agencies take into consideration the effect that the water related project would have on fish and wildlife resources, to take action to prevent loss or damage to these resources, and to provide for the development and improvement of these resources. The comments in this letter are provided as technical assistance only and are not the document required of the Secretary of the Interior pursuant to Section 2(b) of FWCA on any required federal environmental review or permit. This technical assistance is valid only for the described conditions and will have to be revised if significant environmental changes or changes in the proposed project take place. In order to determine whether the effects to fish and wildlife resources from the proposed project are being considered under FWCA, the lead federal agency must notify the Service in writing of how the comments and recommendations in this technical assistance letter are being considered into the proposed project.

Section 404 of the Clean Water Act

In general, the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service have concerns for impacts to wetlands, streams and riparian habitats. We recommend that impacts to wetlands, streams, and associated riparian corridors be avoided and minimized, and that any unavoidable impacts to these habitats be mitigated. If any fill materials will be placed into waterways or wetlands, the U.S. Army Corps of Engineers Regulatory Office in Omaha should be contacted to determine if a 404 permit is needed.

Agency Contact Information

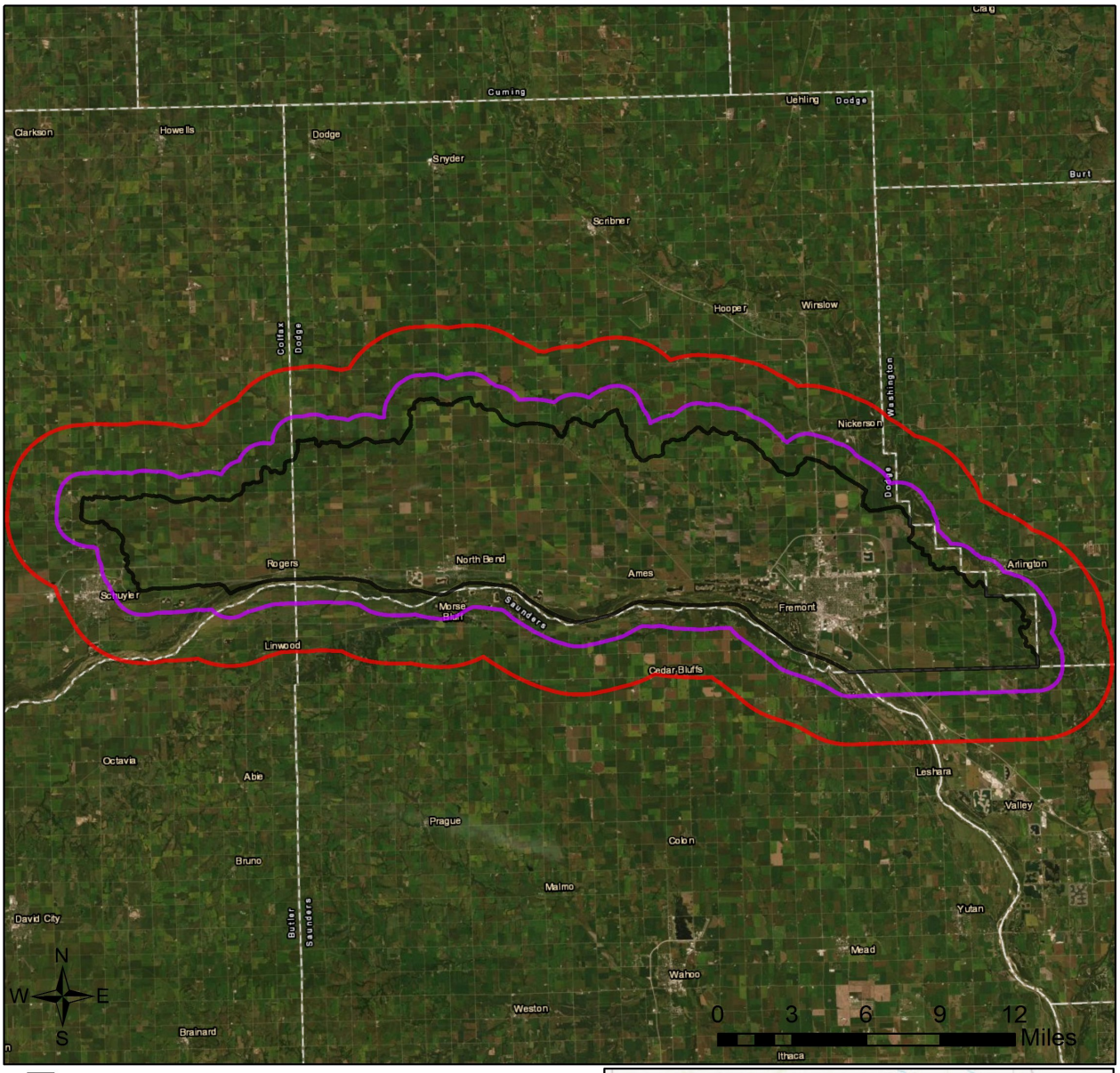
Nebraska Game and Parks Commission
Environmental Review Team
2200 North 33rd Street
Lincoln, NE 68503
phone: (402) 471-5554
email: ngpc.envreview@nebraska.gov

U.S. Fish and Wildlife Service

Nebraska Ecological Services
9325 South Alda Road
Wood River, NE 68883
phone: (308) 382-6468
email: nebraskaes@fws.gov

Dodge County Rawhide Creek WFPO

Aerial Image Basemap With Locator Map



Project Boundary

Project Review Boundary

3-mile Information Buffer Boundary

Project Size (acres): 142,643.82

Lat/Long (DD): 41.4793 / -96.6787

County(s): Colfax; Dodge; Douglas; Saunders +

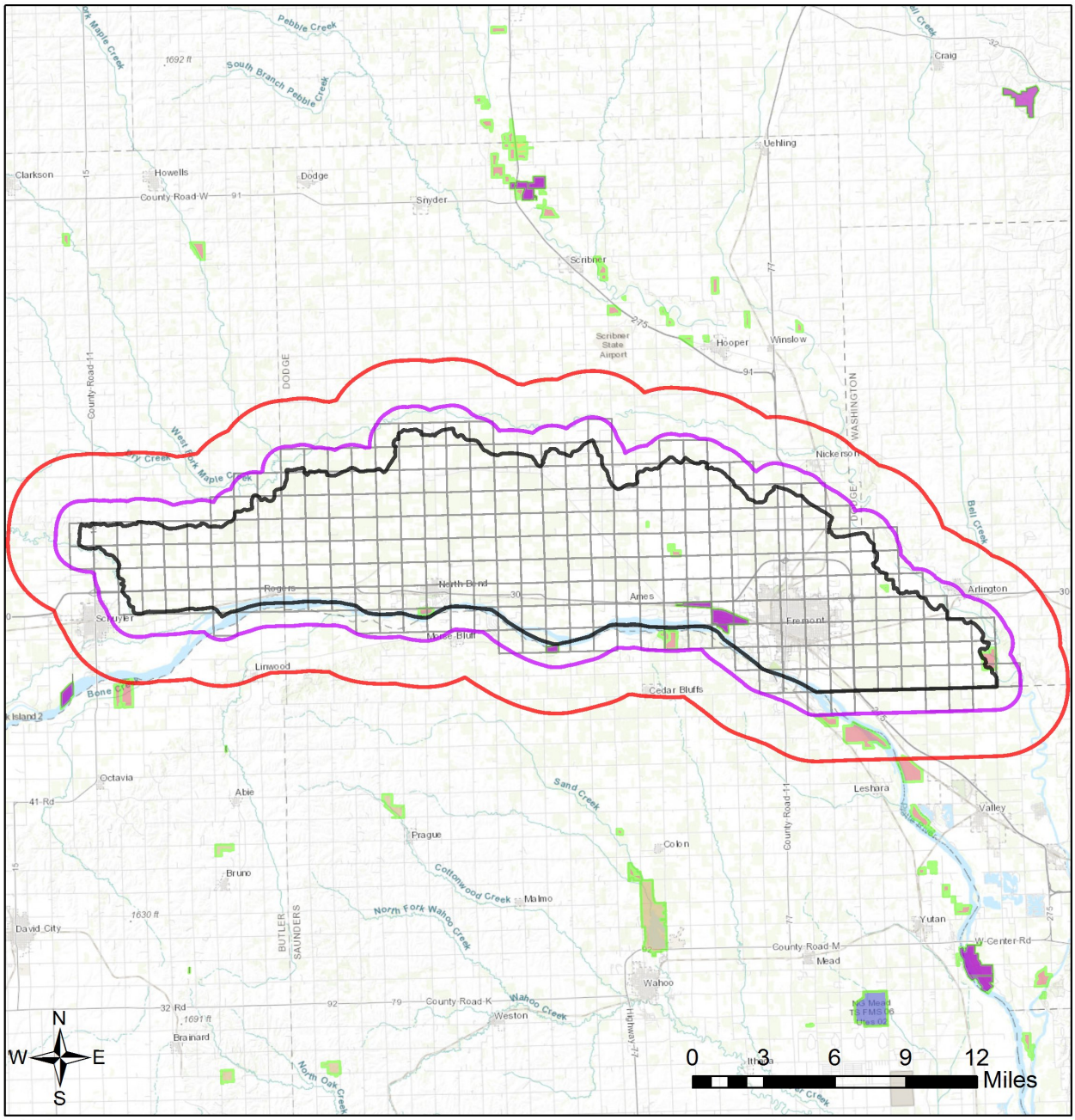
BUL(s): Lower Platte River

Township/Range/Section(s): T16R08ES01; T16R09ES01; T16R09ES02; T16R09ES06; T17R03ES01 +

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Dodge County Rawhide Creek WFPO

Topographic Basemap With Sections and Protected Areas



- Project Boundary
- Project Review Boundary
- 3-mile Information Buffer Boundary
- Sections
- NGPC Properties
- PAD (USGS) - boundaries

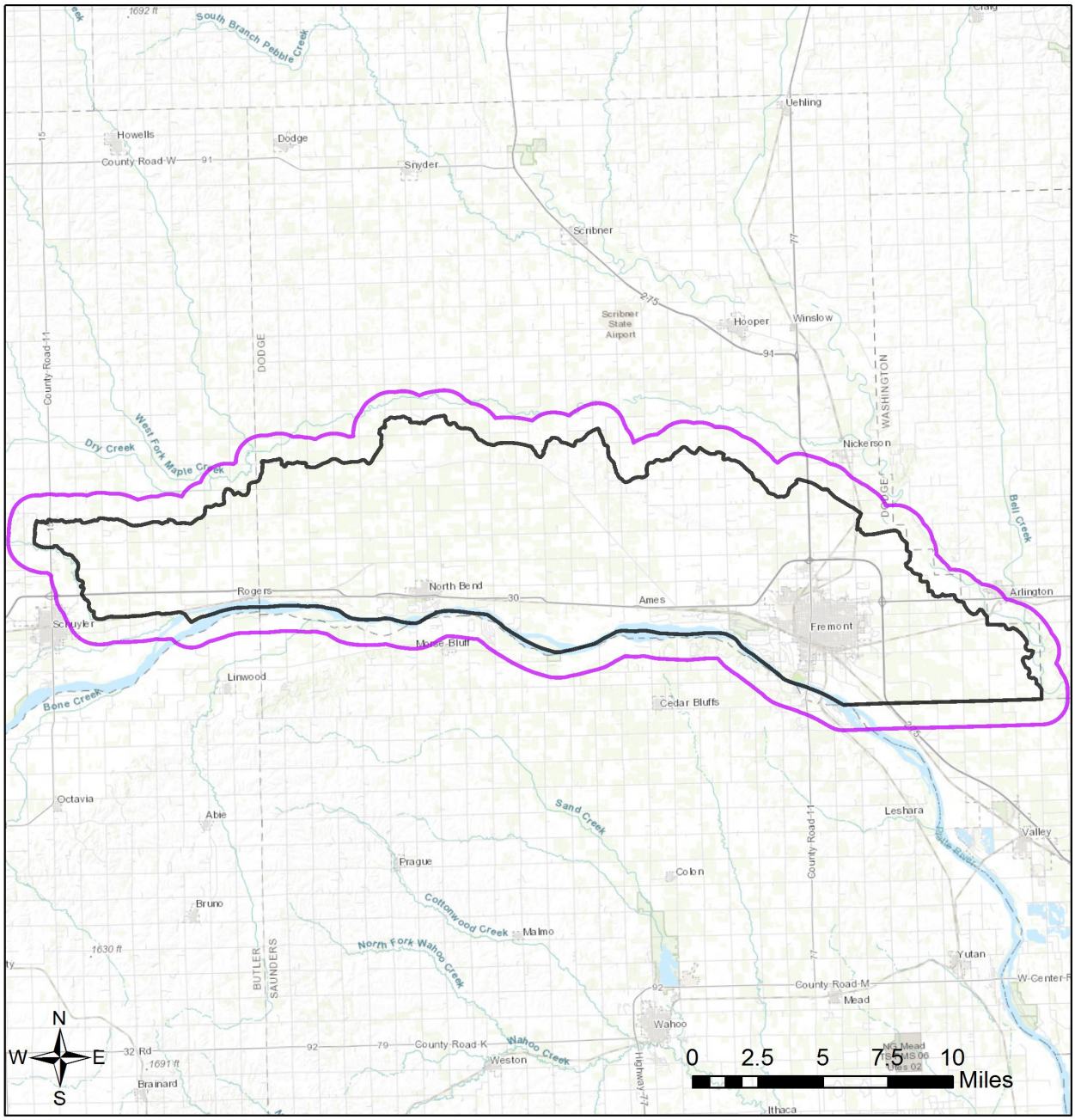
Protected Areas Database (USGS)

- U.S. Fish and Wildlife Service
- U.S. Forest Service
- National Park Service
- Bureau of Reclamation
- Designation
- Regional Agency
- State (NGPC)
- Other State
- NGO or Private
- Other (City, Unknown)

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Dodge County Rawhide Creek WFPO

Web Map As Submitted By User



Project Boundary

Project Review Boundary

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Table 1
Protected Areas in Immediate Vicinity of Project (project review area)

Area Name	Owner/Manager	Information Source
Bramble WMA	Nebraska Game and Parks Commission	NGPC
Bramble Wildlife Management Area	State Fish and Wildlife	USGS Protected Areas Database
Farm and Ranch Lands Protection Program Easement (FRPP)_,Nebraska	Private	USGS Protected Areas Database
Fremont Lakes SRA	Nebraska Game and Parks Commission	NGPC
Fremont Lakes State Recreation Area	State Fish and Wildlife	USGS Protected Areas Database
Fremont Lakes State Recreation Area	State Park and Recreation	USGS Protected Areas Database
Nebraska Land Trust #6	Private	USGS Protected Areas Database
Us-Ne-211-1	Non-Governmental Organization	USGS Protected Areas Database
Wetlands Reserve Program (WRP)_Dodge,Nebraska	Private	USGS Protected Areas Database
Wetlands Reserve Program (WRP)_Saunders,Nebraska	Private	USGS Protected Areas Database

Table 2
Documented Occurrences in Immediate Vicinity of Project (project review area):
Natural communities and selected special areas

Name	Other Information	SRank	GRank
Bur Oak-Basswood-Ironwood Forest	Bur Oak-Basswood-Ironwood Forest	S2S3	GNR
Lowland Tall-grass Prairie	Lowland Tall-grass Prairie	S1	GNR
Northern Cordgrass Wet Prairie	Northern Cordgrass Wet Prairie	S2	G3?
Lower Platte River Biologically Unique Landscape	Link to BUL document		

Table 3
Regional Documented Occurrences of Species within 1 Mile of Project Review Area:
Tier 1 and 2 at-risk species and additional S1-S3 plants

Scientific Name	Common Name	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Boloria selene nebraskensis	Nebraska Fritillary			Tier 1	SNR	G5T3T4	Invertebrate Animal - Butterflies and Skippers
Bulbostylis capillaris	Dense-tuft Hair-sedge				S3S4	G5	Vascular Plant - Monocots
Caprimulgus carolinensis	Chuck-will's-widow			Tier 2	S3	G5	Vertebrate Animal - Birds

Table 3
Regional Documented Occurrences of Species within 1 Mile of Project Review Area:
Tier 1 and 2 at-risk species and additional S1-S3 plants

Scientific Name	Common Name	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Carex lupulina	Hop Sedge			Tier 2	S1	G5	Vascular Plant - Monocots
Carex radiata	Eastern Star Sedge			Tier 2	S1	G5	Vascular Plant - Monocots
Charadrius melodus	Piping Plover	T	T	Tier 1	S2	G3	Vertebrate Animal - Birds
Cornus obliqua	Pale Dogwood				S2S4	G5	Vascular Plant - Dicots
Croton glandulosus var. septentrionalis	Sand Croton				S2S4	G5T5	Vascular Plant - Dicots
Cycleptus elongatus	Blue Sucker			Tier 1	S1	G3G4	Vertebrate Animal - Fishes
Cyclonaias pustulosa	Pimpleback			Tier 1	S2	G5	Invertebrate Animal - Freshwater Mussels
Cygnus buccinator	Trumpeter Swan			Tier 2	S2	G4	Vertebrate Animal - Birds
Erynnis brizo	Sleepy Duskywing			Tier 2	S2	G5	Invertebrate Animal - Butterflies and Skippers
Erynnis juvenalis	Juvenal's Duskywing			Tier 2	S3	G5	Invertebrate Animal - Butterflies and Skippers
Euphyes bimacula illinois	Two-spotted Skipper			Tier 1	S3	G4T1T2	Invertebrate Animal - Butterflies and Skippers
Euphyes dion	Dion Skipper			Tier 2	S2	G5	Invertebrate Animal - Butterflies and Skippers
Fundulus sciadicus	Plains Topminnow			Tier 1	S3	G4	Vertebrate Animal - Fishes
Galearis spectabilis	Showy Orchis			Tier 2	S1	G5	Vascular Plant - Monocots
Gentiana andrewsii var. dakotica	Bottle Gentian				S2S4	G5?T4T5	Vascular Plant - Dicots
Geum laciniatum var. trichocarpum	Rough Avens				S2S3	G5T3T5	Vascular Plant - Dicots
Haliaeetus leucocephalus	Bald Eagle			Tier 2	S3	G5	Vertebrate Animal - Birds
Houstonia purpurea var. calycosa	Midwestern Summer Bluets			Tier 2	S1	G5T5	Vascular Plant - Dicots
Hybognathus argyritis	Western Silvery Minnow			Tier 1	S2	G4	Vertebrate Animal - Fishes
Hybognathus placitus	Plains Minnow			Tier 1	S2	G4	Vertebrate Animal - Fishes
Hylocichla mustelina	Wood Thrush			Tier 1	S3	G4	Vertebrate Animal - Birds

Table 3
Regional Documented Occurrences of Species within 1 Mile of Project Review Area:
Tier 1 and 2 at-risk species and additional S1-S3 plants

Scientific Name	Common Name	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Ironoquia plattensis	Platte River Caddisfly			Tier 1	S1S2	G1G2	Invertebrate Animal - Caddisflies
Lampsilis teres	Yellow Sandshell			Tier 2	S1	G5	Invertebrate Animal - Freshwater Mussels
Lilium michiganense	Turk's Cap Lily				S2S4	G5	Vascular Plant - Monocots
Luxilus cornutus	Common Shiner			Tier 2	S2	G5	Vertebrate Animal - Fishes
Macrhybopsis gelida	Sturgeon Chub		E	Tier 1	S1	G3	Vertebrate Animal - Fishes
Macrhybopsis hyostoma	Shoal Chub			Tier 2	S3	G5	Vertebrate Animal - Fishes
Macrhybopsis storeriana	Silver Chub			Tier 2	S2	G5	Vertebrate Animal - Fishes
Mitoura grynea	Olive Hairstreak			Tier 2	S3	G5	Invertebrate Animal - Butterflies and Skippers
Patis racemosa	Black-seed Ricegrass			Tier 2	S2	G5	Vascular Plant - Monocots
Platygobio gracilis	Flathead Chub			Tier 1	S2	G5	Vertebrate Animal - Fishes
Poanes hobomok	Hobomok Skipper			Tier 2	S3S4	G5	Invertebrate Animal - Butterflies and Skippers
Polites origenes	Crossline Skipper			Tier 2	S3	G5?	Invertebrate Animal - Butterflies and Skippers
Pompeius verna	Little Glassywing			Tier 2	S2S3	G5	Invertebrate Animal - Butterflies and Skippers
Satyrium calanus	Banded Hairstreak			Tier 2	S2S3	G5	Invertebrate Animal - Butterflies and Skippers
Scaphirhynchus albus	Pallid Sturgeon	E	E	Tier 1	S1	G2	Vertebrate Animal - Fishes
Sistrurus tergeminus	Western Massasauga		T	Tier 1	S1	G3G4	Vertebrate Animal - Reptiles
Staphylus hayhurstii	Scalloped Sootywing			Tier 2	S3	G5	Invertebrate Animal - Butterflies and Skippers
Sternula antillarum athalassos	Interior Least Tern	E	E	Tier 1	S2	G4T3Q	Vertebrate Animal - Birds
Wallengrenia egeremet	Northern Broken Dash			Tier 2	S3	G5	Invertebrate Animal - Butterflies and Skippers

Table 4
Potential Occurrences in Immediate Vicinity of Project (project review area):
Special status species (Tier 1 at-risk species and Bald and Golden Eagle), based on models or range maps

Scientific Name	Common Name	Data Type	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Acipenser fulvescens	Lake Sturgeon	Model		T	Tier 1	S1	G3G4	Vertebrate Animal - Fishes
Ammodramus henslowii	Henslow's Sparrow	Range			Tier 1	S1	G4	Vertebrate Animal - Birds
Asio flammeus	Short-eared Owl	Range			Tier 1	S2	G5	Vertebrate Animal - Birds
Atrytone arogos iowa	Iowa Skipper	Range			Tier 1	S1	G2G3T2T3	Invertebrate Animal - Butterflies and Skippers
Boloria selene nebraskensis	Nebraska Fritillary	Range			Tier 1	SNR	G5T3T4	Invertebrate Animal - Butterflies and Skippers
Calidris subruficollis	Buff-breasted Sandpiper	Range			Tier 1	S2N	G4	Vertebrate Animal - Birds
Catocala nuptialis	Married Underwing	Range			Tier 1	SNR	G3	Invertebrate Animal - Underwing Moths
Catocala whitneyi	Whitney Underwing	Range			Tier 1	S1	G2G3	Invertebrate Animal - Underwing Moths
Charadrius melodus	Piping Plover	Model	T	T	Tier 1	S2	G3	Vertebrate Animal - Birds
Coccyzus erythropthalmus	Black-billed Cuckoo	Range			Tier 1	S3	G5	Vertebrate Animal - Birds
Cycleptus elongatus	Blue Sucker	Range			Tier 1	S1	G3G4	Vertebrate Animal - Fishes
Danaus plexippus	Monarch	Range			Tier 1	S2	G4	Invertebrate Animal - Butterflies and Skippers
Ellipsoptera lepida	Ghost Tiger Beetle	Range			Tier 1	S2	G3G4	Invertebrate Animal - Beetles
Emydoidea blandingii	Blanding's Turtle	Range		NC	Tier 1	S4	G4	Vertebrate Animal - Turtles
Erynnis martialis	Mottled Duskywing	Range			Tier 1	S2	G3	Invertebrate Animal - Butterflies and Skippers
Euphyes bimacula illinois	Two-spotted Skipper	Range			Tier 1	S3	G4T1T2	Invertebrate Animal - Butterflies and Skippers
Euphyes conspicua buchholzi	Bucholz Black Dash	Range			Tier 1	S1	G4G5T1	Invertebrate Animal - Butterflies and Skippers
Fundulus sciadicus	Plains Topminnow	Range			Tier 1	S3	G4	Vertebrate Animal - Fishes
Haliaeetus leucocephalus	Bald Eagle	Range			Tier 2	S3	G5	Vertebrate Animal - Birds
Hesperia ottoe	Ottoe Skipper	Range			Tier 1	S2	G3	Invertebrate Animal - Butterflies and Skippers
Hybognathus argyritis	Western Silvery Minnow	Range			Tier 1	S2	G4	Vertebrate Animal - Fishes

Table 4
Potential Occurrences in Immediate Vicinity of Project (project review area):
Special status species (Tier 1 at-risk species and Bald and Golden Eagle), based on models or range maps

Scientific Name	Common Name	Data Type	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Hybognathus placitus	Plains Minnow	Range			Tier 1	S2	G4	Vertebrate Animal - Fishes
Hylocichla mustelina	Wood Thrush	Range			Tier 1	S3	G4	Vertebrate Animal - Birds
Ironoquia plattensis	Platte River Caddisfly	Range			Tier 1	S1S2	G1G2	Invertebrate Animal - Caddisflies
Lanius ludovicianus	Loggerhead Shrike	Range			Tier 1	S3	G4	Vertebrate Animal - Birds
Lasiurus borealis	Eastern Red Bat	Range			Tier 1	S3	G3G4	Vertebrate Animal - Mammals
Lasiurus cinereus	Hoary Bat	Range			Tier 1	S3	G3G4	Vertebrate Animal - Mammals
Lethe eurydice fumosus	Smoky-eyed Brown	Range			Tier 1	S3	G5T3T4	Invertebrate Animal - Butterflies and Skippers
Macrhybopsis gelida	Sturgeon Chub	Model		E	Tier 1	S1	G3	Vertebrate Animal - Fishes
Myotis septentrionalis	Northern Long-eared Myotis	Range	T	T	Tier 1	S1S2	G1G2	Vertebrate Animal - Mammals
Perimyotis subflavus	Tricolored Bat	Range			Tier 1	S3	G2G3	Vertebrate Animal - Mammals
Perognathus flavescens perniger	Plains Pocket Mouse	Range			Tier 1	SNR	G5TNR	Vertebrate Animal - Mammals
Platygobio gracilis	Flathead Chub	Range			Tier 1	S2	G5	Vertebrate Animal - Fishes
Scaphirhynchus albus	Pallid Sturgeon	Model	E	E	Tier 1	S1	G2	Vertebrate Animal - Fishes
Sistrurus tergeminus	Western Massasauga	Range		T	Tier 1	S1	G3G4	Vertebrate Animal - Reptiles
Speyeria idalia	Regal Fritillary	Range			Tier 1	S3	G3?	Invertebrate Animal - Butterflies and Skippers
Sternula antillarum athalassos	Interior Least Tern	Model	E	E	Tier 1	S2	G4T3Q	Vertebrate Animal - Birds

Environmental Review Report

Project Information

Report Generation Date:	11/28/2023 09:32:49 AM
Project Title:	Rawhide Creek WFPO
User Project Number(s):	200881.00
System Project ID:	NE-CERT-011181
Project Type:	NRCS Projects/Practices
Project Activities:	326 - Clearing and Snagging (Ft) - riparian/wetland practice 342 - Critical Area Planting (Ac) 356 - Dike (Ft) 402 - Dam, Floodwater Retarding (No. and Ac/Ft) 410 - Grade Stabilization Structure (No) 560 - Access Road (Ft) 580 - Streambank and Shoreline Protection (Ft) - riparian/wetland practice 582 - Open Channel (Ft) 584 - Stream Channel Stabilization (Ft) - riparian/wetland practice
Project Size:	1,308.24 acres
County(s):	Dodge
Watershed(s):	Elkhorn; Lower Platte
Watershed(s) HUC 8:	Lower Elkhorn; Lower Platte
Watershed(s) HUC 12:	Elm Creek-Platte River; Rawhide Creek; Rawhide Creek-Platte River
Biologically Unique Landscape(s):	Lower Platte River
Township/Range and/or Section(s):	T17R07ES04; T17R08ES04; T17R08ES05; T17R08ES08; T17R08ES09; T18R07ES19; T18R07ES20; T18R07ES29; T18R07ES30; T18R07ES32; T18R07ES33
Latitude/Longitude:	41.465014 / -96.547004

Contact Information

Organization:	JEO Consulting Group
Contact Name:	Dillon Vogt
Contact Phone:	4024748798
Contact Email:	dvogt@jeo.com
Contact Address:	2000 Q St Ste 500 Lincoln NE 68503
Prepared By:	
Submitted On Behalf Of:	Dodge County

Project Description

Proposed alternative for the Rawhide Creek WFPO. Construction of berm improvements to the Brush Creek Dam outfall, raising of Cutoff Ditch Road, and excavation of two detention cells.

Introduction

The Nebraska Game and Parks Commission (Commission) and the U.S. Fish and Wildlife Service (Service) have special concerns for endangered and threatened species, migratory birds, and other fish and wildlife and their habitats. Habitats frequently used by fish and wildlife species are wetlands, streams, riparian areas, woodlands, and grasslands. Special attention is given to proposed projects which modify wetlands, alter streams, result in loss of riparian habitat, convert/remove grasslands, or contaminate habitats. When this occurs, the Commission and Service recommend ways to avoid, minimize, or compensate for adverse effects to fish and wildlife and their habitats.

CONSULTATION PURSUANT TO THE NEBRASKA NONGAME AND ENDANGERED SPECIES CONSERVATION ACT (NESCA)

The Commission has responsibility for protecting state-listed endangered and threatened species under authority of the Nongame and Endangered Species Conservation Act (NESCA) (Neb. Rev. Stat. § 37-801 to 37-811). Pursuant to § 37-807 (3) of NESCA, all state agencies shall, in consultation with the Commission, ensure projects they authorize (i.e., issue a permit for), fund or carry out do not jeopardize the continued existence of state-listed endangered or threatened species or result in the destruction or modification of habitat of such species which is determined by the Commission to be critical. If a proposed project may affect state-listed species or designated critical habitat, further consultation with the Commission is required.

Informal consultation pursuant to NESCA can be completed by using the Conservation and Environmental Review Tool (CERT). The CERT analyzes the project type and location, and based on the analysis, provides information about potential impacts to listed species, habitat questions and/or conservation conditions.

- If project proponents agree to implement conservation conditions, as outlined in the report and applicable to the project type, then this document serves as documentation of consultation and the following actions can be taken to move forward with the project:
    - Sign the report in the designated areas.
    - Upload the signed PDF as part of their "final" project submittal.
    - By agreeing to and implementing the conservation conditions as outlined (if applicable), then further consultation with the Commission is not required.
- If the report indicates the project may have impacts on state-listed species, then the following actions must be taken:
    - Project proponent is required to contact and consult with the Commission. Contact information can be found within this document.

TECHNICAL ASSISTANCE AND CONSULTATION PURSUANT TO THE ENDANGERED SPECIES ACT (ESA)

The Service has responsibility for conservation and management of fish and wildlife resources for the benefit of the American public under the following authorities: 1) Endangered Species Act of 1973 (ESA); 2) Fish and Wildlife Coordination Act; 3) Bald and Golden Eagle Protection Act; and 4) Migratory Bird Treaty Act. The National Environmental Policy Act (NEPA) requires compliance with all of these statutes and regulations.

Pursuant to section 7(a)(2) of ESA, every federal agency, shall in consultation with the Service, ensure that an action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

If a proposed project may affect federally listed species or designated critical habitat, Section 7 consultation is required with the Service. It is the responsibility of the lead federal action agency to fully evaluate all potential effects (direct and indirect) that may occur to federally listed species and critical habitat in the action area. The lead federal agency provides their effect determination to the Service for concurrence. If federally listed species and/or designated/proposed critical habitat would be adversely affected by implementation of the project, the lead federal agency will need to formally request further section 7 consultation with the Service prior to making any irretrievable or irreversible commitment of federal funds (section 7(d) of ESA), or issuing any federal permits or licenses.

The information generated in this report DOES NOT satisfy consultation obligations between the lead federal agency and the Service pursuant to ESA. For the purposes of ESA, the information in this report should be considered as TECHNICAL ASSISTANCE, and does not serve as the Service's concurrence letter, even if the user signs and agrees to implement conservation conditions in order to satisfy the consultation requirements of NESCA.

Overall Results

The following result is based on a detailed analysis of your project.

- More information needed - refer to the following sections. Answer the habitat question(s) in the section below. Additional consultation with the Nebraska Game and Parks Commission and/or the U.S. Fish and Wildlife Service may or may not be required. Refer to the "Conservation Conditions Agreement" section for additional information.

Additional Information

Nebraska Game and Parks Commission Property

This project is within or near a property owned and/or managed by the Nebraska Game and Parks Commission (NGPC). Please contact the Nebraska Game and Parks Commission to determine if this project will have impacts on the property.

Questions and Conservation Conditions

Interior Least Tern and Piping Plover

This project is within or near the modeled distribution of the state listed endangered interior least tern (*Sternula antillarum athalassos*) and/or the state and federally listed threatened piping plover (*Charadrius melodus*).
Habitat Questions for Interior Least Tern and Piping Plover:

Does the Action Area or the area of potential effect include un-vegetated or sparsely vegetated sand, shale, or gravel such as a beach, peninsula, or bar?
OR
Is the Action Area or the area of potential effect (noise and sight) within 1/4 mile of suitable habitat to include but not limited to a beach area, sand pits, peninsula, sand, shale, or gravel bar AND is the habitat visible from the project area?

____ Unknown for EITHER question.
____ No for BOTH questions. Conservation measures are not needed for these species unless otherwise indicated.
____ Yes for EITHER question. The following conservation measures must be implemented in order to avoid adverse impacts on interior least tern and piping plover:

If "YES" was checked for the habitat questions, then this project **"MAY AFFECT"** interior least tern and piping plover. **FURTHER CONSULTATION IS REQUIRED** even if conservation measures are listed for this or other species. Contact the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service prior to proceeding with the project.

ILT & PP CM-1: Project would be implemented from August 16 to April 14 OR conduct a survey according to protocol. If the species is found, then further consultation with the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service is required prior to commencing the project or activity. If the species is not found during the survey, then work may proceed.

Northern Long-eared Bat

This project is within the range of the state and federally listed endangered Northern long-eared bat (NLEB) (*Myotis septentrionalis*).

Suitable summer roosting habitat for NLEB consist of forests or woodlots which contain suitable roost trees. In Nebraska, suitable roost trees consist of deciduous and/or pine live or dead trees or snags that are greater than or equal to 3 dbh (diameter at breast height) that exhibit peeling bark or have cracks, crevices or cavities. Linear features such as fencerows, riparian forests, and other wooded corridors are suitable for NLEB if they contain potential roost trees. Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 feet of other forested/wooded habitat.
NLEB have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat when they are within 1000 feet of suitable forested habitat (see above).

Examples of **UN-SUITABLE** habitat for the NLEB include:
- Individual trees that are greater than 1,000 feet from forested/wooded areas;
- Trees found in highly developed urban areas (e.g., street trees, downtown areas) – but note that NLEBs sometimes use relatively extensive forested natural areas within urban areas for summer roosting habitat;
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees.

Habitat Questions for Northern Long-eared Bat:

Is suitable summer habitat, as defined above, located within 1000 feet of the project activities?

___ Unknown.
___ No. Conservation measures are not needed for this species unless otherwise indicated. **Additional habitat questions for this species are not applicable if suitable habitat is not present.**
___ Yes. The following conservation measures must be implemented in order to avoid adverse impacts on Northern long-eared bat.

If "YES" was checked for the habitat questions, then this project **"MAY AFFECT"** northern long-eared bat.
FURTHER CONSULTATION IS REQUIRED even if conservation measures are listed for this or other species. Contact the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service prior to proceeding with the project.

NLEB CM-2: No removal of suitable trees or roosting structures between June 1 and July 31 (pup-rearing season).

NLEB CM-4: Plant only native species adapted to site.

Conservation Measures Agreement

Based on the information contained in the report, follow the instructions for A, B or C below.

A) IF one or more of the habitat questions were answered with "Yes", insert an "X" for one of the two options below:

_____ Option 1. For all species for which there is habitat present (as indicated by checking "yes" to a habitat question) I understand and agree to implement and/or incorporate the conservation measures for those species as indicated. By agreeing to implement and/or incorporate the conservation measures for those species as indicated, no further consultation with the Nebraska Game and Parks Commission is required. However, further consultation between the lead federal agency and the U.S. Fish and Wildlife Service (Service) may be required. Contact the Service for additional information. Sign and date on the line below, and also sign and date the "Certification" section. Submit a copy of the signed report with any type of permit/application required for the project.

_____ _____

Applicant/project proponent signature Date

_____ Option 2. I have concerns regarding one or more of the conservation measures. Sign the "Certification" section below. When submitting the project as "Final" in CERT, please attach a separate document explaining your concerns with the conservation measures and why they cannot be implemented. Then, contact the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service for further information.

B) IF one or more habitat questions were answered with "Unknown," then sign the "Certification" section below, submit the project as "Final" in CERT, and contact the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service for further information.

C) IF ALL the habitat questions were answered "No" or if the "Overall Results" section indicated the project was unlikely to impact listed species, then sign the "Certification" section below and submit the project as "Final" in CERT. No further consultation with the Nebraska Game and Parks Commission is required. Additional coordination with the U.S. Fish and Wildlife Service may be necessary depending on the determination made by the lead federal agency pursuant to their obligations under ESA. Submit a copy of the signed report with any type of permit/application needed for the project.

Certification

I certify that ALL of the project information in this report (including project location, project size/configuration, project type, project activities, answers to questions) is true, accurate, and complete. If the project type, activities, location, size, or configuration of the project change, or if any of the answers to any questions asked in this report change, then this information is no longer valid and we recommend running the revised project through CERT to get an updated report.

_____ _____

Applicant/project proponent signature Date

Additional Considerations

Bald and Golden Eagle Protection Act

The federal Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668c) provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*). Under the Eagle Act, "take" of eagles, their parts, nests or eggs is prohibited. Disturbance resulting in injury to an eagle or a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior is a form of "take."

Bald eagles use mature, forested riparian areas near rivers, streams, lakes, and wetlands and occur along all the major river systems in Nebraska. The bald eagle southward migration begins as early as October and the wintering period extends from December-March. The golden eagle is found in arid open country with grassland for foraging in western Nebraska and usually near buttes or canyons which serve as nesting sites. Golden eagles are often a permanent resident in the Pine Ridge area of Nebraska. Additionally, many bald and golden eagles nest in Nebraska from mid-February through mid-July. Disturbances within 0.5-miles of an active nest or within line-of-sight of the nest could cause adult eagles to discontinue nest building or to abandon eggs. Both bald and golden eagles frequent river systems in Nebraska during the winter where open water and forested corridors provide feeding, perching, and roosting habitats, respectively. The frequency and duration of eagle use of these habitats in the winter depends upon ice and weather conditions. Human disturbances and loss of wintering habitat can cause undue stress leading to cessation of feeding and failure to meet winter thermoregulatory requirements. These affects can reduce the carrying capacity of preferred wintering habitat and reproductive success for the species.

To comply with the Eagle Act, it is recommended that the project proponent determine if the proposed project would impact bald or golden eagles or their habitats. This can be done by conducting a habitat assessment, surveying nesting habitat for active and inactive nests, and surveying potential winter roosting habitat to determine if it is being used by eagles. The area to be surveyed is dependent on the type of project; however for most projects we recommend surveying the project area and a ½ mile buffer around the project area. If it is determined that either species could be affected by the proposed project, the Commission recommends that the project proponent notify the Nebraska Game and Parks Commission as well as the Nebraska Field Office, U.S. Fish and Wildlife Service for recommendations to avoid "take" of bald and golden eagles.

Migratory Bird Treaty Act and Nebraska Revised Statute §37-540

We recommend the project proponent comply with the Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 *as amended*) (MBTA). The project proponent should also comply with Nebraska Revised Statute §37-540, which prohibits take and destruction of nests or eggs of protected birds (as defined in Nebraska Revised Statute §37-237.01). Construction activities in grassland, wetland, stream, woodland, and river bank habitats that would result in impacts on birds, their nests or eggs protected under these laws should be avoided. Although the provisions of these laws are applicable year-round, most migratory bird nesting activity in Nebraska occurs during the period of May 1 to July 15. However, some migratory birds are known to nest outside of the aforementioned primary nesting season period. For example, raptors can be expected to nest in woodland habitats during February 1 through July 15, whereas sedge wrens, which occur in some wetland habitats, normally nest from July 15 to September 10. If development in this area is planned to occur during the primary nesting season or at any other time which may result in impacts to birds, their nests or eggs protected under these laws, we request that the project proponent arrange to have a qualified biologist conduct a field survey of the affected habitats to determine the absence or presence of nesting migratory birds. If a field survey identifies the existence of one or more active bird nests that cannot be avoided by the planned construction activities, the Nebraska Game and Parks Commission and the Nebraska Field Office, U.S. Fish and Wildlife Service should be contacted immediately. For more information on avoiding impacts to migratory birds, their nests and eggs, or to report active bird nests that cannot be avoided by planned construction activities, please contact the U.S. Fish and Wildlife Service and/or the Nebraska Game and Parks Commission (contact information within report). Adherence to these guidelines will help avoid unnecessary impacts on migratory birds.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires consultation with the U.S. Fish and Wildlife Service (Service) and the State fish and wildlife agency (i.e., Nebraska Game and Parks Commission) for the purpose of preventing loss of and damage to fish and wildlife resources in the planning, implementation, and operation of federal and federaly funded, permitted, or licensed water resource development projects. This statute requires that federal

agencies take into consideration the effect that the water related project would have on fish and wildlife resources, to take action to prevent loss or damage to these resources, and to provide for the development and improvement of these resources. The comments in this letter are provided as technical assistance only and are not the document required of the Secretary of the Interior pursuant to Section 2(b) of FWCA on any required federal environmental review or permit. This technical assistance is valid only for the described conditions and will have to be revised if significant environmental changes or changes in the proposed project take place. In order to determine whether the effects to fish and wildlife resources from the proposed project are being considered under FWCA, the lead federal agency must notify the Service in writing of how the comments and recommendations in this technical assistance letter are being considered into the proposed project.

Section 404 of the Clean Water Act

In general, the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service have concerns for impacts to wetlands, streams and riparian habitats. We recommend that impacts to wetlands, streams, and associated riparian corridors be avoided and minimized, and that any unavoidable impacts to these habitats be mitigated. If any fill materials will be placed into waterways or wetlands, the U.S. Army Corps of Engineers Regulatory Office in Omaha should be contacted to determine if a 404 permit is needed.

Agency Contact Information

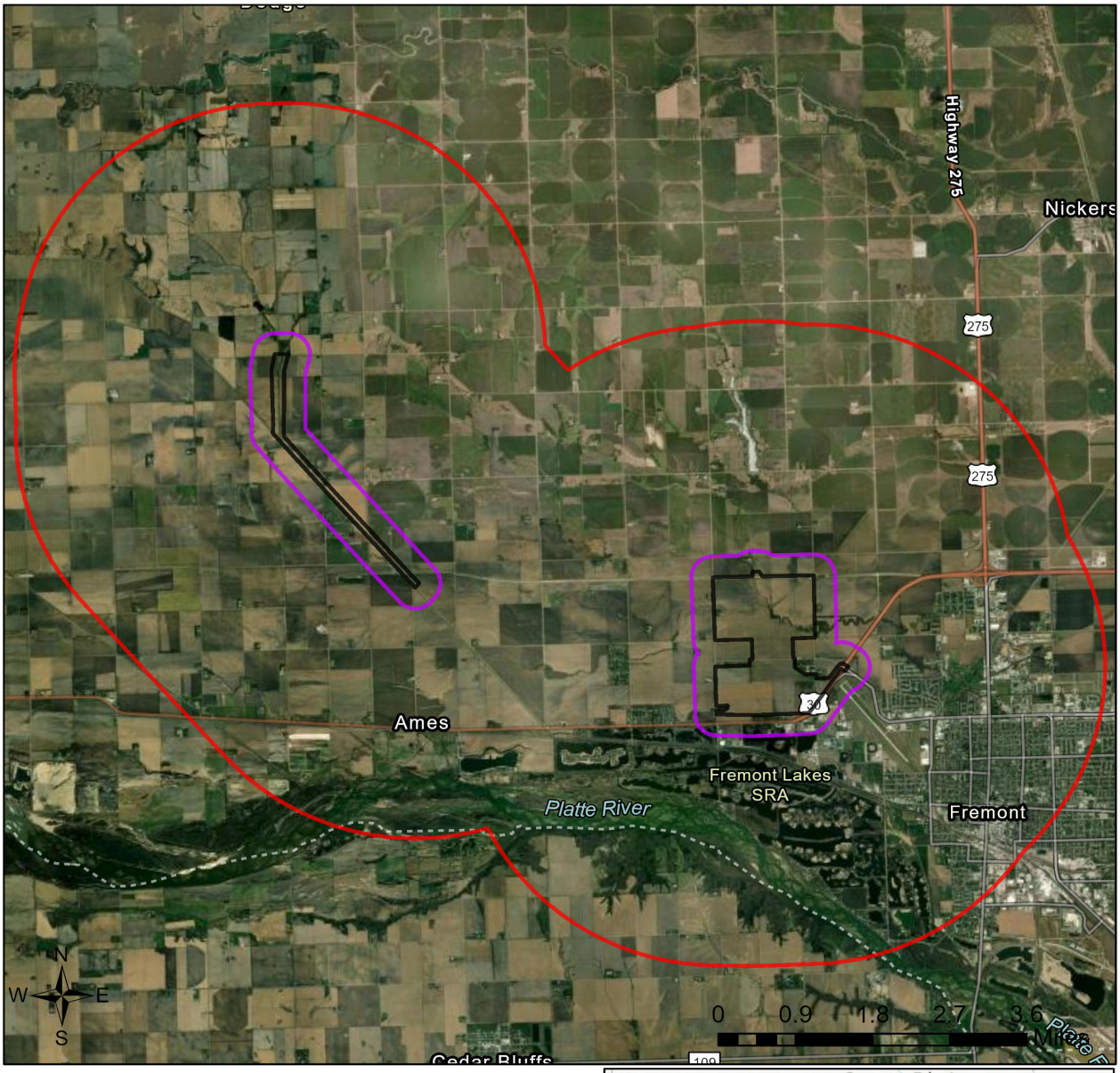
Nebraska Game and Parks Commission
Environmental Review Team
2200 North 33rd Street
Lincoln, NE 68503
phone: (402) 471-5423
email: ngpc.envreview@nebraska.gov

U.S. Fish and Wildlife Service

Nebraska Ecological Services
9325 South Alda Road
Wood River, NE 68883
phone: (308) 382-6468
email: nebraskaes@fws.gov

Rawhide Creek WFPO

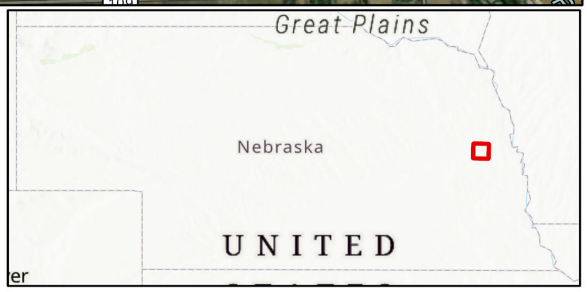
Aerial Image Basemap With Locator Map



3-mile Information Buffer Boundary

Project Review Boundary

Project Boundary



Project Size (acres): 1,308.24

Lat/Long (DD): 41.4650 / -96.5470

County(s): Dodge

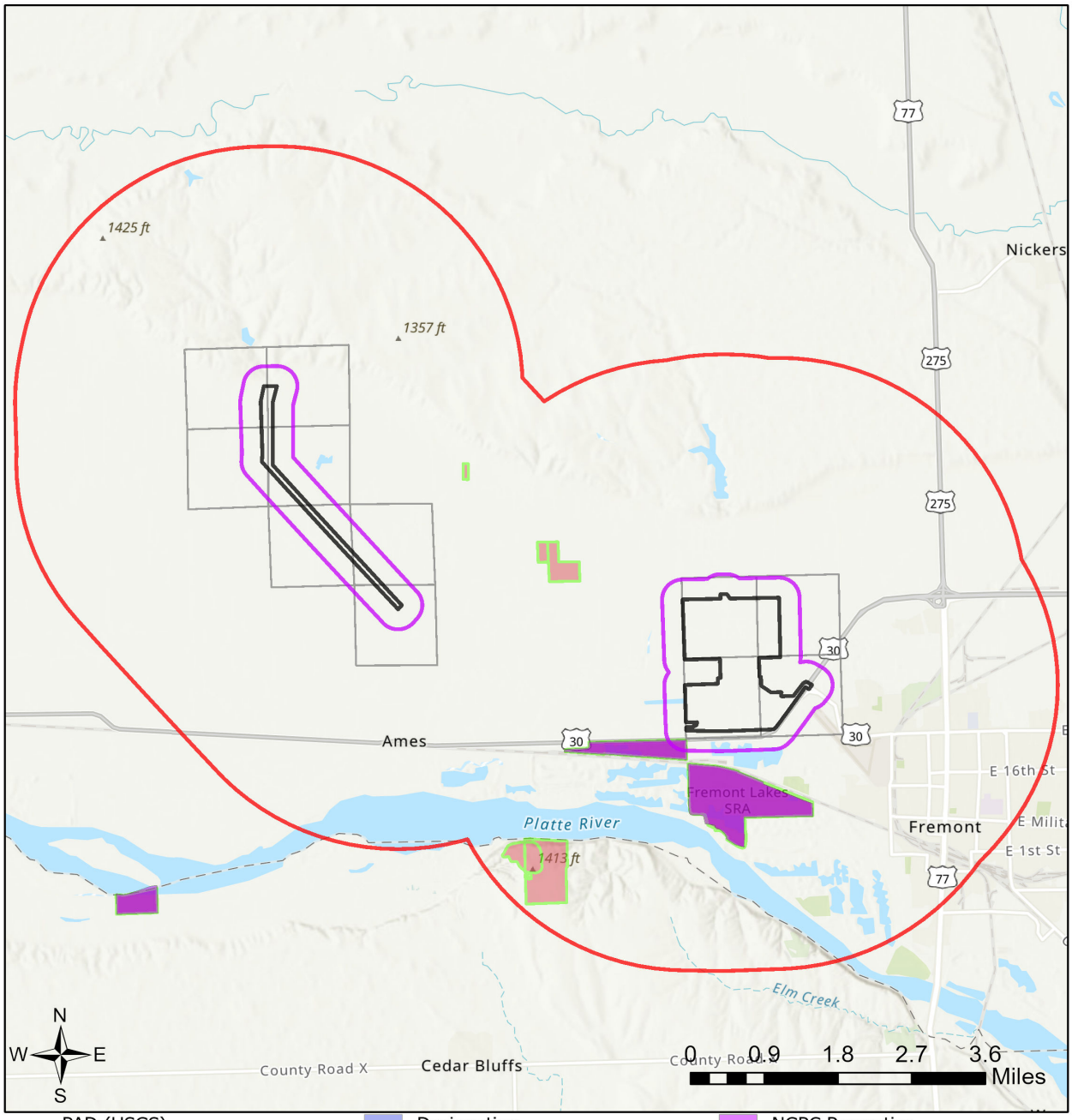
BUL(s): Lower Platte River

Township/Range/Section(s): T17R07ES04; T17R08ES04; T17R08ES05; T17R08ES08; T17R08ES09 +

Earthstar Geographics
Iowa DNR, Nebraska Game & Parks Commission, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA

Rawhide Creek WFPO

Topographic Basemap With Sections and Protected Areas

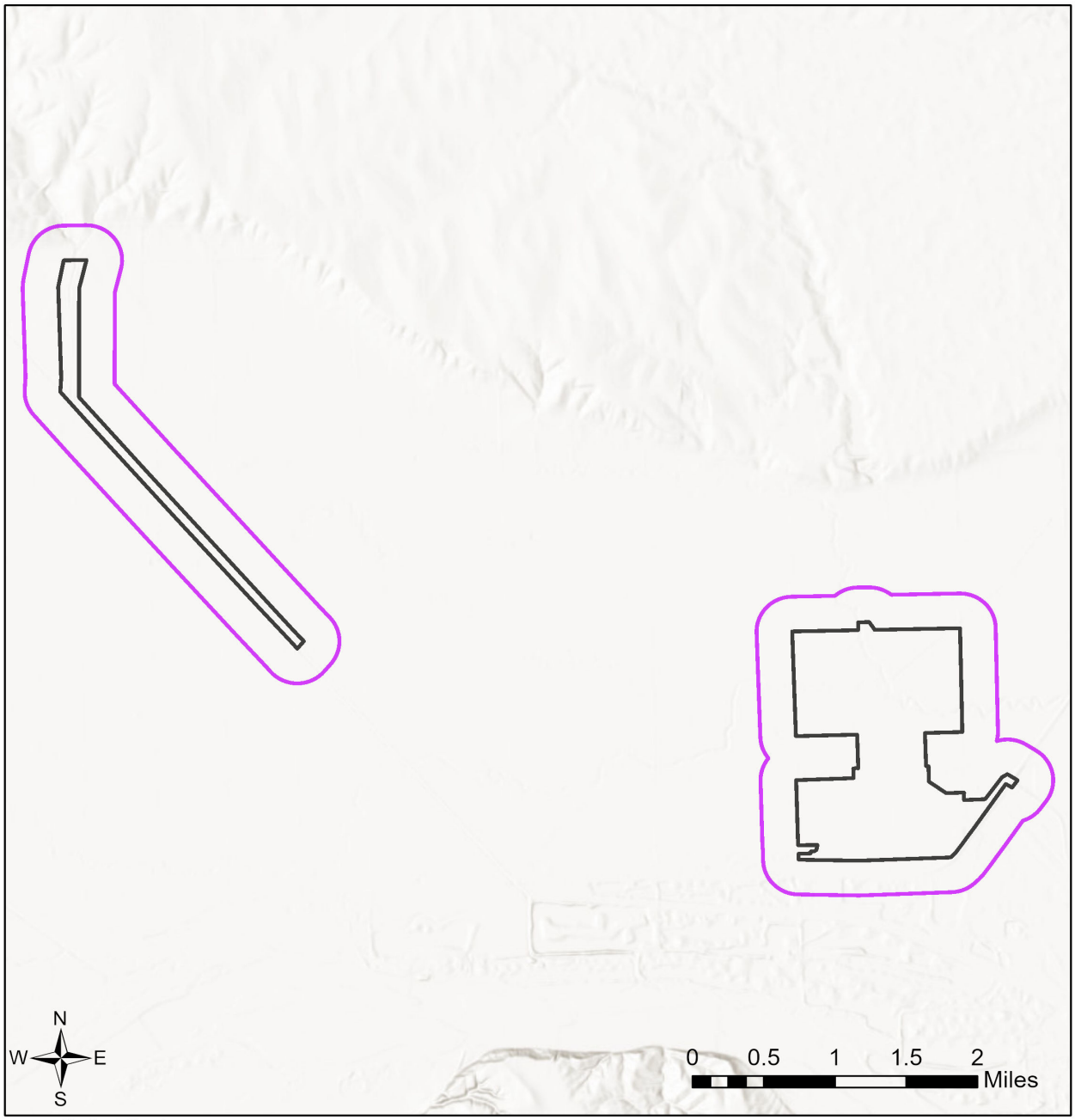


- PAD (USGS) - boundaries
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- National Park Service
- Bureau of Reclamation
- Designation
- Regional Agency
- State (NGPC)
- Other State
- NGO or Private
- Other (City, Unknown)
- NGPC Properties
- Sections
- 3-mile Information Buffer Boundary
- Project Review Boundary
- Project Boundary

Esri, NASA, NGA, USGS
Iowa DNR, Nebraska Game & Parks Commission, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

Rawhide Creek WFPO

Web Map As Submitted By User



Project Review Boundary

Project Boundary

Esri, NASA, NGA, USGS

Table 1
Protected Areas in Immediate Vicinity of Project (project review area)

Area Name	Owner/Manager	Information Source
Fremont Lakes SRA	Nebraska Game and Parks Commission	NGPC
Fremont Lakes State Recreation Area	State Park and Recreation	USGS Protected Areas Database

Table 2
Documented Occurrences in Immediate Vicinity of Project (project review area):
Natural communities and selected special areas

Name	Other Information	SRank	GRank
Lower Platte River Biologically Unique Landscape	Link to BUL document		

Table 3
Regional Documented Occurrences of Species within 1 Mile of Project Review Area:
Tier 1 and 2 at-risk species and additional S1-S3 plants

Scientific Name	Common Name	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Bulbostylis capillaris	Dense-tuft Hair-sedge				S3S4	G5	Vascular Plant - Monocots
Carex lupulina	Hop Sedge			Tier 2	S1	G5	Vascular Plant - Monocots
Carex radiata	Eastern Star Sedge			Tier 2	S1	G5	Vascular Plant - Monocots
Charadrius melodus	Piping Plover	T	T	Tier 1	S2	G3	Vertebrate Animal - Birds
Cornus obliqua	Pale Dogwood				S2S4	G5	Vascular Plant - Dicots
Croton glandulosus var. septentrionalis	Sand Croton				S2S4	G5T5	Vascular Plant - Dicots
Cycleptus elongatus	Blue Sucker			Tier 1	S1	G3G4	Vertebrate Animal - Fishes
Cygnus buccinator	Trumpeter Swan			Tier 2	S2	G4	Vertebrate Animal - Birds
Fundulus sciadicus	Plains Topminnow			Tier 1	S3	G4	Vertebrate Animal - Fishes
Haliaeetus leucocephalus	Bald Eagle			Tier 2	S3	G5	Vertebrate Animal - Birds
Houstonia purpurea var. calycosa	Midwestern Summer Bluets			Tier 2	S1	G5T5	Vascular Plant - Dicots
Hybognathus argyritis	Western Silvery Minnow			Tier 1	S2	G4	Vertebrate Animal - Fishes
Hybognathus placitus	Plains Minnow			Tier 1	S2	G4	Vertebrate Animal - Fishes
Hylocichla mustelina	Wood Thrush			Tier 1	S3	G4	Vertebrate Animal - Birds
Macrhybopsis gelida	Sturgeon Chub		E	Tier 1	S1	G3	Vertebrate Animal - Fishes

Table 3
Regional Documented Occurrences of Species within 1 Mile of Project Review Area:
Tier 1 and 2 at-risk species and additional S1-S3 plants

Scientific Name	Common Name	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Macrhybopsis hyostoma	Shoal Chub			Tier 2	S3	G5	Vertebrate Animal - Fishes
Macrhybopsis storeriana	Silver Chub			Tier 2	S2	G5	Vertebrate Animal - Fishes
Patis racemosa	Black-seed Ricegrass			Tier 2	S2	G5	Vascular Plant - Monocots
Platygobio gracilis	Flathead Chub			Tier 1	S2	G5	Vertebrate Animal - Fishes
Scaphirhynchus albus	Pallid Sturgeon	E	E	Tier 1	S1	G2	Vertebrate Animal - Fishes
Sternula antillarum athalassos	Interior Least Tern		E	Tier 1	S2	G4T3Q	Vertebrate Animal - Birds

Table 4
Potential Occurrences in Immediate Vicinity of Project (project review area):
Special status species (Tier 1 at-risk species and Bald and Golden Eagle), based on models or range maps

Scientific Name	Common Name	Data Type	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Ammodramus henslowii	Henslow's Sparrow	Range			Tier 1	S1	G4	Vertebrate Animal - Birds
Asio flammeus	Short-eared Owl	Range			Tier 1	S2	G5	Vertebrate Animal - Birds
Atrytone arogos iowa	Iowa Skipper	Range			Tier 1	S1	G2G3T2T3	Invertebrate Animal - Butterflies and Skippers
Boloria selene nebraskensis	Nebraska Fritillary	Range			Tier 1	SNR	G5T3T4	Invertebrate Animal - Butterflies and Skippers
Calidris subruficollis	Buff-breasted Sandpiper	Range			Tier 1	S2N	G4	Vertebrate Animal - Birds
Catocala nuptialis	Married Underwing	Range			Tier 1	SNR	G3	Invertebrate Animal - Underwing Moths
Catocala whitneyi	Whitney Underwing	Range			Tier 1	S1	G2G3	Invertebrate Animal - Underwing Moths
Charadrius melodus	Piping Plover	Model	T	T	Tier 1	S2	G3	Vertebrate Animal - Birds
Coccyzus erythropthalmus	Black-billed Cuckoo	Range			Tier 1	S3	G5	Vertebrate Animal - Birds
Cycleptus elongatus	Blue Sucker	Range			Tier 1	S1	G3G4	Vertebrate Animal - Fishes
Danaus plexippus	Monarch	Range			Tier 1	S2	G4	Invertebrate Animal - Butterflies and Skippers
Ellipsoptera lepida	Ghost Tiger Beetle	Range			Tier 1	S2	G3G4	Invertebrate Animal - Beetles
Emydoidea blandingii	Blanding's Turtle	Range		NC	Tier 1	S4	G4	Vertebrate Animal - Turtles

Table 4
Potential Occurrences in Immediate Vicinity of Project (project review area):
Special status species (Tier 1 at-risk species and Bald and Golden Eagle), based on models or range maps

Scientific Name	Common Name	Data Type	USFWS	State	SGCN	SRank	GRank	Taxonomic Group
Erynnis martialis	Mottled Duskywing	Range			Tier 1	S2	G3	Invertebrate Animal - Butterflies and Skippers
Euphyes bimacula illinois	Two-spotted Skipper	Range			Tier 1	S3	G4T1T2	Invertebrate Animal - Butterflies and Skippers
Euphyes conspicua buchholzi	Bucholz Black Dash	Range			Tier 1	S1	G4G5T1	Invertebrate Animal - Butterflies and Skippers
Fundulus sciadicus	Plains Topminnow	Range			Tier 1	S3	G4	Vertebrate Animal - Fishes
Haliaeetus leucocephalus	Bald Eagle	Range			Tier 2	S3	G5	Vertebrate Animal - Birds
Hesperia ottoe	Ottoe Skipper	Range			Tier 1	S2	G3	Invertebrate Animal - Butterflies and Skippers
Hybognathus argyritis	Western Silvery Minnow	Range			Tier 1	S2	G4	Vertebrate Animal - Fishes
Hybognathus placitus	Plains Minnow	Range			Tier 1	S2	G4	Vertebrate Animal - Fishes
Lanius ludovicianus	Loggerhead Shrike	Range			Tier 1	S3	G4	Vertebrate Animal - Birds
Lasiurus borealis	Eastern Red Bat	Range			Tier 1	S3	G3G4	Vertebrate Animal - Mammals
Lasiurus cinereus	Hoary Bat	Range			Tier 1	S3	G3G4	Vertebrate Animal - Mammals
Lethe eurydice fumosus	Smoky-eyed Brown	Range			Tier 1	S3	G5T3T4	Invertebrate Animal - Butterflies and Skippers
Myotis septentrionalis	Northern Long-eared Myotis	Range	T	T	Tier 1	S1S2	G1G2	Vertebrate Animal - Mammals
Perimyotis subflavus	Tricolored Bat	Range			Tier 1	S3	G2G3	Vertebrate Animal - Mammals
Perognathus flavescens perniger	Plains Pocket Mouse	Range			Tier 1	SNR	G5TNR	Vertebrate Animal - Mammals
Platygobio gracilis	Flathead Chub	Range			Tier 1	S2	G5	Vertebrate Animal - Fishes
Speyeria idalia	Regal Fritillary	Range			Tier 1	S3	G3?	Invertebrate Animal - Butterflies and Skippers
Sternula antillarum athalassos	Interior Least Tern	Model	E	E	Tier 1	S2	G4T3Q	Vertebrate Animal - Birds

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Project information

NAME

Rawhide Creek- Chapter 3 Analysis

LOCATION

Nebraska

DESCRIPTION

Some(This is just for the finalizing Chapter 3 of the Plan-EA.)

Local office

Nebraska Ecological Services Field Office

(308) 382-6468
(308) 384-8835

MAILING ADDRESS
9325 B South Alda Rd., Ste B
Wood River, NE 68883-9565

PHYSICAL ADDRESS
9325 South Alda Rd., Ste B
Wood River, NE 68883-9565

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of

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Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Piping Plover Charadrius melodus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened

Fishes

NAME	STATUS
Pallid Sturgeon Scaphirhynchus albus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7162	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Western Prairie Fringed Orchid Platanthera praeclara Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

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You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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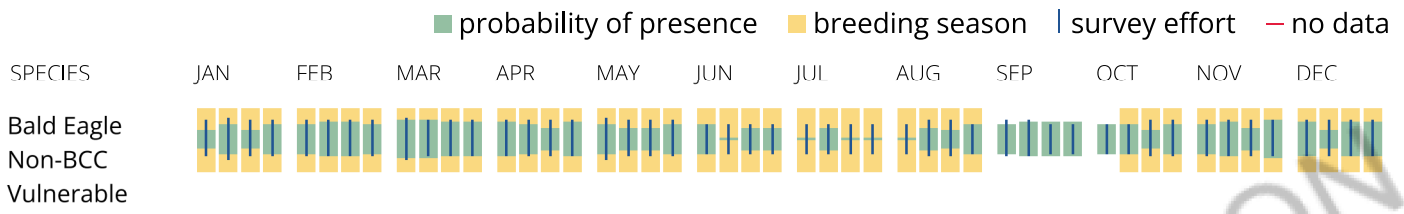
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

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Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

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American Golden-plover Pluvialis dominica — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bald Eagle Haliaeetus leucocephalus — Breeds Oct 15 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Chimney Swift Chaetura pelagica — Breeds Mar 15 to Aug 25

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Grasshopper Sparrow Ammodramus savannarum perpallidus — Breeds Jun 1 to Aug 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8329

Hudsonian Godwit Limosa haemastica — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Kentucky Warbler Geothlypis formosa — Breeds Apr 20 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

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Pectoral Sandpiper Calidris melanotos — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Loggerhead Shrike Lanius ludovicianus excubitorides — Breeds Feb 1 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8833

Prothonotary Warbler Protonotaria citrea — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Ruddy Turnstone Arenaria interpres morinella — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Rusty Blackbird Euphagus carolinus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Upland Sandpiper Bartramia longicauda — Breeds May 1 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9294

NOT FOR CONSULTATION

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

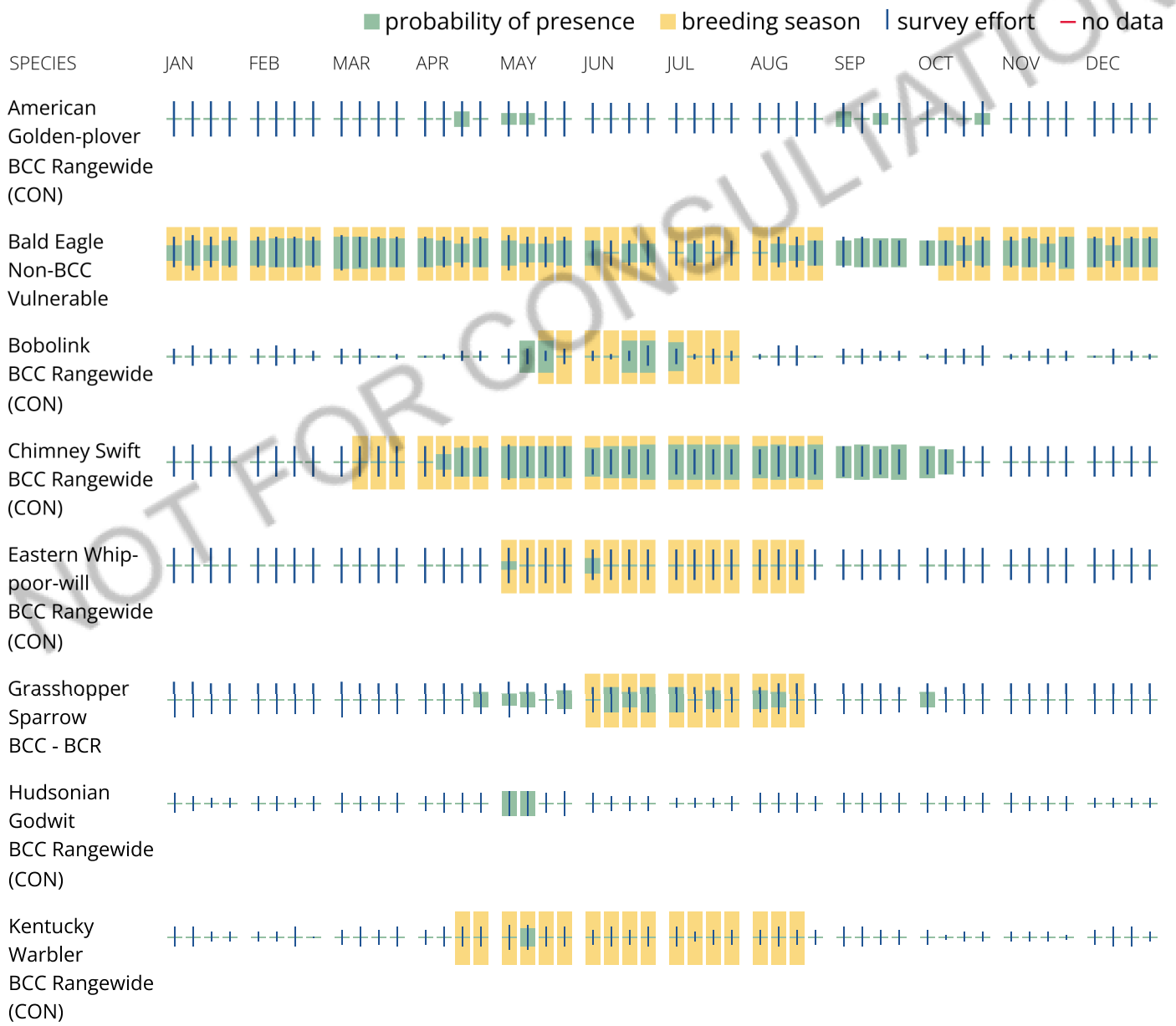
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

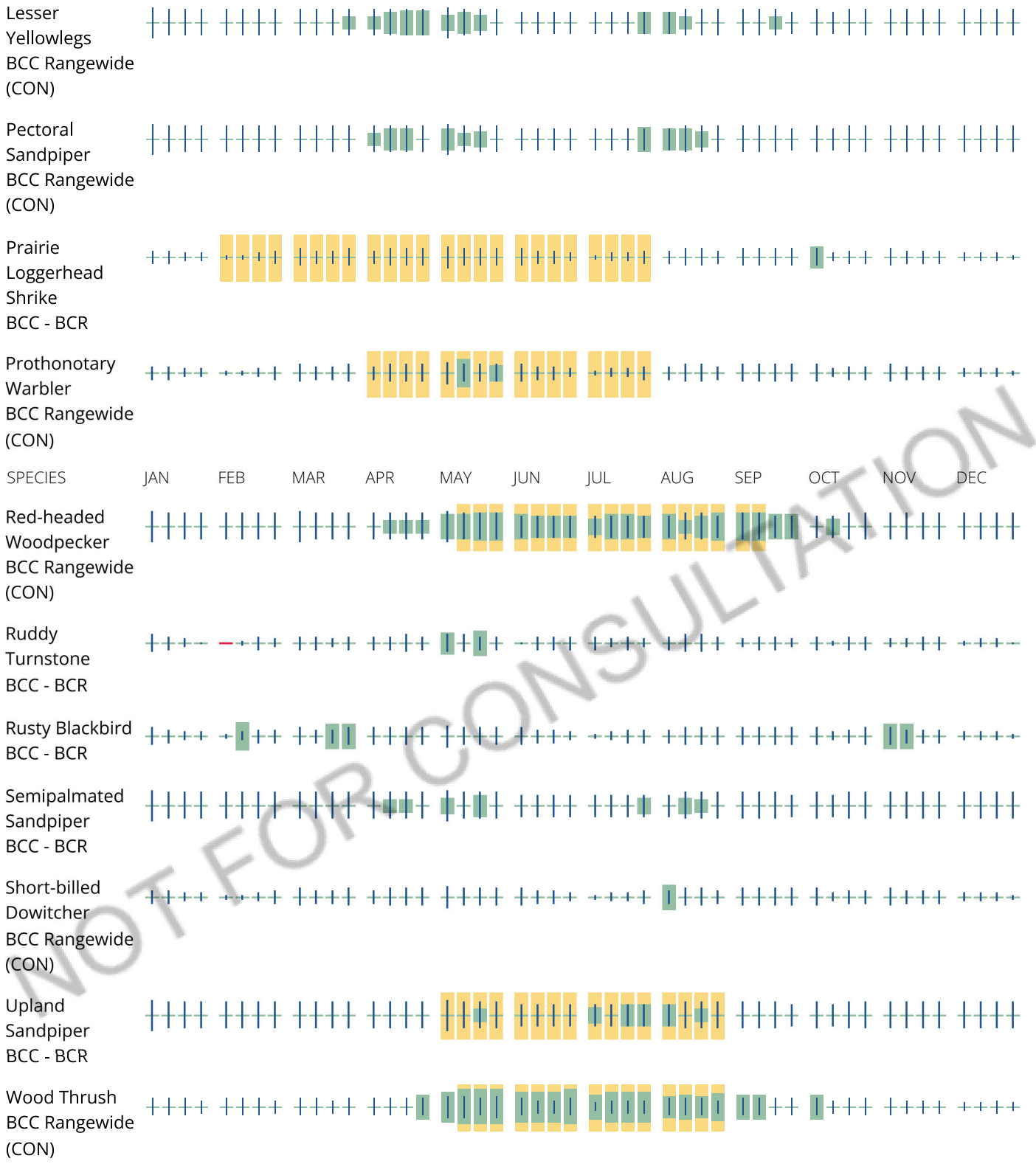
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION



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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in

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offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

NOT FOR CONSULTATION

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Project information

NAME

Rawhide Creek- Chapter 5 Analysis

LOCATION

Dodge County, Nebraska

DESCRIPTION

Some(This is just for finalizing Chapter 5 of the Plan-EA using ARAs provided in June 2023.)

Local office

Nebraska Ecological Services Field Office

(308) 382-6468
(308) 384-8835

MAILING ADDRESS
9325 B South Alda Rd., Ste B
Wood River, NE 68883-9565

PHYSICAL ADDRESS
9325 South Alda Rd., Ste B
Wood River, NE 68883-9565

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of

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Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Piping Plover Charadrius melodus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened

Fishes

NAME	STATUS
Pallid Sturgeon Scaphirhynchus albus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7162	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Western Prairie Fringed Orchid Platanthera praeclara Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

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You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

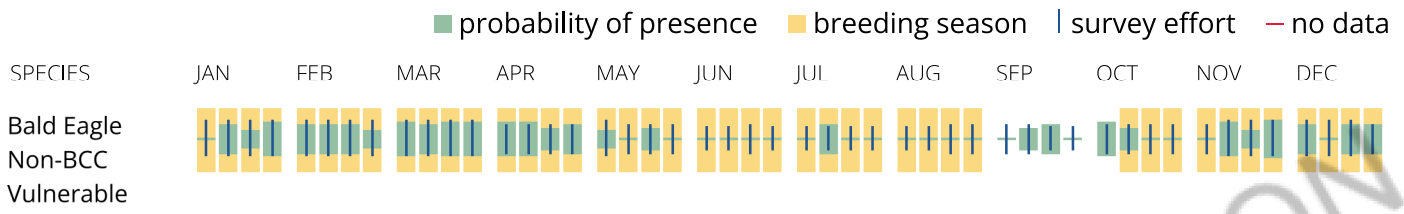
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

NOT FOR CONSULTATION

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

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American Golden-plover Pluvialis dominica — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bald Eagle Haliaeetus leucocephalus — Breeds Oct 15 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Chimney Swift Chaetura pelagica — Breeds Mar 15 to Aug 25

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Grasshopper Sparrow Ammodramus savannarum perpallidus — Breeds Jun 1 to Aug 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8329

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Pectoral Sandpiper Calidris melanotos — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

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Upland Sandpiper *Bartramia longicauda* Breeds May 1 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9294

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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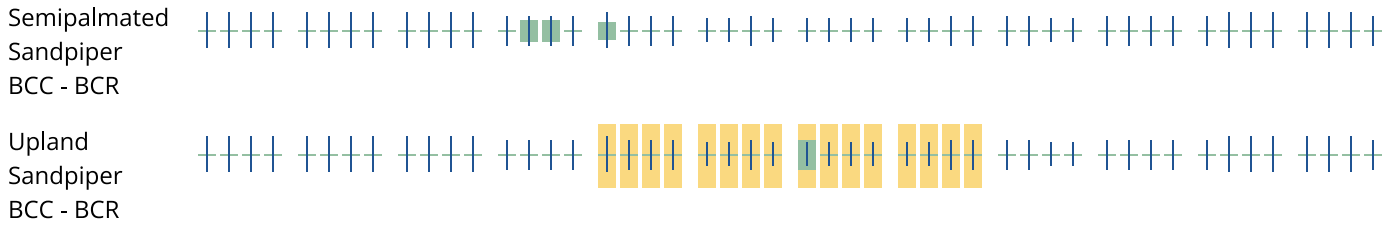

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

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To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of

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presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

NOT FOR CONSULTATION

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Shell Creek Watershed Monitoring Group
2025 Volunteer Monitoring Student Tour

NDEE Surface Water Lab

Production Greenhouse - Horticulture Club

Production Greenhouse - Range Club

Horticulture Specimen Greenhouse

Hydroponics Greenhouse

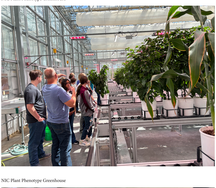
Hydroponics Greenhouse

Backyard Farmer Garden

Backyard Farmer Garden

Stormwater Demonstration

NSC Plant Phenotype Greenhouse



NSC Plant Phenotype Greenhouse

USGS Platte River Loobara Streamgage / Realtime Water Quality Sensor

USGS Platte River Loobara Streamgage / Realtime Water Quality Sensor

USGS Platte River Loobara Streamgage / Realtime Water Quality Sensor

Invoice

olsson

601 P St Suite 200
PO Box 84608
Lincoln, NE 68501-4608
Tel 402.474.6311, Fax 402.474.5063

April 09, 2025
Invoice No: 532809

Invoice Total $12,794.20

Ryan Chapman
Lower Platte North NRD
PO Box 126
Wahoo, NE 68066-0126

Olsson Project # B18-34230 Lower Platte North NRD Wahoo Creek Watershed & 3 Dam Sites

Professional services rendered from March 9, 2025 through April 5, 2025 for work completed in accordance with agreement.

Phase 070 Construction Oversight

Labor

	Hours	Amount	
Principal	5.25	1,023.95	
Project Manager	6.25	1,047.50	
CAD Operator	8.00	678.72	
Construction Services	85.75	8,818.78	
Totals	105.25	11,568.95	
Total Labor			**11,568.95**

Unit Billing

Field Vehicle 1536	337.0 Miles @ 0.75	252.75	
Field Vehicle 1024	230.0 Miles @ 0.75	172.50	
Atterberg Limit			
1 Tests @ $110/Test		110.00	
Compressive Strength - Cyl. Concrete			
2/14/2025 9 Tests @ $20/Test		180.00	
3/7/2025 5 Tests @ $20/Test		100.00	
Dispersion - Crumb			
3 Tests @ $35/Test		105.00	
Disperson - Pinhole			
1 Tests @ $130/Test		130.00	
Standard Proctor			
1 Tests @ $175/Test		175.00	
Total Units		**1,225.25**	**1,225.25**

Total this Phase $12,794.20

INVOICE PAYMENT IS REQUESTED WITHIN 30 DAYS

Project	B18-34230	Lower Platte North NRD Wahoo Creek Water	Invoice	532809

Billing Limits	**Current**	**Prior**	**To-Date**
Total Billings	12,794.20	39,509.79	52,303.99
Limit			161,857.42
Balance Remaining			109,553.43

AMOUNT DUE THIS INVOICE **$12,794.20**

Outstanding Invoices

Number	**Date**	**Balance**
529699	3/14/2025	14,708.19
Total		**14,708.19**

Email invoices to: jbreunig@lpnnrd.org; selliott@lpnnrd.org; rchapman@lpnnrd.org

Please include our invoice number(s) with your payment.
By Check: Make check payment to Olsson Inc and mail to PO Box 84608, Lincoln, NE 68501-4608

By Electronic / ACH Payment: When transferring funds, please reference the invoice number(s), Account Name Olsson Inc; Pinnacle Bank Account No. 254316; Routing (ABA) No. 104913912, Remittance Email Address: deposits@olsson.com

Questions: Contact us at (402) 458-5062 or accountsreceivable@olsson.com

Authorized By: Brian Jueneman

INVOICE PAYMENT IS REQUESTED WITHIN 30 DAYS

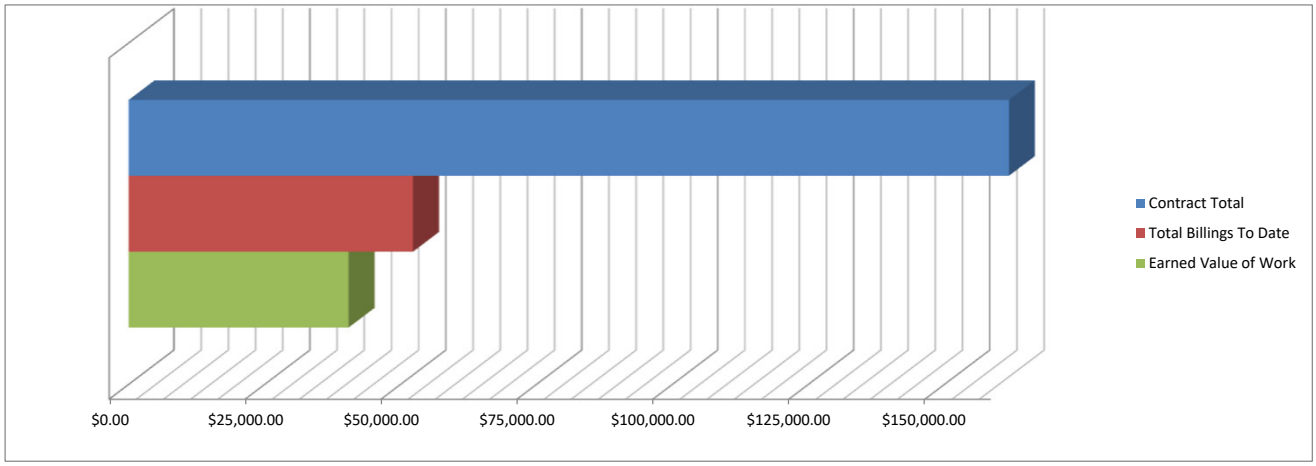
LPNNRD - Wahoo Creek Dam Sites 26A, 26B, 27

Construction Phase Services

Progress Report No.	**003**
Date of Invoice	**04/09/2025**
Invoice Number	**532809**

Olsson # B18-34230

Project Phase/Task	Estimated Cost	Prior Billings	Billings This Invoice	Total Billings To Date	Project Manager Estimated Percent Complete	Earned Value of Work Completed
Construction Management and Inspection	$161,857.42	$39,509.79	$12,794.20	$52,303.99	25.00%	$40,464.36
						$0.00
						$0.00
						$0.00
						$0.00
						$0.00
						$0.00
						$0.00
Totals	$161,857.42	$39,509.79	$12,794.20	$52,303.99	25.00%	$40,464.36



Description of Work Completed This Period

Project and Construction Management - Progress meetings, invoices/progress reports, submittal review and management, change orders

Construction Inspection and Testing - Site visits, contractor coordination, materials testing, project documentation

Construction Engineering Support - Progress meetings, site visits, piezometer and settlement plate coordination

Construction Phase Survey (QA and As-built) - None

Expenses - Vehicle mileage, laboratory testing

Anticipated Work Next Period

Project and Construction Management - Progress meetings, invoices/progress reports, submittal review and management, change orders

Construction Inspection and Testing - Site visits, contractor coordination, materials testing, project documentation

Construction Engineering Support - Progress meetings, site visits, piezometer and settlement plate coordination

Construction Phase Survey (QA and As-built) - None

Expenses - Vehicle mileage, laboratory testing

Information/Decisions Needed from LPNNRD

None -

Summary of Potential Out of Scope Work/Current Project Issues

Contract estimated duration vs. actual construction schedule (Amendment submitted on 4-10-25)

CERTIFICATE OF PAYMENT: 005

Date of Issuance: April 24, 2025

Project: LPNNRD Wahoo Creek Watershed Sites 26A 26B and 27 **Project No.:** 018-3423

Contractor: Thompson Construction

DETAILED ESTIMATE

Description	Unit Price	Extension
Refer to Attached Progress Estimate #5 thru 04-24-2025		
PLEASE REMIT PAYMENT TO: Thompson Construction 2404 N Lincoln Ave Fremont, NE 68025		

Value of Work Completed This Request: $ 642,244.50

Original Contract Value: $ 4,314,772.70

Approved Change Orders:

No. 1 $24,274.50

No. 2

No. 3

Total Contract Value: $ 4,339,047.20

Value of completed work and materials stored to date ..... $ 642,244.50

Less retainage percentage 10% ..... $ 64,224.45

Net amount due including this estimate ..... $ 578,020.05

Less: Estimates previously approved:

No. 1	$153,421.65	No. 2	$107,054.10	No. 3	$167,139.00
No. 4	$34,211.70	No. 5		No. 6	
No. 7		No. 8		No. 9	
No. 10		No. 11		No. 12	

Total Previous Estimates: $461,826.45

NET AMOUNT DUE THIS ESTIMATE: $ 116,193.60

The undersigned hereby certifies, based upon periodic observations as set forth in scope of work and the data included in all applicable payment applications that, to the best of its knowledge, information and belief: (1) the work has progressed as indicated in the applicable payment applications; (2) the work performed and materials delivered by Contractor are in conformance with the plans and specifications; and (3) the Contractor, in accordance with the contract, is entitled to payment as indicated above.

This certification does not constitute a warranty or guarantee of any type. Client shall hold its Contractor solely responsible for the quality and completion of the Project, including construction in accordance with the construction documents. Any duty or obligation of Olsson hereunder is for the sole benefit of the Client and not for any third party, including the Contractor or any Subcontractor.

cc: Project File
Sean Elliott - LPNNRD
Lance French - Thompson Construction

OLSSON

By: _____

THOMPSON CONSTRUCTION INC.
2404 N LINCOLN AVE FREMONT, NE 68025 - PHONE – 402-704-2008 - FAX – 402-704-2009

PAY APPLICATION NO. 5

To: LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
From: THOMPSON CONSTRUCTION, INC.
Contract For: WAHOO CREEK WATERSHED DAM STRUCTURES 26A, 26B, AND 27
ENGINEER's Project No. 018-3423
For Work accomplished through the date of: 4/24/25

1. Original Contract Price:			$ 4,314,772.70
2. Net change by Change Orders and Written Amendments (+ or -):			$ -
3. Current Contract Price (1 plus 2):			$ 4,314,772.70
4. Total completed and stored to date:			$ 642,244.50
5. Percent of Project Completed	12%		
6. Retainage (per agreement):			
10% of completed Work and Stored Materials:		$ 64,224.45	
(10% of the first 50% of work completed & stored)			
Total Retainage:			$ 64,224.45
7. Total completed and stored to date less retainage (4 minus 6):			$ 578,020.05
8. Less previous Application for Payments:			$ 461,826.45
9. DUE THIS APPLICATION (7 MINUS 8):			**$ 116,193.60**

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through 1 inclusive; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated: 4/24/25 Thompson Construction

By: Kelly Thompson

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated: _____ _____

By: _____

APPLICATION APPROVED BY:

By: _____

Title: _____ Date: _____

ATTEST:

By: _____ Title: _____

THOMPSON CONSTRUCTION INC.
2404 N LINCOLN AVE FREMONT, NE 68025 - PHONE – 402-704-2008 - FAX – 402-704-2009

PROGRESS ESTIMATE 5

Owner: LOWER PLATTE NORTH NATURAL RESOURCE DISTRICT
Project: WAHOO CREEK WATERSHED
DAM STRUCTURES 26A, 26B, AND 27
Contractor: THOMPSON CONSTRUCTION INC

TOTAL STORED: $ 103,680.00
TOTAL COMPLETED: $ 538,564.50
TOTAL PLUS STORED: $ 642,244.50

Date: 24-Apr-25
Estimate No.: 5
Project No.: 018-3423

ITEM NO.	QTY	UNIT	DESCRIPTION	MATERIAL STORED	QTY TO DATE	UNIT PRICE	TOTAL	TOTAL PLUS STORED MATERIAL
SITE 26A								
1	1	LS	MOBILIZATION		0.5	$ 50,000.00	$ 25,000.00	**$ 25,000.00**
2	1	LS	CONSTRUCTION STAKING		0.1	$ 12,000.00	$ 1,200.00	**$ 1,200.00**
3	1	EA	CONSTRUCTION ENTRANCE		1	$ 2,625.00	$ 2,625.00	**$ 2,625.00**
4	1	LS	DEWATERING		0	$ 15,000.00	$ -	$ -
5	12	AC	GENERAL CLEARING AND GRUBBING		8	$ 2,900.00	$ 23,200.00	**$ 23,200.00**
7	86720	CY	EARTHWORK FILL (AT1.2 COMPACTION)		0	$ 3.90	$ -	$ -
8	13543	CY	EARTHWORK CUT AND SPOIL		0	$ 4.00	$ -	$ -
9	1047	TN	AGGREGATE 47B FINE		0	$ 34.00	$ -	$ -
10	8	TN	1" WASHED AGGREGATE		0	$ 105.00	$ -	$ -
11	200	TN	C33 #8 AGGREGATE		0	$ 55.00	$ -	$ -
12	4273	TN	CLASS B RIP RAP - STORED = 593 TONS @$72.00 / TON	$ 42,696.00	0	$ 90.00	$ -	**$ 42,696.00**
13	998	TN	3" CRUSHED AGGREGATE		0	$ 45.00	$ -	$ -
14	1022	LF	6" PERFORATED DUAL WALL PVC		0	$ 23.00	$ -	$ -
15	90	LF	8" GALVANIZED STEEL PIPE		0	$ 25.00	$ -	$ -
16	177	LF	24" RCPP PRINCIPAL SPILLWAY		0	$ 550.00	$ -	$ -
17	2	EA	PRINCIPAL SPILLWAY PIPE SUPPORTS		1.5	$ 4,000.00	$ 6,000.00	**$ 6,000.00**
18	29	CY	STRUCTURAL CONCRETE (CLASS 4000)		0	$ 2,000.00	$ -	$ -
19	5320	LB	REINFORCING STEEL		0	$ 2.50	$ -	$ -
20	1	LS	METAL FABRICATION		0	$ 11,000.00	$ -	$ -
21	3	EA	SHEETPILE HEADWALL		0	$ 1,700.00	$ -	$ -
22	24	LF	18" CCP LOW STAGE INLET PIPE		0	$ 75.00	$ -	$ -
23	1	EA	18" CONCRETE TRASH RACK		0	$ 3,000.00	$ -	$ -
24	53	LF	12" PVC DRAWDOWN PIPE		0	$ 60.00	$ -	$ -
25	1	EA	12" BAR TRASH RACK		0	$ 400.00	$ -	$ -
26	1	EA	12" LINE GATE		0	$ 30,000.00	$ -	$ -
27	2300	LF	FENCE REMOVAL(ADB ENGINEER)		0	$ 1.00	$ -	$ -
28	1420	LF	FENCE PLACEMENT(ADB ENGINEER)		0	$ 8.00	$ -	$ -
29	2	EA	GATE		0	$ 650.00	$ -	$ -
30	2	EA	BRASS CAP MONUMENTS		0	$ 1,300.00	$ -	$ -
31	7.9	AC	SEEDING		0	$ 2,400.00	$ -	$ -
32	2960	LF	WATTLES		0	$ 4.00	$ -	$ -
33	3	EA	PERMANENT PIEZOMETER(W/ BOLLARDS)		0	$ 8,000.00	$ -	$ -
34	4	EA	SETTLEMENT PLATE		0	$ 2,500.00	$ -	$ -
35	1100	LF	TYPE B DIVERSION		0	$ 2.40	$ -	$ -
36	100	LF	DRAIN TILE REMOVAL (ADB ENGINEER)		0	$ 5.00	$ -	$ -
37	100	LF	DRAIN TILE PLACEMENT(ADB ENGINEER)		0	$ 10.00	$ -	$ -
38	0	EA	SEPTIC TANK AND LATERAL FIELD		0	$ -	$ -	$ -
39	1	LS	QUALITY CNTROL INSPECTION		0	$ 6,500.00	$ -	$ -
40	150	SY	GEOTEXTILE FILTER FABRIC		0	$ 12.00	$ -	$ -
			TOTAL 26A	**$42,696.00**			**$ 58,025.00**	**$ 100,721.00**

THOMPSON CONSTRUCTION INC.
2404 N LINCOLN AVE FREMONT, NE 68025 - PHONE - 402-704-2008 - FAX - 402-704-2009

ITEM NO.	QTY	UNIT	DESCRIPTION	MATERIAL STORED	QTY TO DATE	UNIT PRICE	TOTAL	TOTAL PLUS STORED MATERIAL
SITE 26B								
1	1	LS	MOBILIZATION		0.5	$ 50,000.00	$ 25,000.00	**$ 25,000.00**
2	1	LS	CONSTRUCTION STAKING		0.1	$ 12,000.00	$ 1,200.00	**$ 1,200.00**
3	1	EA	CONSTRUCTION ENTRANCE		0	$ 2,560.00	$ -	$ -
4	1	LS	DEWATERING		0	$ 15,000.00	$ -	$ -
5	15	AC	GENERAL CLEARING AND GRUBBING		9	$ 2,000.00	$ 18,000.00	**$ 18,000.00**
7	77628	CY	EARTHWORK FILL (AT1.2 COMPACTION)		0	$ 3.70	$ -	$ -
8	2946	CY	EARTHWORK CUT AND SPOIL		0	$ 4.00	$ -	$ -
9	814	TN	AGGREGATE 47B FINE		0	$ 34.00	$ -	$ -
10	4	TN	1" WASHED AGGREGATE		0	$ 210.00	$ -	$ -
11	205	TN	C33 #8 AGGREGATE		0	$ 55.00	$ -	$ -
12	4888	TN	CLASS B RIP RAP		0	$ 90.00	$ -	$ -
13	855	TN	3" CRUSHED AGGREGATE		0	$ 45.00	$ -	$ -
14	961	LF	6" PERFORATED DUAL WALL PVC		0	$ 23.00	$ -	$ -
15	90	LF	8" GALVANIZED STEEL PIPE		0	$ 25.00	$ -	$ -
16	177	LF	24" RCPP PRINCIPAL SPILLWAY		0	$ 550.00	$ -	$ -
17	2	EA	PRINCIPAL SPILLWAY PIPE SUPPORTS		1.5	$ 4,000.00	$ 6,000.00	**$ 6,000.00**
18	23	CY	STRUCTURAL CONCRETE (CLASS 4000)		0	$ 2,150.00	$ -	$ -
19	4285	LB	REINFORCING STEEL		0	$ 2.50	$ -	$ -
20	1	LS	METAL FABRICATION		0	$ 11,000.00	$ -	$ -
21	3	EA	SHEETPILE HEADWALL		0	$ 1,700.00	$ -	$ -
22	24	LF	18" CCP LOW STAGE INLET PIPE		0	$ 75.00	$ -	$ -
23	1	EA	18" CONCRETE TRASH RACK		0	$ 3,100.00	$ -	$ -
24	64	LF	12" PVC DRAWDOWN PIPE		0	$ 60.00	$ -	$ -
25	1	EA	12" BAR TRASH RACK		0	$ 400.00	$ -	$ -
26	1	EA	12" LINE GATE		0	$ 30,000.00	$ -	$ -
27		LF	FENCE REMOVAL(ADB ENGINEER)		0		$ -	$ -
28		LF	FENCE PLACEMENT(ADB ENGINEER)		0		$ -	$ -
29		EA	GATE		0		$ -	$ -
30	2	EA	BRASS CAP MONUMENTS		0	$ 1,300.00	$ -	$ -
31	12.5	AC	SEEDING		0	$ 2,400.00	$ -	$ -
32	2985	LF	WATTLES		0	$ 4.00	$ -	$ -
33		EA	PERMANENT PIEZOMETER(W/ BOLLARDS)		0		$ -	$ -
34	4	EA	SETTLEMENT PLATE		0	$ 1,600.00	$ -	$ -
35	1040	LF	TYPE B DIVERSION		0	$ 2.40	$ -	$ -
36	650	LF	DRAIN TILE REMOVAL (ADB ENGINEER)		0	$ 2.00	$ -	$ -
37	100	LF	DRAIN TILE PLACEMENT(ADB ENGINEER)		0	$ 26.00	$ -	$ -
38	1	EA	SEPTIC TANK AND LATERAL FIELD		0	$ 13,000.00	$ -	$ -
39	1	LS	QUALITY CNTROL INSPECTION		0	$ 6,500.00	$ -	$ -
40	150	SY	GEOTEXTILE FILTER FABRIC		0	$ 12.00	$ -	$ -
			TOTAL 26B	**$ -**			**$ 50,200.00**	**$ 50,200.00**

THOMPSON CONSTRUCTION INC.
2404 N LINCOLN AVE FREMONT, NE 68025 - PHONE – 402-704-2008 - FAX – 402-704-2009

ITEM NO.	QTY	UNIT	DESCRIPTION	MATERIAL STORED	QTY TO DATE	UNIT PRICE	TOTAL	TOTAL PLUS STORED MATERIAL
SITE 27								
1	1	LS	MOBILIZATION		0.65	$ 80,000.00	$ 52,000.00	**$ 52,000.00**
2	1	LS	CONSTRUCTION STAKING		0.2	$ 12,000.00	$ 2,400.00	**$ 2,400.00**
3	1	EA	CONSTRUCTION ENTRANCE		1	$ 2,650.00	$ 2,650.00	**$ 2,650.00**
4	1	LS	DEWATERING		0	$ 15,000.00	$ -	$ -
5	22	AC	GENERAL CLEARING AND GRUBBING		16	$ 3,000.00	$ 48,000.00	**$ 48,000.00**
7	93619	CY	EARTHWORK FILL (AT1.2 COMPACTION)		9955	$ 3.90	$ 38,824.50	**$ 38,824.50**
8	9265	CY	EARTHWORK CUT AND SPOIL		5500	$ 4.00	$ 22,000.00	**$ 22,000.00**
9	990	TN	AGGREGATE 47B FINE		509	$ 34.00	$ 17,306.00	**$ 17,306.00**
10	4	TN	1" WASHED AGGREGATE		0	$ 105.00	$ -	$ -
11	210	TN	C33 #8 AGGREGATE		24	$ 55.00	$ 1,320.00	**$ 1,320.00**
12	7829	TN	CLASS B RIP RAP - STORED = 847 TONS @ $72 / TON	$ 60,984.00	2317	$ 90.00	$ 208,530.00	**$ 269,514.00**
13	788	TN	3" CRUSHED AGGREGATE		201	$ 45.00	$ 9,045.00	**$ 9,045.00**
14	964	LF	6" PERFORATED DUAL WALL PVC		793	$ 23.00	$ 18,239.00	**$ 18,239.00**
15	90	LF	8" GALVANIZED STEEL PIPE		61	$ 25.00	$ 1,525.00	**$ 1,525.00**
16	175	LF	24" RCPP PRINCIPAL SPILLWAY		0	$ 550.00	$ -	$ -
17	2	EA	PRINCIPAL SPILLWAY PIPE SUPPORTS		2	$ 4,000.00	$ 8,000.00	**$ 8,000.00**
18	23	CY	STRUCTURAL CONCRETE (CLASS 4000)		0	$ 2,150.00	$ -	$ -
19	4465	LB	REINFORCING STEEL		0	$ 2.50	$ -	$ -
20	1	LS	METAL FABRICATION		0	$ 11,000.00	$ -	$ -
21	3	EA	SHEETPILE HEADWALL		0	$ 1,700.00	$ -	$ -
22	24	LF	18" CCP LOW STAGE INLET PIPE		0	$ 75.00	$ -	$ -
23	1	EA	18" CONCRETE TRASH RACK		0	$ 3,100.00	$ -	$ -
24	63	LF	12" PVC DRAWDOWN PIPE		0	$ 60.00	$ -	$ -
25	1	EA	12" BAR TRASH RACK		0	$ 400.00	$ -	$ -
26	1	EA	12" LINE GATE		0	$ 30,000.00	$ -	$ -
27	1065	LF	FENCE REMOVAL(ADB ENGINEER)		500	$ 1.00	$ 500.00	**$ 500.00**
28	1170	LF	FENCE PLACEMENT(ADB ENGINEER)		0	$ 10.00	$ -	$ -
29		EA	GATE		0		$ -	$ -
30	2	EA	BRASS CAP MONUMENTS		0	$ 1,300.00	$ -	$ -
31	18.4	AC	SEEDING		0	$ 2,400.00	$ -	$ -
32	3735	LF	WATTLES		0	$ 4.00	$ -	$ -
33	3	EA	PERMANENT PIEZOMETER(W/ BOLLARDS)		0	$ 8,000.00	$ -	$ -
34	4	EA	SETTLEMENT PLATE		0	$ 1,800.00	$ -	$ -
35	1402	LF	TYPE B DIVERSION		0	$ 2.50	$ -	$ -
36	1500	LF	DRAIN TILE REMOVAL (ADB ENGINEER)		0	$ 2.60	$ -	$ -
37	100	LF	DRAIN TILE PLACEMENT(ADB ENGINEER)		0	$ 10.00	$ -	$ -
39	1	LS	QUALITY CNTROL INSPECTION		0	$ 6,400.00	$ -	$ -
40	150	SY	GEOTEXTILE FILTER FABRIC		0	$ 10.00	$ -	$ -
			TOTAL 27	**$60,984.00**			**$ 430,339.50**	**$ 491,323.50**

Wahoo Creek Dams 26A, 26B, and 27 – Progress Meeting Agenda

April 29th, 09:00 AM, Next meeting=> May 27th, 09:00 AM

1. **Project Schedule & Phasing**
   - **a.** Work completed since last meeting
     - i. Aggregates hauled and stockpiled (Site 26A & Site 27)
     - ii. Completed excavation for the plunge pool (Site 27)
     - iii. Installation of the principal spillway pipe supports (Site 27)
     - iv. Completed installation of Type B Riprap and 3" Crushed Aggregate in the plunge pool (Site 27)
     - v. Excavation and backfilling of the core trench on the East side of the existing channel (Site 27)
     - vi. Installation of the foundation drain and outlet on East side of the principal spillway to the first cleanout (Site 27)
     - vii. Installation of the principal spillway seepage protection filter and outlet (Site 27)
   - **b.** Work planned for the month (contractor update)
     - i.
     - ii.
     - iii.
2. **Coordination with others**
   - **a.**
   - **b.**
3. **Progress Payments**
   - **a.** Pay application #5 (work through 04/24/25) is available for review by LPNNRD
   - **b.** Pay application #6 needs to be submitted to Olsson by May 23rd
4. **Change Orders/WCD**
   - **a.** ~~Change Order #1 was approved at the last LPNNRD meeting on 03/10/25. They will be available for review and signature by Thompson Construction.~~
   - **b.**
5. **Contractor Action Items**
   - **a.** Pipe Submittals
     - i. ~~12" Line Gate and Wall Thimbles – Approved and returned by Olsson on 02/28/25.~~
   - **b.** Steel Submittals
     - i. ~~Sheet Pile – Reviewed and returned for resubmittal by Olsson on 02/28/25.~~
   - **c.** ~~Waterstop – Approved and returned by Olsson on 03/21/25.~~
   - **d.** ~~Valve Actuator – Approved and returned by Olsson on 02/28/25.~~
   - **e.** Coordinate installation of settlement plates and piezometers.
     - **i.** Piezometers are for long term monitoring. They are to be installed between the embankment completion and the first filling of the reservoir
     - **ii.** Settlement plates to be installed at the first embankment lift and survey shots of the settlement plate and embankment elevation to be taken once per week.
   - **f.**
   - **g.**

6. **LPNNRD Action Items**
   a. Signed copy of the change order (01) returned to Olsson on 03/26/25.
   b.
7. **Olsson Action Items**
   a. Revised layout for the pipe supports on the principal spillway issued on 04/10/25 (Site 27).
   b. Signed copy of the Change Order #1 and Work Change Directive #1 and #2 sent to Thompson Construction for signature on 03/27/25 and returned on 03/27/25.
   c. Provide Thompson Construction and Hazard Engineering with CAD files that have the full alignment sets and line work (resolved?).

8. **Attendees:**

First	Last	Company	Present
Sean	Elliott	LPNNRD	
Ryan	Sabatka	LPNNRD	
Dan	Lightbody	Olsson	
Brian	Jueneman	Olsson	
Isaac	Miesbach	Olsson	
Allen	Gehring	NRCS	
Thomas	Mountford	NRCS	
Jason	Sall	NRCS	
Kelly	Thompson	TCI	
Lance	French	TCI	
Travis	Hazard	Hazard Engineering	
Darren	Brown	Hazard Engineering	
Richard	Shanahan	Shanahan	

Invoice

olsson

601 P St Suite 200
PO Box 84608
Lincoln, NE 68501-4608
Tel 402.474.6311, Fax 402.474.5063

April 23, 2025
Invoice No: 535343

Invoice Total $20,803.85

Ryan Chapman
Lower Platte North NRD
PO Box 126
Wahoo, NE 68066-0126

Olsson Project # A18-34230 Lower Platte North NRD Wahoo Creek Watershed & 7 Dam Sites Phase II

Professional services rendered March 9, 2025 through April 5, 2025 for work completed in accordance with agreement.

Phase 100 Sites 55 66 77 82 84 85 86 Project Management
Labor

	Hours	Amount	
Project Manager	17.00	2,541.16	
Assistant Professional	1.00	111.76	
Totals	18.00	2,652.92	
Total Labor			**2,652.92**
		Total this Phase	**$2,652.92**

Phase 120 Dam Design
Labor

	Hours	Amount	
CAD Operator	61.00	5,175.24	
Totals	61.00	5,175.24	
Total Labor			**5,175.24**
		Total this Phase	**$5,175.24**

Phase 130 Permitting
Labor

	Hours	Amount	
Project Manager	61.25	11,151.18	
Project Professional	5.50	705.60	
Assistant Professional	11.00	1,049.41	
Totals	77.75	12,906.19	
Total Labor			**12,906.19**

INVOICE PAYMENT IS REQUESTED WITHIN 30 DAYS

Reimbursable Expenses

Filing Fees		0.00	
Total Reimbursables		**0.00**	**0.00**
	Total this Phase		**$12,906.19**

Phase 140 Survey & Legal Descriptions

Reimbursable Expenses

Filing Fees		11.00	
Total Reimbursables		**11.00**	**11.00**

Unit Billing

Field Vehicle 1270	78.0 Miles @ 0.75	58.50	
Total Units		**58.50**	**58.50**
	Total this Phase		**$69.50**

Phase 180 Site 55 Additional Investigation

	Total this Phase	**0.00**
	AMOUNT DUE THIS INVOICE	**$20,803.85**

Outstanding Invoices

Number	Date	Balance
530003	3/18/2025	26,233.97
Total		**26,233.97**

Authorized By: Carrie Wiese

INVOICE PAYMENT IS REQUESTED WITHIN 30 DAYS

LETTER AGREEMENT
AMENDMENT #4

Date: May 2, 2025

This AMENDMENT ("Amendment") shall amend and become a part of the Letter Agreement for Professional Services dated October 22, 2018 between Lower Platte North NRD ("Client") and Olsson, Inc. ("Olsson") providing for professional services for the following Project (the "Agreement"):

PROJECT DESCRIPTION AND LOCATION

Project is located at: Wahoo, NE (Saunders County)

Project Description: Final design dam sites 26A, 26B and 27, geotechnical investigation, permitting, survey, ROW legal descriptions, construction observation for sites 26A, 26B, and 27.

SCOPE OF SERVICES – PART I: Sites 26A, 26B, and 27

Client and Olsson hereby agree that Olsson's Scope of Services under the Agreement is amended by adding the services specifically described below for the additional compensation set forth below:

Additional Construction Phase Services (Part I)

Amendment #1 estimated the on-site Olsson representative's presence based on a total of 40 hours per week for a **6-months** construction period. However, due to the contractor's schedule for the Part 1 dams, additional on-site time, project management, and engineering support will be required during the construction phase. The contractor's schedule extends to 18 months, which is an increase of 12 months from the initial estimate in Amendment #1.

Bidding services also required additional time beyond what was scoped in the original contract due to administrative time to coordinate/prepare bidding documents/package, preparation of CAD drawings and specs; also, significantly greater time than anticipated for answering contractor questions during bidding process, and assisting with agreement between NRD and Contractor.

We have assumed no overtime hours will be required by the on-site Olsson representative. If overtime is required based upon contractor schedule, Olsson will discuss modifications to the scoped hours and resulting fee with the Client.

The scope of services is unchanged, just the duration has increased and corresponding fee.

PROJECT DESCRIPTION AND LOCATION

Project is located at: Wahoo, NE (Saunders County)

Project Description: Final design dam sites 55, 66, 77, ~~82,~~ ~~83,~~ 85, and 86 geotechnical investigation, permitting, survey, ROW legal descriptions, cultural resources investigation, and construction phase services.

SCOPE OF SERVICES – PART II: Sites 55, 66, 77, ~~82, 83,~~ 84, 85, and 86

Client and Olsson hereby agree that Olsson's Scope of Services under the Agreement is amended by adding the services specifically described below for the additional compensation set forth below:

Additional Time Coordinating with County Surveyor for Section Corners/Legal Descriptions

This amendment highlights the need for extra time required by our surveyors due to coordination efforts with the County Surveyor to re-establish section corners. During the preparation of legal descriptions, it became apparent that several section corners were missing. Initially, we coordinated with the County Surveyor to accurately stake these section corners.

Once staked, our surveyors headed to the field to collect these points, which was needed for the legal descriptions for Sites 66, 84, and 85. Our original scope assumed that all section corners would be readily available. The need to re-establish these locations caused the additional time required. In addition, more time was needed to prepare the necessary drawings for easements, as drawings were needed for negotiations but are not sufficiently accurate without survey to determine contours for borrow areas, etc.

SCHEDULE FOR OLSSON'S SERVICES

Unless otherwise agreed, Olsson expects to perform its services covered by this Amendment as follows:

Anticipated Design Start Date: November 5th, 2018
Anticipated Completion Date: January 31st, 2025 (Design phase services)
Anticipated Construction Start Date: November 1st, 2024
Anticipated Completion Date: September 30th, 2026 (Construction phase services)

Olsson will endeavor to start its services on the Anticipated Start Date and to complete its services on the Anticipated Completion Date. However, the Anticipated Start Date, the Anticipated Completion Date, and any milestones are subject to adjustment to account for any delays caused by Client, delays caused by third parties, or delays caused by acts of god or for reasons otherwise mutually agreed upon by Client and Olsson.

COMPENSATION

For the additional Scope of Services specifically set forth in this Amendment, Client shall pay Olsson the following fee in addition to the fee(s) set forth in the Agreement:

Rates used to establish Design and Construction Service fees for future calendar years (2023-2026) in this contract are based on an assumed 4% escalation year over year. Olsson reserves the right to evaluate future calendar year fees in light of inflationary economic trends and coordinate with the Client on fair and reasonable fee adjustments accordingly.

DESIGN & PERMITTING FEE

Client shall pay to Olsson for the performance of the Scope of Services, the actual time of personnel performing such services on an hourly cost basis times a factor of 3.085 for services rendered by our principals and employees engaged directly on the Project, and all actual reimbursable expenses in accordance with Reimbursable Expense Schedule attached to this Agreement. Olsson shall submit invoices on a monthly basis and payment is due within 30 calendar days of invoice date.

Olsson's Scope of Services will be provided on a time and expense basis not to exceed the Part II fee of $1,594,228 (net increase in fee of $9,202).

CONSTRUCTION SERVICES FEE

Client shall pay to Olsson for the performance of the Scope of Services, the actual time of personnel performing such services on an hourly cost basis times a factor of 3.085 for services rendered by our principals and employees engaged directly on the Project, and all actual reimbursable expenses in accordance with Reimbursable Expense Schedule attached to this Agreement. Construction services include bidding services, construction management, and construction observation as detailed in the attached Scope of Services. Olsson shall submit invoices on a monthly basis and payment is due within 30 calendar days of invoice date.

Olsson's Scope of Services will be provided on a time and expense basis of $507,509 (net increase of $335,547) for Part I and Part II* remains unchanged at this time until the contractor has been selected and their schedule has been established.

*Fee values for Part II are estimated for the purpose of budgeting. Prior to start of construction, Olsson will plan to review scope and fee for construction services after completion of final design

and based of contractor's proposed construction schedule and coordinate with the Client accordingly should contract modification be warranted at that time.

TERMS AND CONDITIONS OF SERVICE

All provisions of the original Agreement not specifically amended herein shall remain unchanged.

If this Contract Amendment satisfactorily sets forth your understanding of our agreement, please sign in the space provided below. Retain a copy for your files and return an executed original to Olsson. This proposal will be open for acceptance for a period of 30 days from the date set forth above, unless changed by us in writing.

OLSSON, INC.

By Andrea Adams
Andrea Adams

By Andrew M. Phillips
Andrew M. Phillips

By signing below, you acknowledge that you have full authority to bind Client to the terms of this Amendment. If you accept this Amendment, please sign:

Lower Platte North NRD

By _____
Signature

Printed Name _____

Title _____ Dated: _____

ATTACHMENTS
Exhibit A – Part I Additional Services
Exhibit B- Part II Additional Services

Date: 4.9.25
Job: 018-3423

Sites 26A, 26B & 27 (Part I)
Additional Services

Phase/ Task	Description of Work	LABOR HOURS												EXPENSES				TOTALS			
				Water Resources		Geotechnical				Survey											
		Principal & QA/QC	Construction Project Management	Senior Staff	Technical Staff	Lead Geotech Engineer	Industry Expert	CA Field Staff	Technician	2-Man Crew	CAD Operator	Crew Leader	Admin	Travel, mile (Surv Vehicle)	Proctor	Concrete Strength	Atterberg	Total Man-Days	Total Labor Fee	Total Expense Fee	Total Fee
			$160.00	$145.00	$105.00	$135.00	$240.00	$110.00	$65.00	$185.00	$115.00	$77.00	$60.00	$0.85	$175.00	$20.00	$110.00				
Phase 080	**Construction Project Management**																				
Task 001	Project Management		180.00											2520.00				22.50	$ 28,800	$ 2,142	$ 30,942
Task 002	Projects Committee Meetings		25.00															3.13	$ 4,000	$ -	$ 4,000
Task 003	On-Site Meetings		80.00															10.00	$ 12,800	$ -	$ 12,800
Task 004	Board Meetings		25.00															3.13	$ 4,000	$ -	$ 4,000
Phase 080 Total			310.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								$ 51,742
Phase 090	**As-Built Survey**																				
Task 001	Field Survey																	-	$ -	$ -	$ -
Task 002	Processing																	-	$ -	$ -	$ -
Phase 090 Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								$ -
Phase 100	**Engineering Construction Support**																				
Task 002	Water Resources Engineer			180.00										1800.00				22.50	$ 26,100	$ 1,530	$ 27,630
Task 003	Geotechnical Engineer																	-	$ -	$ -	$ -
Phase 100 Total			0.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								$ 27,630
Phase 110	**Construction Services (Additional 40 hours per week for 12 months)**																				
Task 001	Construction Observation							1960.00						23400.00	15.00	30.00	15.00	245.00	$ 215,600	$ 24,765	$ 240,365
Task 002	Bidding		16.00	50.00	40.00								30.00					17.00	$ 15,810	$ -	$ 15,810
Phase 110 Total			16.00	50.00	40.00	0.00	0.00	1960.00	0.00	0.00	0.00	0.00	30.00								$ 256,175
GRAND TOTAL			310.0	180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27720.0	15.0	30.0	15.0	323.26	$ 307,110	$ 28,437	$ 335,547

Date: 4.9.25 Job: A18-3423	**Sites 55,66,77,82,84,85,86 (Part II) Additional Services**	**LABOR HOURS**												**EXPENSES**	**TOTALS**			
				Water Resources		**Geotechnical**				**Survey**								
Phase/ Task	Description of Work	Principal & QA/QC	Construction Project Management	Senior Staff	Project Professional	Lead Geotech Engineer	Industry Expert	CA Field Staff	Technician	2-Man Crew	CAD Operator	Crew Leader	Admin	Travel, mile (Surv Vehicle)	Total Man-Days	Total Labor Fee	Total Expense Fee	Total Fee
		$0.00	$150.00	$135.00	$224.84	$135.00	$240.00	$105.00	$65.00	$194.00	$115.00	$77.00	$60.00	$0.85				
Phase 140	**Survey and Legal Descriptions**																	
Task 001	Survey and Legal Descriptions									12.00	58.00			240.00	8.75	$ 8,998	$ 204	$ 9,202
															-	$ -	$ -	$ -
Phase 140 Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	58.00	0.00	0.00					$ 9,202
GRAND TOTAL		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	$ -	$ -	$ 9,202

Invoice

olsson

601 P St Suite 200
PO Box 84608
Lincoln, NE 68501-4608
Tel 402.474.6311, Fax 402.474.5063

April 23, 2025
Invoice No: 535228

Invoice Total $2,991.67

Ryan Chapman
Lower Platte North NRD
PO Box 126
Wahoo, NE 68066-0126

Olsson Project # 023-00443 LPNNRD Wahoo Creek Watershed Flood Reduction Project Real Estate Services

Professional services rendered through April 5, 2025 for work completed in accordance with our Agreement dated February 17, 2023.

Phase 100 Real Estate Acquisitions

Labor

	Hours	Amount	
Principal	7.50	1,835.40	
CAD Operator	.50	42.42	
Totals	8.00	1,877.82	
Total Labor			**1,877.82**

Reimbursable Expenses

Filing Fees		1,079.10	
Total Reimbursables		**1,079.10**	**1,079.10**

Unit Billing

Postage		34.75	
Total Units		**34.75**	**34.75**
	Total this Phase		**$2,991.67**

Billing Limits	**Current**	**Prior**	**To-Date**	
Total Billings	2,991.67	150,757.45	153,749.12	
Limit			210,000.00	
Balance Remaining			56,250.88	
		AMOUNT DUE THIS INVOICE		**$2,991.67**

Outstanding Invoices

Number	**Date**	**Balance**
529944	3/18/2025	15,680.28
Total		**15,680.28**

Billings to Date

	Current	**Prior**	**Total**
Labor	1,877.82	133,966.40	135,844.22

INVOICE PAYMENT IS REQUESTED WITHIN 30 DAYS

Expense	1,079.10	16,655.20	17,734.30
Internal Unit	34.75	135.85	170.60
Totals	**2,991.67**	**150,757.45**	**153,749.12**

Email invoices to: rchapman@lpnnrd.org; selliott@lpnnrd.org and CC: jbreunig@lpnnrd.org

Authorized By: Danielle Allen

INVOICE PAYMENT IS REQUESTED WITHIN 30 DAYS

Lower Platte River
CORRIDOR ALLIANCE

LEAD. ORGANIZE. INSPIRE. The voice of the Lower Platte.

LPRCA MEETING AGENDA

Friday, May 9, 2025 - 10:00 a.m. at Lower Platte South NRD

1. Welcome / Introductions (David Potter-LPSNRD)
2. Agenda Review and Publication Notice – April 28th in Lincoln Journal Star (Potter)
3. Review November 8, 2024, meeting and approval of meeting minutes (Potter) ***[ACTION]***
4. Current Membership, Dues, and Website (Potter)
5. Financials and Budget update (Potter)
   A. FY 26 budget
6. Current LPRCA and Related Activities/Projects:
   A. USGS streamgages/monitors - Leshara and three long-term sites (Matt Moser-USGS)
      i. 2025 water quality data
      ii. CWQ trends
      iii. Agreements for 2025-2030
   B. USGS Streamgage Trend Analysis Project update (Moser)
   C. Update on current USGS cameras (Moser)
   D. Water Quality Management Plan – Section 319 Project updates (Ian Ghanavati-PMRNRD, Chapman-LPNNRD)
7. Member Updates and Reports on Related Lower Platte River Corridor Activities and Projects:
   A. Dept. of Natural Resources updates (Jesse Bradley-NeDNR)
   B. Updates from UNL (Dan Trotter-UNL)
   C. Updates from Dept. of Environment and Energy (Daniel Ross-NeDEE)
   D. National Guard and Camp Ashland updates (Larry Vrtiska-NE National Guard)
   E. Game & Parks projects/updates - State Parks & Trails (Jim Swenson-NGPC)
   F. Papio-Missouri River NRD updates (Eric Williams, Amanda Grint-PMRNRD)
      i. Platte River Railroad Obstruction
   G. Lower Platte South NRD updates (Mike Sousek-LPSNRD)
      i. MoPac Connector
   H. Lower Platte North NRD updates (Ryan Chapman)
   I. Other
8. Future Projects/Studies:
   A. Lower Platte River Aquatic Ecosystem Restoration Comprehensive Study update/status
   B. Discussion of any other possible projects for LPRCA
9. Schedule/Plan Next Meeting - November 2025
10. Comments, Questions, General Discussion
11. Adjourn

*CONTACT INFO - LPRCA Office – 3125 Portia * PO Box 83581 * Lincoln, NE 68501 * (402) 476-2729*
*E-mail – dpotter@lpsnrd.org * Website – www.lowerplatte.org*

Lower Platte River Corridor Alliance FY26 Budget (Prepared May 2025)		**LPSNRD**	**PMRNRD**	**LPNNRD**	**National Guard**	**Game & Parks**	**UNL**	**NeDNR**	**DEE**	**LWS**	**MUD**	**LPRCA expenditure**
Streamgages:	3 Long term sites - Five-Yr agreement expires: June 30, 2030	$39,600	$39,600	-	-	-	-	-	-	-	-	$79,200
	Leshara site - Five-Yr agreement expires: June 30, 2030 (Joint funding agreements between partners expire Dec. 31, 2029)	$8,000	$8,000	$8,000	-	-	-	-	-	$8,000	$8,000	$40,000
Website Hosting		-	-	-	-	-	-	-	-	-	-	$1,920
ESRI Agreement		-	-	-	-	-	-	-	-	-	-	$1,100
WQMP – update completed		-	-	-	-	-	-	-	-	-	-	-
LPRCA Dues - Pays for Website, ESRI & Memberships. (In FY25 was paid by all 8 members: LPSNRD, PMRNRD, LPNNRD, National Guard, Game &Parks, UNL, NeDNR and NDEE for a total of $8,000)		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	-	-	-
Lower Platte Tour		$500	$500	-	-	-	-	-	-	-	-	$1,000
Memberships		-	-	-	-	-	-	-	-	-	-	$250
Restoration & Resiliency Study		-	-	-	-	-	-	-	-	-	-	$200,000 (from reserves)
USGS Streamgage Trend Analysis		$4,137	$4,137	$4,137	-	$4,137	$4,137	$4,137	*$6,216 From 319 small grant EPA	$4,137	$4,137	$39,312
FY26 BUDGET TOTALS		**$53,237**	**$53,237**	**$13,137**	**$1,000**	**$5,137**	**$5,137**	**$5,137**	*** $1,000**	**$12,137**	**$12,137**	**$351,144**

SUBCOMMITTEE: Platte River
PROGRAM AREA: Lower Platte River Corridor Alliance
GOALS: A, B, C, D, E, F, G. H, I, J, K

COPY

FISCAL YEAR 2026

ACTIONS	OBJECTIVES	STATUS CODE	FINAL BUDGET EXPENDITURE	FINAL BUDGET OTHER FUNDS	PRIORITIES	BUDGET CODE EXPENDITURE	BUDGET CODE OTHER FUNDS
LPSNRD Support of LPRCA Programs & ^ = Reserve							
Cooperate on Lower Platte River Corridor Alliance agency, if possible. (members include LPSNRD, PMRNRD, LPNNRD, NDEE, NeDNR, NG&P, UNL, & National Guard). Administration (includes ESRI, website and memberships). Receive payment and have involvement from each partnering	D1a	C1	$0.00	$3,000 $5,000	1	419002 419002	302011 301720
Host semi-annual Lower Platte River Corridor Alliance meetings.			$0	$0			
Lower Platte River Restoration and Resiliency Study with Corps, NRDs & State • Meet with USACE and other partners (LPNNRD, LPSNRD and PMRNRD), if necessary, to determine if we all are interested in pursuing this study.			$0	$0			
Participate in Nebraska Land Trust meetings and in Lower Platte River Workgroup, when needed.			$0	$0			
Monitor Lower Platte River instream flow review & basin determination / integrated management.			$0	$0			
Environmental Suitability Assessment projects, information and correspondence • ESRI Agreement • City/County Meetings	D1d	A2	$1,100 $0	$0 $0	6	419002	
WQ Streamgage Monitoring Network • Continuation of existing agreement--3 sites (Platte @ Louisville, Salt @ Ashland & Elkhorn@ Waterloo)	A5c	A4	$79,200	$79,200	2	419006	302014
• Leshara Site Agreement continuation	A5c	A4	$40,000	$40,000	3	419006	302014
• USGS Streamgage Trend Analysis	A5c	A4	$39,312	$33,096	4	419006	302014
• USGS Streamgage Trend Analysis - DEE Section 319				$6,216		419006	303014

FISCAL YEAR 2026

ACTIONS	OBJECTIVES	STATUS CODE	FINAL BUDGET EXPENDITURE	FINAL BUDGET OTHER FUNDS	PRIORITIES	BUDGET CODE EXPENDITURE	BUDGET CODE OTHER FUNDS
Education & Outreach							
• Lower Platte River Tour. Set up one tour of the Platte River (for Alliance reps and/or	D1f	C1	$1,000	$1,000	7	419006	302014
• Newsletter; kiosks; I&E Materials; Other Events			$0	$0			
• Advertising; Social Media; Video Production			$0	$0			
• Website Hosting/Support/Maintenance	D1f	C1	$1,920	$0	5	419002	
• Memberships	D1f	C1	$250	$0	8	419002	
Water Quality Management Plan & Improvements							
• Watershed Management Plan Implementation			$0	$0			
• Assistance with Wellhead Protection Program updates			$0	$0			
• Planning (Possible application to EPA / DEE for Section 319 for WQMP update in FY24)			$0	$0			
Monitor Water Trail Planning & Development			$0	$0			
Support efforts to control invasive species and noxious weeds along the Lower Platte River. Participating with the counties and the Lower Platte Weed Management Area (LPWMA) group.			$0	$0			

FISCAL YEAR 2027 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on Lower Platte River Corridor Alliance Administration	$0	$7,000
Host semi-annual Lower Platte River Corridor Alliance meetings.	$0	$0
Approval of Lower Platte River Water Quality Management Plan Projects with NRDs, State and others	$0	$0
Lower Platte River Restoration and Resiliency Study/Projects with Corps of Engineers, NRDs, State and others	$200,000	$0
LPRCA Programs		
• Water Quality		
• Monitoring Network (3 long term sites and Leshara)	$118,800	$118,800
• USGS Trend Analysis	$0	$0
• Programs / Implementation	$0	$0
• Planning	$0	$0
• Recreation Access	$0	$0
• Ecosystem Studies	$0	$0
• Outreach, Education & Correspondence	$4,500	$0
• Miscellaneous efforts	$0	$0
• NE Land Trust	$0	$0
• Invasive Species & Noxious Weed Efforts	$0	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$0	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$0	$0

FISCAL YEAR 2028 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on Lower Platte River Corridor Alliance Administration	$0	$7,000
Host semi-annual Lower Platte River Corridor Alliance meetings.	$0	$0
Approval of Lower Platte River Water Quality Management Plan Projects with NRDs, State and others	$0	$0
Lower Platte River Restoration and Resiliency Study/Projects with Corps of Engineers, NRDs, State and others	$200,000	$0
LPRCA Programs		
• Water Quality		
• Monitoring Network (3 long term sites and Leshara)	$124,400	$124,400
• Programs / Implementation	$0	$0
• Planning	$0	$0
• Recreation Access	$0	$0
• Ecosystem Studies	$0	$0
• Outreach, Education & Correspondence	$5,000	$0
• Miscellaneous efforts	$0	$0
• NE Land Trust	$0	$0
• Invasive Species & Noxious Weed Efforts	$0	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$0	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$0	$0

FISCAL YEAR 2029 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on Lower Platte River Corridor Alliance Administration	$0	$7,000
Host semi-annual Lower Platte River Corridor Alliance meetings.	$0	$0
Approval of Lower Platte River Water Quality Management Plan Projects with NRDs, State and others	$0	$0
Lower Platte River Restoration and Resiliency Study/Projects with Corps of Engineers, NRDs, State and others	$200,000	$0
LPRCA Programs		
• Water Quality		
• Monitoring Network (3 long term sites and Leshara)	$130,400	$130,400
• Programs / Implementation	$0	$0
• Planning	$0	$0
• Recreation Access	$0	$0
• Ecosystem Studies	$0	$0
• Outreach, Education & Correspondence	$5,000	$0
• Miscellaneous efforts	$0	$0
• NE Land Trust	$0	$0
• Invasive Species & Noxious Weed Efforts	$0	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$0	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$0	$0

FISCAL YEAR 2030 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on Lower Platte River Corridor Alliance Administration	$0	$7,000
Host semi-annual Lower Platte River Corridor Alliance meetings.	$0	$0
Planning - Update and approve WQMP (LPSNRD, LPNNRD, PMRNRD)	$0	$0
Approval of Lower Platte River Water Quality Management Plan Projects with NRDs, State and others	$0	$0
Lower Platte River Restoration and Resiliency Study/Projects with Corps of Engineers, NRDs, State and others	$200,000	$0
LPRCA Programs		
• Water Quality		
• Monitoring Network (3 long term sites and Leshara)	$99,800	$99,800
• New agreement for 3 long-term sites and Leshara	$0	$0
• Programs / Implementation	$0	$0
• Planning	$0	$0
• Recreation Access	$0	$0
• Ecosystem Studies	$0	$0
• Outreach, Education & Correspondence	$5,500	$0
• Miscellaneous efforts	$0	$0
• NE Land Trust	$0	$0
• Invasive Species & Noxious Weed Efforts	$0	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$0	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$0	$0

SUBCOMMITTEE: Platte River
PROGRAM AREA: Platte River
GOALS: A, B, C, D, E, F, G. H, I, J, K

COPY

FISCAL YEAR 2026

ACTIONS	OBJECTIVES	STATUS CODE	FINAL BUDGET EXPENDITURE	FINAL BUDGET OTHER FUNDS	PRIORITY	BUDGET CODE EXPENDITURE	BUDGET CODE OTHER FUNDS
LPSNRD Support of LPRCA Programs & Projects (Total LPSNRD costs $53,237)							
Cooperate on Lower Platte River Corridor Alliance Administration. (LPSNRD Share)	D1a	C1	$1,000.00	$0	1	419022	302011
Environmental Suitability Assessment projects, information and correspondence • ESRI Agreement			$0	$0			302014
WQ Monitoring Network (LPRCA) • Continuation of existing agreement - 3 sites (Platte @ Louisville, Salt @ Ashland & Elkhorn @ Waterloo) (LPSNRD Share)	A5c	A4	$39,600	$0	2	419021	302014
• Leshara Site Agreement Continuation (LPSNRD Share)	A5c	A4	$8,000	$0	3	419021	302014
• USGS Streamgage Trend Analysis (LPSNRD Share)	A5c	C1	$4,137	$0	4	419013	
Education & Outreach (LPRCA) • Lower Platte River Tour (LPSNRD Share)	D1f	C1	$500	$0	13	419021	302014
• Newsletter; kiosks; I&E Materials; Other Events			$0	$0			302014
• Advertising; Social Media; Video Production			$0	$0			302014
• Website Hosting/Support/Maintenance			$0	$0			302014
• Memberships			$0	$0			
Water Quality Management Plan • Examine and prioritize projects identified in LPRCA WQMP. Identify WQMP 319 Project and apply for 319 Grant.			$0	$0			
• Implementation (Consider establishing the Turkey Creek Watershed as a targeted area for cost-share assistance. See Land Resources)			$0	$0		419013	303140
• Water Quality Plan Review			$0	$0		419013	
Monitor Water Trail Planning & Development			$0	$0			
Lower Platte River Restoration and Resiliency Study with USACE (NRDs & State) • Restoration and Resiliency Study initiation, planning and projects			$0	$0		419017	Contingent Upon Federal Appropriation
Platte River Recovery Implementation Program--review panel / coordination			$0	$0			

FISCAL YEAR 2026

ACTIONS	OBJECTIVES	STATUS CODE	FINAL BUDGET EXPENDITURE	FINAL BUDGET OTHER FUNDS	PRIORITY	BUDGET CODE EXPENDITURE	BUDGET CODE OTHER FUNDS
Cooperate on liaison service of Water Strategies, Washington, D.C. for Lower Platte River Corridor issues including appropriations for Lower Platte River Restoration and Resiliency Study.	D1d	C1	$28,800	$0	11	419003	
Participate in Nebraska Land Trust and in Lower Platte River Workgroup, when needed.			$0	$0		419009	
Platte River Ice Jam Agreement. (LPSNRD 15% of base fund amount.)	C4a	A3	$22,500	$0	5	419008	
• Interlocal agreement with PMRNRD for existing cameras on the Platte River at Hwy 6 and at Hwy 50	C4a	A3	$3,500	$0	7	419008	
Monitor Lower Platte River instream flow review & basin determination / integrated management.	A4a	C2	$10,000	$0	14	419010	
Western Sarpy / Clear Creek Project • Maintenance. LPNNRD received FEMA funding and plans to reimburse LPS for our payment.	C4a	A3	$50,000	$0	6	419020	303786
Continue to monitor status of public water systems and wastewater facilities			$0	$0			
Monitor and inspect PL84-99 levees at Omaha Fish & Wildlife Club			$0	$0			
• Sponsor USACE agreement with OFWC on Cedar Creek Levee Rehab	C4	C2	$0	$0	8	419023	302015
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	D1b	C1	$5,000	$0	12	419009	
Investigate acquisition of conservation easements to protect bluff and floodplain corridor along the Platte River and Missouri River. Participate as board member of NE Land Trust. Develop a strategy for identifying and evaluating critical areas for protection and landowner education and contacts. (See Cons. Eas.)							
• Agreement with NLT	D1e	A3	$30,000	$0	9	419012	
• Conservation Easement with NLT	D1e	A3	$20,000	$0	15	419012	
Support efforts to control invasive species and noxious weeds along the Lower Platte River.	D1d	C1	$60,000	$0	10	419016	

FISCAL YEAR 2027 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on service of Water Strategies for Lower Platte River Corridor. LPR Restoration and Resiliency Study appropriation	$30,000	$0
LPRCA Programs		
• Water Quality Monitoring (3 long term sites and Leshara)	$49,800	$0
• USGS Streamgage Trend Analysis	$0	$0
• Water Quality Programs/Implementation	$0	$0
• Water Quality Planning	$0	$0
• Recreation Access	$0	$0
• Lower Platte River Restoration and Resiliency Study w/ Corps. et al	$0	$0
• Ecosystem Studies	$0	$0
• Admin., Outreach & Education	$1,500	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$5,000	$0
Platte River Ice Jam Agreement	$22,500	$0
• Interlocal agreement for camera(s) on Platte River	$3,500	$0
Nebraska Land Trust Agreement	$30,000	$0
Conservation Easement with NLT	$20,000	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$10,000	$0
Platte River RR Obstruction	$0	$0
Western Sarpy / Clear Creek Project	$50,000	$0
Invasive Species & Noxious Weed Efforts	$30,000	$0

FISCAL YEAR 2028 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on service of Water Strategies for Lower Platte River Corridor. LPR Restoration and Resiliency Study appropriation	$31,200	$0
LPRCA Programs		
• Water Quality Monitoring (3 long term sites and Leshara)	$52,600	$0
• Water Quality Programs/Implementation	$0	$0
• Water Quality Planning	$0	$0
• Recreation Access	$0	$0
• Lower Platte River Restoration and Resiliency Study w/ Corps. et al	$0	$0
• Ecosystem Studies	$0	$0
• Admin., Outreach & Education	$1,500	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$5,000	$0
Platte River Ice Jam Agreement	$22,500	$0
• Interlocal agreement for camera(s) on Platte River	$3,500	$0
Nebraska Land Trust Agreement - Consider extending the agreement that expires June 30, 2027.	$30,000	$0
Conservation Easement with NLT	$20,000	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$10,000	$0
Western Sarpy / Clear Creek Project	$50,000	$0
Invasive Species & Noxious Weed Efforts	$30,000	$0

FISCAL YEAR 2029 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on service of Water Strategies for Lower Platte River Corridor. LPR Restoration and Resiliency Study appropriation	$31,200	$0
LPRCA Programs		
• Water Quality Monitoring (3 long term sites and Leshara)	$55,600	$0
• Water Quality Programs/Implementation	$0	$0
• Water Quality Planning	$0	$0
• Recreation Access	$0	$0
• Lower Platte River Restoration and Resiliency Study w/ Corps. et al	$0	$0
• Ecosystem Studies	$0	$0
• Admin., Outreach & Education	$1,500	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$5,000	$0
Platte River Ice Jam Agreement	$22,500	$0
• Interlocal agreement for camera(s) on Platte River	$3,500	$0
Nebraska Land Trust Agreement	$30,000	$0
Conservation Easement with NLT	$20,000	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$10,000	$0
Western Sarpy / Clear Creek Project	$50,000	$0
Invasive Species & Noxious Weed Efforts	$30,000	$0

FISCAL YEAR 2030 ACTIONS

	BUDGET	OTHER FUNDS
Cooperate on service of Water Strategies for Lower Platte River Corridor. LPR Restoration and Resiliency Study appropriation	$31,200	$0
LPRCA Programs		
• Water Quality Monitoring (3 long term sites and Leshara)	$42,400	$0
• Water Quality Programs/Implementation	$0	$0
• Water Quality Planning	$0	$0
• Recreation Access	$0	$0
• Lower Platte River Restoration and Resiliency Study w/ Corps. et al	$0	$0
• Ecosystem Studies	$0	$0
• Admin., Outreach & Education	$1,500	$0
Identify and map nesting habitat for terns & plovers including sand bars and sand/gravel pits through involvement with the Tern & Plover Partnership	$5,000	$0
Platte River Ice Jam Agreement	$22,500	$0
• Interlocal agreement for camera(s) on Platte River	$3,500	$0
Nebraska Land Trust Agreement	$30,000	$0
Conservation Easement with NLT	$20,000	$0
Monitor Lower Platte River instream flow review & basin determination / integrated management.	$10,000	$0
Western Sarpy / Clear Creek Project	$50,000	$0
Invasive Species & Noxious Weed Efforts	$30,000	$0

JEO CONSULTING GROUP

Engineering | Architecture | Surveying | Planning

Invoice

April 22, 2025
Project No: R220954.00
Invoice No: 160498
Invoice Amount: 18,500.50

Eric Gottschalk
Lower Platte North NRD
Commercial Park Road
PO Box 126
Wahoo, NE 68066

Project Manager Rebecca Appleford

Project R220954.00 Lower Platte North NRD HMP 2025 Update

Professional Services through April 11, 2025

	Contract Amount	Percent Complete	Billed-to-Date	Previous Billing	Current Billing
Lump Sum Phase(s)					
Project Management	$16,500.00	98%	$16,170.00	$16,005.00	$165.00
Public Involvement and Stakeholder Participation	$34,700.00	98%	$34,006.00	$32,618.00	$1,388.00
Data Collection and GIS Mapping	$16,550.00	100%	$16,550.00	$16,550.00	0.00
Develop Hazard Mitigation Plan	$65,750.00	91%	$59,832.50	$51,285.00	$8,547.50
HMP Adoption, Submission, and Approval	$4,000.00	0%	0.00	0.00	0.00
Threat and Hazard Identification and Risk Assessment	$17,500.00	100%	$17,500.00	$17,500.00	0.00
Drought Risk Assessment and Management	$95,000.00	51%	$48,720.00	$40,320.00	$8,400.00
Total	**$250,000.00**		**$192,778.50**	**$174,278.00**	**$18,500.50**

Total Amount Due Upon Receipt : $18,500.50

Outstanding Invoices

Number	Date	Balance
159654	3/24/2025	17,040.50
Total		**17,040.50**

Email Invoice: rchapman@lpnnrd.org; jbreunig@lpnnrd.org

Progress Report

LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
HAZARD MITIGATION PLAN UPDATE

April 22, 2025

JEO Project Number: 220954.00
Project Contact: Becky Appleford, 217-741-0117
Professional Services through April 11, 2025

Below is a progress report for the above referenced project:

1. **Overall project and budget status:**

Overall Project Completion: 80%	Overall Budget Expended: 77%
HMP Completion: 92%	HMP Budget Expended: 90%
THIRA Completion: 100%	THIRA Budget Expended: 100%
Drought Plan Completion: 55%	Drought Plan Budget Expended: 51%

2. **Project activities during current period (thru April 11, 2025)**
   a. Continued to follow up with missing jurisdictions
   b. Continued incorporating Round 2 worksheets into plan
   c. Continued to draft sections of upfront HMP
   d. Completed maps for HMP
   e. Incorporated Yutan PWS drought info into matrix
   f. Continued drafting drought plan
   g. Coordinated with LRE on GWM Plan for drought related information
   h. Scheduled call with Emergency Management and NRD on HMP update

3. **Planned project activities for next period (thru May 16, 2025)**
   a. Continue to follow up with missing jurisdictions and worksheets
   b. Continue incorporating worksheets into HMP
   c. Continue drafting sections of HMP
   d. Prepare public review notifications
   e. Prepare adoption resolution template
   f. Continue drafting drought sections
   g. Facilitate meeting with EMs and NRD on HMP missing jurisdictions
      i. Meeting Thursday, April 17 at 9am

4. **Information needed from NRD or key stakeholders**
   a. Assistance with reaching out to missing worksheets from jurisdictions

5. **Project Schedule and Next Meeting(s)**

Milestone	Schedule
Last date to join HMP	May 12, 2025
Public Review Period	May 12 – June 1, 2025
Adoption Resolution Process	Begins May 12, 2025
NRD review Drought Plan	May 16 – May 30, 2025
Submit HMP to NEMA/FEMA	June 9, 2025

Nebraska's Natural Resources Districts
www.nrdnet.org
Protecting Lives • Protecting Property • Protecting the Future

8100 S. 15th St., Ste B
Lincoln, NE 68512
www.nrdnet.org
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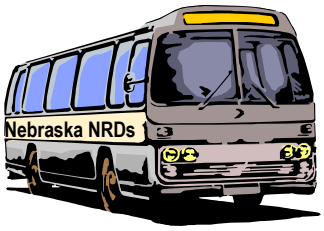
402.471.7670



To: NRD Board of Directors, Staff and Conservation Partners
From: Nebraska Association of Resources Districts (NARD)
Re: NRD Basin Tour | June 9-10, 2025
Date: April 25, 2025

You're Invited, Please Register Now!

2025 NRD Basin Tour – Niobrara Basin
Hosted by NARD in Partnership with the Niobrara Basin NRDs
Based in Valentine, Nebraska | June 9–10, 2025

The Nebraska Association of Resources Districts (NARD), in collaboration with the Niobrara Basin NRDs, is pleased to invite you to the **2025 NRD Basin Tour**. Join us for an immersive two-day experience as we explore key projects and programs dedicated to protecting Nebraska's natural resources.

Tour Details:
Monday, June 9

- 11:15 a.m. – 11:45 a.m. (CDT): Lunch at the Niobrara Lodge patio (803 US-20, Valentine, NE)
- 12:00 p.m. (CDT): Bus departs the Niobrara Lodge
- Tour will showcase conservation efforts and innovative practices across the Middle Niobrara NRD
- Evening: Dinner at **Niobrara Valley Vineyards**, Nenzel

Tuesday, June 10

- 7:30 a.m. (CDT): Depart from hotel after breakfast for Spencer Dam
- Tour highlights initiatives across both Middle and Lower Niobrara NRDs
- Lunch included
- Return to Niobrara Lodge by 4:30 p.m. (CDT)

Tour Highlights Include:

- CSS Farms – Seed potato operation
- Drip irrigation & Ponderosa Pine trials
- Fort Niobrara & Cub Creek Reservoir
- Minor Ranch & Niobrara Valley Vineyards
- Lower Niobrara NRD facilities
- Watershed management initiatives & Spencer Dam

Registration Information:
To reserve your seat, please submit your completed registration form to the NARD office **by May 9th**. Space is limited and early registration is encouraged.

Registration Fee Includes:

- All meals, breaks and activities
- Motor coach transportation
- Lodging for Monday night *(NARD will arrange hotel accommodation)*

If you plan to arrive early and need a room for Sunday night, be sure to mark this on your registration form. All lodgings must be booked through NARD.

We look forward to seeing you in the Niobrara Basin this June!

Registration Form

Annual Basin Tour – Niobrara River Basin, June 9-10, 2025

Registration deadline is Friday, May 8. Cancellations received after May 19 are non-refundable.

Basin Tour registration fee will include the following:

- Monday, June 9: Lunch, conservation tour, snacks, beverages, activities, evening group dinner and hotel.
- Tuesday, June 10: Breakfast at the hotel, conservation tour, lunch, snacks, and beverages.

Registration options:

- Registration - with single room occupancy - $450 per person
- Registration - with double room occupancy - $390 per person
- Registration – with NO HOTEL accommodation – $325 per person. If you live in the area and don't need hotel accommodation, use this option to register for the tour.

For those arriving on Sunday for the NARD board meeting, or for the Basin Tour, you must reserve your Sunday night lodging with NARD. Use this form to add Sunday lodging. This is an extra fee not included with basin tour registration.

NRD: _____

Name: _____ Title: _____	**Extra Sunday night Stay Niobrara Lodge - $ 125** (not included in Basin Tour registration)	**Basin Tour Registration. Circle single or double occupancy** (for each person registering)
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double
Name: _____ Title: _____	Extra Sunday night – June 8	Basin Tour Reg – Single/Double

List any special needs, including dietary restrictions: _____

Tour registration cost per person:

Extra Sunday night, June 8th lodging at Niobrara Lodge. Number of rooms needed - _____ x $ 125 = _____

Basin Tour Registration = Single room occupancy. Number of registrations - _____ x $ 450 = _____

Basin Tour Registration = Double room occupancy. Number of registrations - _____ x $ 390 = _____

Basin Tour Registration = NO HOTEL accommodation. Number of registrations - ____ x $ 325 = _____

***Total submitted* = _____**

Submit payment and registration to: **NARD, 8100 S. 15th St., Ste B, Lincoln, NE 68512.** **Register prior to May 8 (cancellations are non-refundable after May 19).**

Lower Platte North NRD

Bills Pending

May 12, 2025

Vendor	Description	Balance
A Glenn Kluck Co	Flow Meter Cost-Share	$ 14,000.00
Adam Brockmann	Cell Phone Reimbursement	$ 45.00
Aflac	Employee Benefits	$ 255.12
Andrea Miller	Shell Creek Teacher Stipend	$ 130.00
Bill Bos	Mileage Expense	$ 88.90
Bomgaars	Auto/Truck-Wanahoo Rec-Bldg. Maintenance	$ 464.84
Brandon Beethe	Cell Phone Reimbursement	$ 45.00
Brett Miller	Shell Creek Teacher Stipend	$ 130.00
Bromm, Lindahl, ET AL	General Legal/Retainer	$ 2,206.25
Butler Public Power	Utilities Expense	$ 585.82
Century Business Products	Maintenance Contract	$ 86.63
Chris Pestal	Wahoo Creek Easement	$ 500.00
Chuck Brezina	Repairs on Tree Planter	$ 55.64
Column Software, PBC	Public Notice	$ 74.36
Cuda's Auto, Inc.	Auto and Truck Expense	$ 702.00
Dan Wachal	Flow Meter Cost-Share	$ 1,000.00
Dan Wachal	Pivot Conversion	$ 10,000.00
Daryl Andersen	Cell Phone Reimbursement	$ 45.00
DAS State Acctg - Central Finance OCIO	Cell/Tablet Expense	$ 424.40
David A Moore	Cell Phone Reimbursement	$ 45.00
David City Utilities	Bruno Water Purchase	$ 1,704.72
Denise McAfee	Flow Meter Cost-Share	$ 1,000.00
Department of Revenue	Lake Wanahoo Lodging Tax	$ 244.63
Diode Technologies	Open Path NRD/Ed Building	$ 54.58
Donald Proett	Wahoo Creek Easement	$ 13,000.00
Downey Drilling Inc.	Abie Well	$ 1,055.00
Ducks Unlimited, Inc.	Repair on Duck Blind	$ 1,600.00
Eric Gottschalk	Cell Phone Reimbursement	$ 45.00
FNIC	Add Trailer on Insurance	$ 271.00
Forestry Suppliers, Inc.	Shell Creek Testing Supplies	$ 73.80
Francis Emanuel	Decommissioned Well Payment	$ 752.89
Fremont Sanitation	NRD/Wanahoo Garbage	$ 380.07
Gailanne Hindsley	Wahoo Creek Easement	$ 10,000.00
Google Inc	Gmail Expense	$ 414.00
Great Plains Appraisal, Inc.	NRD Office Appraisal	$ 3,600.00
H&H Trucking	Gravel for Wanahoo Roads	$ 6,007.80
HBE LLP	Professional Service Accounting	$ 7,700.00
HDR Engineering Inc.	Cottonwood 21A	$ 4,048.69
Helm Connected, LLC	Computer Consultant	$ 1,740.75
Hergert Oil Company	Fuel Expense	$ 2,221.16
Houston Engineering, Inc.	Wanahoo Stilling Basin	$ 53,399.07
IES	Generator	$ 21,669.04
In-Situ, Inc.	Abbie Well	$ 3,636.22

Lower Platte North NRD

Bills Pending

May 12, 2025

Intermedia	Long Distance Fees	$	164.43
Jacob Maslonka	Cell Phone Reimbursement	$	45.00
Jake Pittman	Steel Toe Boot Reimbursement	$	150.00
Jake Pittman	Cell Phone Reimbursement	$	45.00
James E. Spicka	Wahoo Creek Easement	$	2,000.00
JC Small Engine	Repair on Equipment	$	35.50
JEO Consulting Group, Inc.	NRD Office	$	7,940.00
JEO Consulting Group, Inc.	Hazard Mitigation	$	18,500.50
JEO Consulting Group, Inc.	Wanahoo Utility Improvement	$	666.25
JEO Consulting Group, Inc.	NRD Office	$	9,363.75
Jill Breunig	Cell Phone Reimbursement	$	45.00
John Spicka	Wahoo Creek Easement	$	70,000.00
Julie Lassley	Wanahoo Camping Refund	$	80.00
Kaitlyn Bargen	Cell Phone Reimbursement	$	45.00
Karen Rezac	Cell Phone Reimbursement	$	45.00
Kim Homes	Ed, Building Cleaning	$	150.00
KTIC 840 Rural Radio	Radio Ads	$	240.00
Lacey Sabatka	Cell Phone Reimbursement	$	45.00
Lawrence Chapek	Wahoo Creek Easement	$	4,300.00
Leslie Chmelka	Wahoo Creek Easement	$	35,000.00
LRE Water	Nitrate Assessment	$	920.00
LRE Water	Groundwater Management Plan Revision	$	2,906.75
McKenna Smith Cleaning Service	NRD Cleaning	$	495.00
Mead Signs	Wanahoo Signs	$	620.00
NARD Risk Pool Association	Employee Benefits	$	669.84
NARD Risk Pool Association	Employee Benefits	$	37,618.13
Nationwide	Retirement Benefit	$	7,879.00
Nebraska Public Health Environmental Lab	GW Quality	$	49.00
Nebraska Public Health Environmental Lab	Bruno Testing	$	15.00
Nebraska Public Health Environmental Lab	Colon Testing	$	15.00
Nebraska's Natural Resource District	Tonnies Water Tour	$	450.00
News Channel Nebraska	TV Promotion	$	550.00
Olsson Associates	Wahoo Creek 3 Dam Sites	$	12,794.20
Olsson Associates	Wanahoo Dam Monitoring	$	5,507.51
Olsson Associates	Wahoo Creek Real Estate Services	$	2,991.67
Olsson Associates	Wahoo Creek 7 Dam Sites	$	20,803.85
Omnify	Employee Benefits	$	24.00
One Call Concepts, Inc	One Call Expense	$	48.73
Otte Oil & Propane	Fuel/Wanahoo Chemical	$	1,321.37
Paper Tiger, Inc	Shredding Expense	$	521.64
Papio-Missouri River NRD	Water Strategies	$	2,300.00
Pilot-Tribune Enterprise Arlington Citizen	Visitor Guide Wahoo Chamber	$	275.00
Platte Valley Equipment LLC	3 New Mowers	$	42,743.35
Print Solutions LLC	Wanahoo/Czechland Brochures	$	982.00

Lower Platte North NRD

Bills Pending

May 12, 2025

Quill.com	Office Supplies	$	258.69
Riley Bartek	Wahoo Creek Easement	$	500.00
Ronald Klug	Flow Meter Cost-Share	$	2,000.00
Ryan Chapman	Cell Phone Reimbursement	$	45.00
Ryan Loseke	Decommissioned Well Payment	$	1,120.60
Scheele-Kayton Construction LLC	Storage Building Expense	$	86,323.35
Scheele-Kayton Construction LLC	New Office	$	599,741.52
Schumacher's	Trees for Resale	$	1,209.51
Sean Elliott	Cell Phone Reimbursement	$	45.00
Sean O'Brien	Cell Phone Reimbursement	$	45.00
Seco Electric	Move Electrical Line	$	81.00
State of Nebraska DEE	Chemigation Expense	$	264.00
Sydney Abbott	Cell Phone Reimbursement	$	45.00
Sydney Abbott	Mileage Expense	$	40.60
Thomas Stibal	Flow Meter Cost-Share	$	1,000.00
Thompson Construction, Inc.	Wahoo Creek Construction	$	116,193.60
U.S. Geological Survey	Platte River Cameras	$	5,328.00
U.S. Geological Survey	Steam Flow Wahoo Creek/Shell Creek	$	8,426.00
UBR	Bi-Weekly Payroll - 5/9/25	$	51,187.42
UBT	Bi-Weekly Payroll - 4/25/25	$	61,610.05
UBT VISA	Personnel Mtg/Fuel/Software	$	3,766.70
Union Bank & Trust	Bank Fees	$	45.52
Wahoo Auto Parts	Wanahoo/Vehicle Expense	$	307.13
Wahoo Metal Products & Supply, Inc.	Equipment Upkeep	$	140.00
Wahoo Utilities	Utilities Expense	$	2,038.23
Wahoo-Waverly-Ashland Newspapers	E Ads	$	388.10
Wells Fargo Financial Leasing, Inc.	Copier Lease Payment	$	209.00
Windstream	Internet Expense	$	616.46
Grand Total		**$**	**1,399,839.33**

Consent Agenda
May 12, 2025

5.	Approval of Minutes
6.A.3.c.1.	Surplus Property/Office Furniture
6.A.3.d.	New Office Update
6.A.3.d.1.	Moving Company
6.A.6.a.	Approval of Financial Reports
6.A.6.b.	Approval Manager Time and Expense Sheets
6.B.3.d.	Landowner Access Bridge Request over Rawhide Ditch 8
6.C.3.a.2.	Plugged Wells
6.C.3.b.1.	Phase Area Update
6.C.3.b.2.	Eastern Nebraska Water Resources Assessment (ENWRA)
6.D.2.a.	SWCP Application Approval
6.D.2.b.	SWCP Payments
6.D.11.	Nebraska Buffer Strip Program
8.	Authorize General Manager to approve and then treasurer to pay monthly recurring expenses pursuant to April 11, 2011 board policy.