Crystal Lake Watershed Initiative
Steering Committee - Organizational Meeting #1

To: Steering Committee
From: Michael H. Gunsch, PE, CFM, Senior Project Manager
Josh Loosmore, Peritiacon
Subject: Local Funding and Initial Lake Level Discussions
Date: October 8, 2024 ***(ACCEPTED at Second Meeting February 17, 2025)***
Project: HEI No. 12808-0001-007

The following is a summary of the September 12, 2024 organizational Steering Committee Meeting. These minutes are a tabulation versus a transcript of the various discussions. A Steering Committee agenda and outline was created and sent. This was followed by a topic related summary regarding various lake hydraulic connections and topographic information. See attached documents for information provided during the meeting for discussion. Some elements were updated since the meeting (e.g. drainage area, etc…).

Six members of the Steering Committee were present. Those not in attendance included Les Ressler (Ruele Lake), Don Mittleider (Kidder County), and Tim Brenner (Crystal Springs Bible Camp) who was represented by several Board Members (Vaughn Rhodes and Steve Singer).

Local Fund Discussion

The County Commission has requested local entities (e.g. property owners, etc.) participate in the Feasability Study cost. At the time of the meeting, it was noted approximately $40,000 was committed with the tentative distribution noted in the attached. One unknown in this listing was that from Lake Reule, for which the number was based on comments outside the meeting. Discussions are occurring with others to determine potential sources for additional funds. BNSF was asked about its contribution status, who stated it was being discussed internally and they were attempting to determine if funds might be available. It was noted BNSF has provided background technical infromation from their records valued at around $20,000. They will continue to provide information to the project as requested.

The desire was to have formally committed local funds by the September 24th County Commission meeting, recognizing this may not be practical as it will take time for some to consider the purpose value and opportunity. It was generally thought the amount required by the County Commission would near the 50% level, or near $62,000. Local discussions would continue to locate additional funding. The County Commission will not authorize the study work to proceed until the SWC funding has been approved and an adequate local funding committed.

FEASABLIY STUDY SCHEDULE – SUMMARY OF NEXT STEPS:

1. Web Grant Approval (Pending) – Sponsor Approval **{Completed}**

2. Local Funding to be secured to level acceptable to the County Commission **{ongoing}**

3. County Commission to provide notice to proceed **{pending}**
    a. Their notice to proceed would be followed by letters to local contributors to send their funds to the County Auditor. It was clearly noted any local contribution would NOT be a commitment or measure of a future assessment of potential cost share participation related to project implementation.

LAKE TOPOGRAPHIC DATA – ELEVATION CONNECTIONS

Several exhibits were shared relative the lake system. The North Dakota Game and Fish supplied topographic data below the water levels based on their (bathymetric) fishery maps. This combined with the available LiDAR topographic data will be utilized to determine the area-capacity data for each lake and the volume of water to potentially be removed from each to control the expanse of floodwaters. There was a general discussion of the various other contacts that have occurred with the USFWS, NDDWQ, NDDWR and others related to the project. At this point there were no obvious identified showstoppers.

When considering the lake interconnects and flows it was identified that utilizing Stink Lake would likely be used as the sump, as it was the lowest in the system. This would provide several system benefits. *First,* it would result in removal of the lower quality waters, though still better than downstream in Long Lake. This could potentially freshen the overall lake system. **Second,** there is a natural overflow elevation from Lake Ruele. If this would provide an adequate lowering in flood waters to the recreational lot owners, then the elevation could be established at that level and protect the recreation value. **Third,** significant inflows enter Stink Lake from the west through Crystal Springs Lake, which appears to have the best water quality. The design elevation of Crystal Springs Lake will consider the impacts and risks to Camp infrastructure and ability to move waters to though and out of the system. A pump station located east of the camp entrance roadway is an initial consideration to facilitate Operation and Maintenance access as well and a potential and electrical service connection. The intake line into Stink Lake remains unknown.

The drainage area created map for a 2020 BNSF study was provided and discussed. This mapping map indicates the drainage area is approximately 94.3 square miles. This is less than the overall 250 square mile mapping for this pothole region. It is anticipated this is understated and the actual contributing watershed to the lake complex is far greater. Once culverts are placed into the GIS mapping review this drainage area will be updated as part of the study effort. A graph of the historic water level increases in Stink Lake and the recent BNSF grade raises was provided and discussed.

The NDDOT grade raises were discussed and noted that we already have the hydrology study reports. It was requested that NDDOT provide the recent grade raise plans be provided. When asked about the roadway centerline culverts it was noted the original or lower ones were likely abandoned during the grade raise construction.

BNSF noted that their Right-of-way (ROW) in this reach was 200 ft and there was considerable room for track expansion to fit additional grade raises. The ROW will be provided to be included in the report discussion and mapping. BNSF noted that small grade increases were not that costly, however larger grade increases would have much higher costs, and if avoidable would be beneficial.

MEETING ACTION ITEMS…

Stutsman County Commission and Water Resource District

- ✓ Approve Engineering Services Agreement – Completed

HEI - Web Grants Submittal Completed – Awaiting Approval

- ✓ Prepare local fund contributor letter {pending approval to proceed}
- ✓ Work with Stutsman County Emergency Management related to placing the project in the County Hazard Mitigation Plan and options for a future HMGP. If eligible the funding is 75% federal, 10% state and 15% local.

NDDOT – Provide Interstate Grade Raise Plans {complete}

BNSF – Provide ROW mapping and Culverts {completed}

Stutsman County Highway Department {pending}

Provide projected cost to raise county or township roadways per mile, at one and two-foot.

Others – Fund Rasing Updates as available, beyond those noted in the attached.

These minutes were approved by consent by the Steering Committee at their February 17, 2025 meeting. These minutes are to be included in the Second Meeting summary.

If there are questions, please contact Michael Gunsch at 701-527-2134 or mgunsch@houstoneng.com.

Crystal Lake Feasability Study
Stutsman County Commission and Water Resource District
Steering Committee Established: 8-28-2024

1. **Stutsman County Commission**
   Jerry Bergquist, Commissioner
   511 2nd Avenue SE, Suite #102
   Jamestown, ND 58401
   Ph: 701-320-0401
   Email: jlbergquist@stutsmancounty.gov

2. **Stutsman County Water Resource District**
   Joel Lees, Chairman
   511 2nd Avenue SE, Suite #102
   Jamestown, ND 58401
   Ph: 701-269-2468
   Email: joel.lees51@icloud.com
   Alt: Anthony Roorda
   Email roordaranch@daktel.com

3. **Kidder County**
   Dan Mittleider, Chairman
   Kidder County Commission
   120 Broadway E
   Steele, ND 58482
   Ph: 701-475-4547
   Email: danmittleider@yahoo.com

4. **Stutsman County Highway Department**
   Jim Wentland, Road Superintendent
   1508 4th St NW
   Jamestown, ND 58401
   Ph: 701-252-9040
   Email: jwentland@stutsmancounty.gov

5. **ND Department of Transportation**
   Jay Praska, District Engineer
   NDDOT Valley City District
   1524 8th Avenue SW
   Valley City, ND 58702-4200
   Ph: 701-845-8800 (office)
   Email: jpraska@nd.gov

6. **Burlington Northern Sante Fe**
   Dan Peltier, Manager Engineering
   TC Division
   80 44th Avenue NE
   Minneapolis, MN 55421
   Ph: 763-782-3495 (office)
   Email daniel.peltier@bnsf.com

7. **Crystal Springs Bible Camp**
   Tim Brenner, Director
   4848 36th St SE
   Medina, ND 58467
   Ph: 701-426-8141
   Email: tim@csbcamp.org

8. **Recreational Properties**
   Les Ressler
   Reule Lake Landowners (HOA)
   Ph: 701-730-3373 (c)
   Email: lesressler@rocketmail.com

9. **Agricultural Impacts**
   Brian Knetter
   P.O. Box 309
   Medina, ND 58467
   Ph: 701-320-8489
   Email: batwarmer@daktel.com

Agency/Engineering Contacts

Stutsman County Water Resource District
Abbagail Geroux, Atty, Sec/Treas
P.O. Box 1727
Jamestown, ND 58402
Ph: 701-252-6668
Email: ag@dakotalaw.net

Stutsman County Commission
Jessia Alonge, County Auditor
511 2nd Ave SE Suite #102
Jamestown, ND 58401
Ph: 701-252-9035
Email: auditor@stutsmancounty.gov

Michael Gunsch, PE, CFM
Senior Project Manager
Houston Engineering, Inc.
3712 Lockport Street
Bismarck, ND 58503
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Email: mgunsch@houstoneng.com
Alt: Josh Loosmore, Peritiacon, LLC
Email: josh.loosmore@peritiacon.com

Crystal Lake Feasability Study
Stutsman County Commission and Water Resource District
Steering Committee Established: 8-28-2024

Steering Committee (SC) Agenda
First Meeting {Date and Time TBD}

- Introductions
- Project Scope, Direction and Schedule
- Discussion and Determination of Local Funding Participation
  - Total Cost $222,000 – $99,900 (SWC Grant) = $122,100 (Local Share)
- Funding recommendation/request to Stutsman County Commission
  - September 3rd Meeting (or a special meeting, as necessary)
- Next SC meeting to occur after SWC grant funds are approved

Crystal Springs Watershed Initiative Cost Share Partners

o Stutsman County Commission and WRD (Roadway Contribution)	
o Kidder County Commission and WRD	NA
o Burleigh County WRD - Notified	NA
o State Water Commission (i.e., SWC Secretary/DWR Director approval)	45% Grant - $99,900
o USFWS Local & Regional – Long Lake NWR (easement & WPA considerations)	NA
o BNSF – St. Paul	$20,000+ In Kind Data Share
o NDDOT – State Office referred to Valley City District	NA
o Ruele Lake Landowners	
o Crystal Springs Bible Camp (and Supporters)	
o Crystal Springs & Stink Lake Homeowners & adjacent Landowners (Via Camp)	
o City of Medina	

Others - Undetermined

Scheduling Notes:

1. The Stutsman County WRD (SCWRD) reviewed and approved the Engineering Services Agreement at their August 28th meeting. This will now go before the Stutsman County Commission for consideration at their September 3rd meeting.

2. The SCWRD established the Steering Committee, who will at their first meeting (noted above) provide their findings relative to local cost participation funding commitments for consideration and recommendation to the Stutsman County Commission.

3. After the Engineering Services Agreement is approved a Web Grant Application can be submitted to the State Water Commission. After the SWC grant funding is approved the local partners would be requested to submit their participation funds to the Stutsman County Auditor. Then the engineer would be authorized to proceed with the Feasability Study.

Crystal Springs Watershed Initiative
Lake Elevation Evaluation Criteria – 9/12/2024
What are we here to solve?

Harold Hamm (Game Changer)

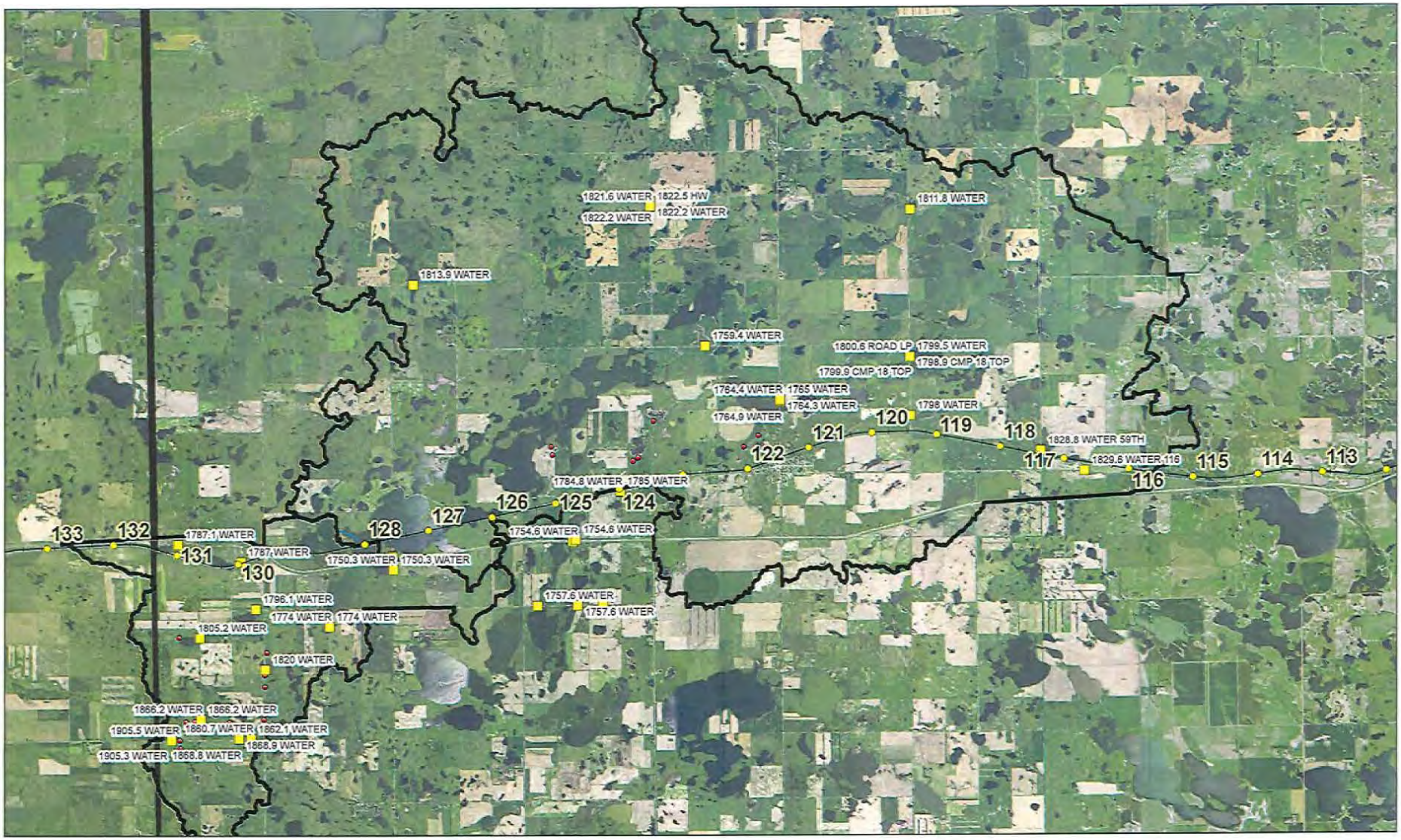
Focus topics for discussion:

- ✓ **Stink Lake** - lowest basin in the watershed (NDRAM – 1746.8 100-yr)
  - North and South Stink Lake - Need to define connection elevation
  - Infrastructure Risks - Impacts
    - Hwy 39 (Old Highway #10 -grade raise connection to Reule Lake)
    - I-94 and BNSF
    - Agricultural Lands
    - Boat Ramp
  - Option to use this lake as the sump
    - Water removal (pump) and system flood storage
  - Water quality is the poorest of these lakes?

- ✓ **Crystal Springs** - waters flow east into Stink Lake (NDRAM – 1749.6 100-yr)
  - One connection is the Bible Camp Roadway culvert
    - This was closed when the roadway was raised
  - Second connection is the excavated channel south of I-94 and culverts under I-94
  - Infrastructure Risks - Impacts
    - Bible Camp and Facilities
    - I-94, and BNSF
    - Some recreational lots
    - Agricultural Lands
  - Verify connection elevations to Stink Lake (Lower level ~ 4 feet?)
  - Best lake water quality (option to preserve this) – Stink Lake pump removal

- ✓ **Reule Lake** - Recreational lake and the upper lake (NDRAM – 1746.9 100-yr)
  - Natural overflow connection to Stink Lake – Verify Elevation
  - Impacts to lower to only lower water natural overflow?
    - Preservation of natural conditions and recreational value
  - Infrastructure Risks - Impacts
    - Recreational lots - review lot elevation and inundation
    - 34th Street SE, Farmstead access, Hwy 39
    - Agricultural Lands

- ✓ **Medina Lake** – Community Groundwater Issues
  - 55th Avenue SE – Condition (need to raise?)
    - Recent culvert improvements
    - Need for a grade raise to protect roadway
  - Control overflow elevation is to the west, above current lake complex elevation
    - 54th Avenue SE (Twp Roadway?)
  - Option to lower lake elevation with downstream outlet
    - Limited projection to lower 2 feet (controlled release)


1821.6 WATER
1822.5 HW
1822.2 WATER
1822.2 WATER
1811.8 WATER
1813.9 WATER
1759.4 WATER
1800.6 ROAD LP
1799.5 WATER
1798.9 CMP 18 TOP
1799.9 CMP 18 TOP
1764.4 WATER
1765 WATER
1764.3 WATER
1764.9 WATER
1798 WATER
120
119
118
121
122
1828.8 WATER 59TH
117
1829.6 WATER 116
115
114
113
116
1784.8 WATER
1785 WATER
126
125
124
127
128
133
132
1787.1 WATER
131
1787 WATER
130
1750.3 WATER
1750.3 WATER
1754.6 WATER
1754.6 WATER
1796.1 WATER
1774 WATER
1774 WATER
1805.2 WATER
1757.6 WATER
1757.6 WATER
1820 WATER
1866.2 WATER
1866.2 WATER
1905.5 WATER
1880.7 WATER
1862.1 WATER
1868.9 WATER
1905.3 WATER
1868.8 WATER

Crystal Springs

Stutsman County

Lake Statistics

Surface Area (acres)	139.0
Volume (acre/feet)	1,134.3
Average Depth (feet)	8.2
Max Depth (feet)	11.0
Shoreline (miles)	2.6

** Based on a Full Pool Elevation of 1,752.0 ft MSL (NAVD88)

North Dakota Game and Fish Department
2021 - 22 Fisheries Division
NDGF-GIS-179 - Weigel

Map Features

- Boat Ramp
- Max. Depth
- 1 ft contours

Depth (feet)

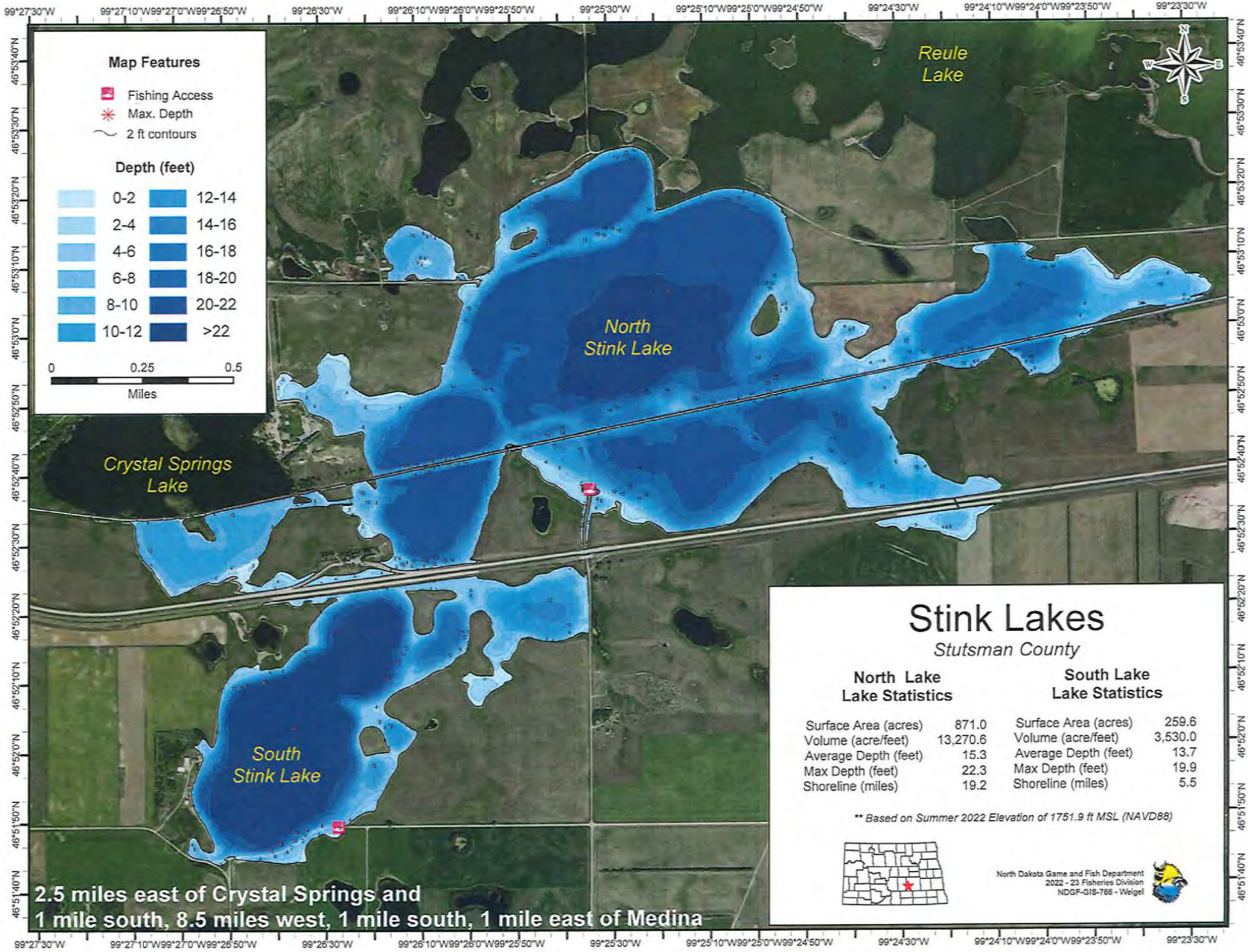
0-1	6-7
1-2	7-8
2-3	8-9
3-4	9-10
4-5	>10
5-6	

0 250 500
Feet

99°27'28"W 99°27'24"W 99°27'20"W 99°27'16"W 99°27'12"W 99°27'8"W 99°27'4"W 99°27'0"W 99°26'56"W 99°26'52"W 99°26'48"W 99°26'44"W 99°26'40"W 99°26'36"W 99°26'32"W

46°53'2"N 46°53'0"N 46°52'58"N 46°52'56"N 46°52'54"N 46°52'52"N 46°52'50"N 46°52'48"N 46°52'46"N 46°52'44"N 46°52'42"N 46°52'40"N 46°52'38"N 46°52'36"N 46°52'34"N

1 mile east of Crystal Springs



Stink Lakes

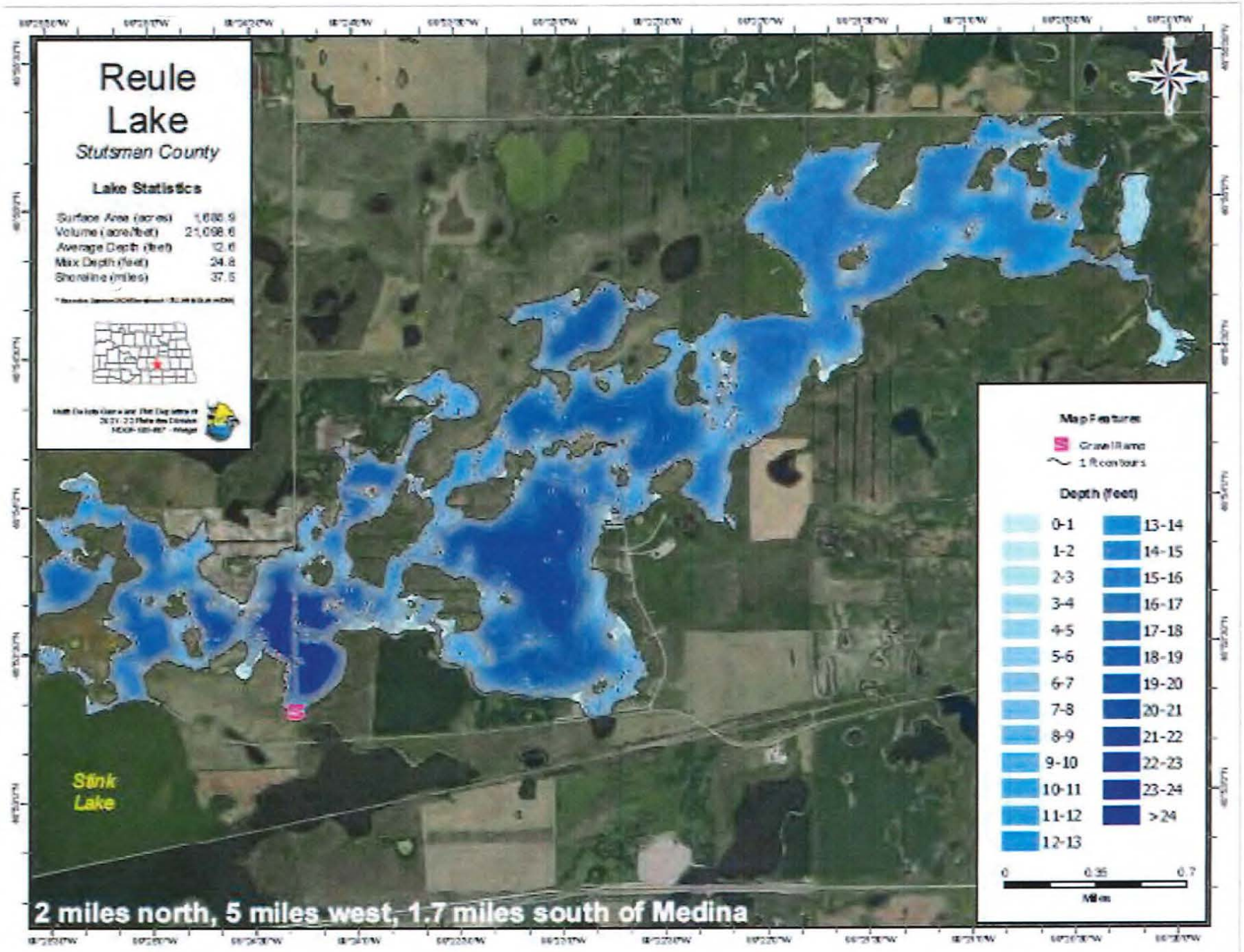
Stutsman County

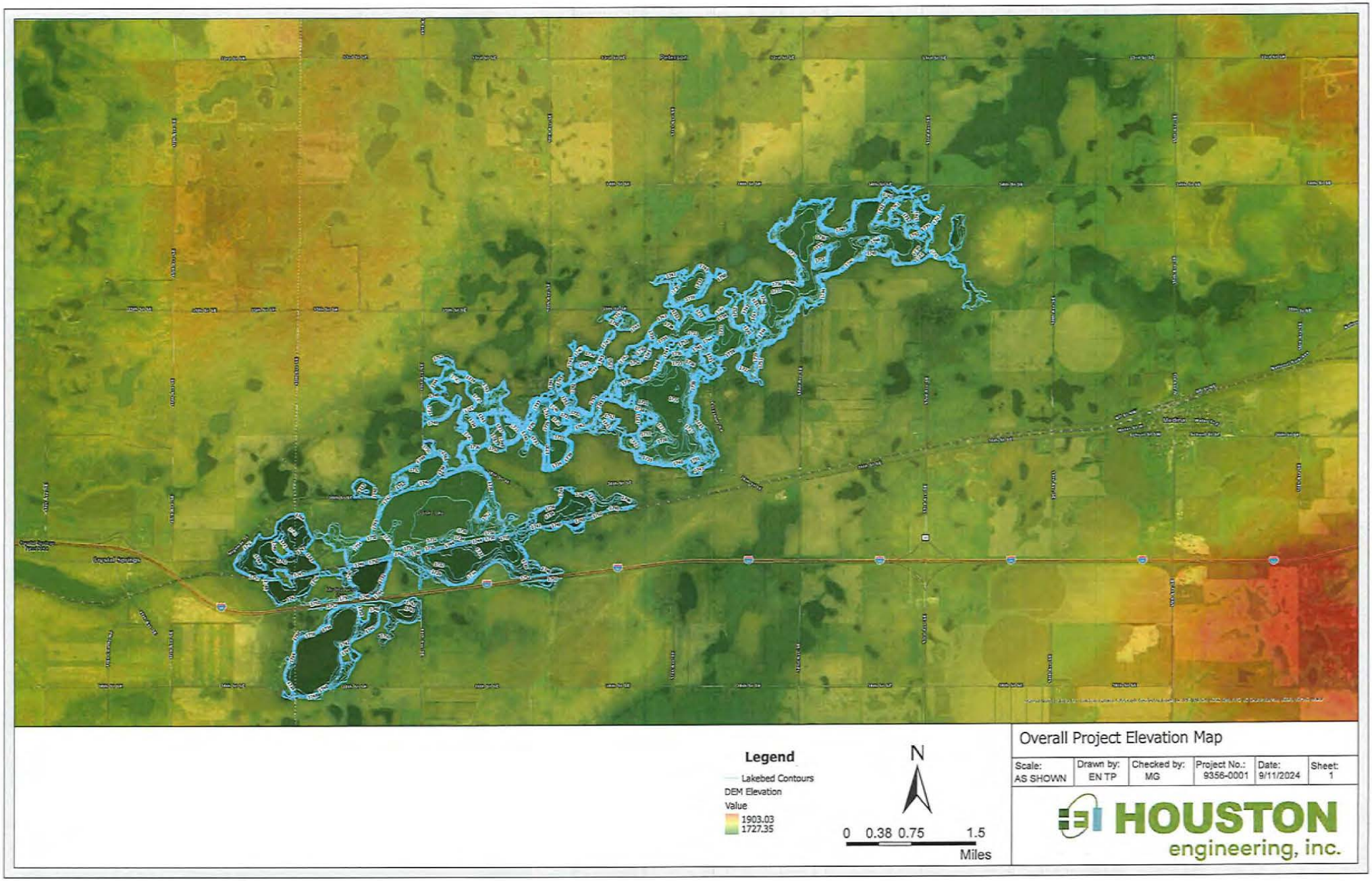
North Lake Lake Statistics		South Lake Lake Statistics	
Surface Area (acres)	871.0	Surface Area (acres)	259.6
Volume (acre/feet)	13,270.6	Volume (acre/feet)	3,530.0
Average Depth (feet)	15.3	Average Depth (feet)	13.7
Max Depth (feet)	22.3	Max Depth (feet)	19.9
Shoreline (miles)	19.2	Shoreline (miles)	5.5

** *Based on Summer 2022 Elevation of 1751.9 ft MSL (NAVD88)*

North Dakota Game and Fish Department
2022 - 23 Fisheries Division
NDGF-GIS-766 - Weigel

2.5 miles east of Crystal Springs and
1 mile south, 8.5 miles west, 1 mile south, 1 mile east of Medina


Reule Lake
Stutsman County
Lake Statistics
Surface Area (acres) 1,686.9
Volume (acre/feet) 21,098.6
Average Depth (feet) 12.6
Max Depth (feet) 24.8
Shoreline (miles) 37.5
Stink Lake
2 miles north, 5 miles west, 1.7 miles south of Medina
Map Features
Gravel Ramp
1 ft contours
Depth (feet)
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
17-18
18-19
19-20
20-21
21-22
22-23
23-24
>24
0
0.35
0.7
Miles



Overall Project Elevation Map

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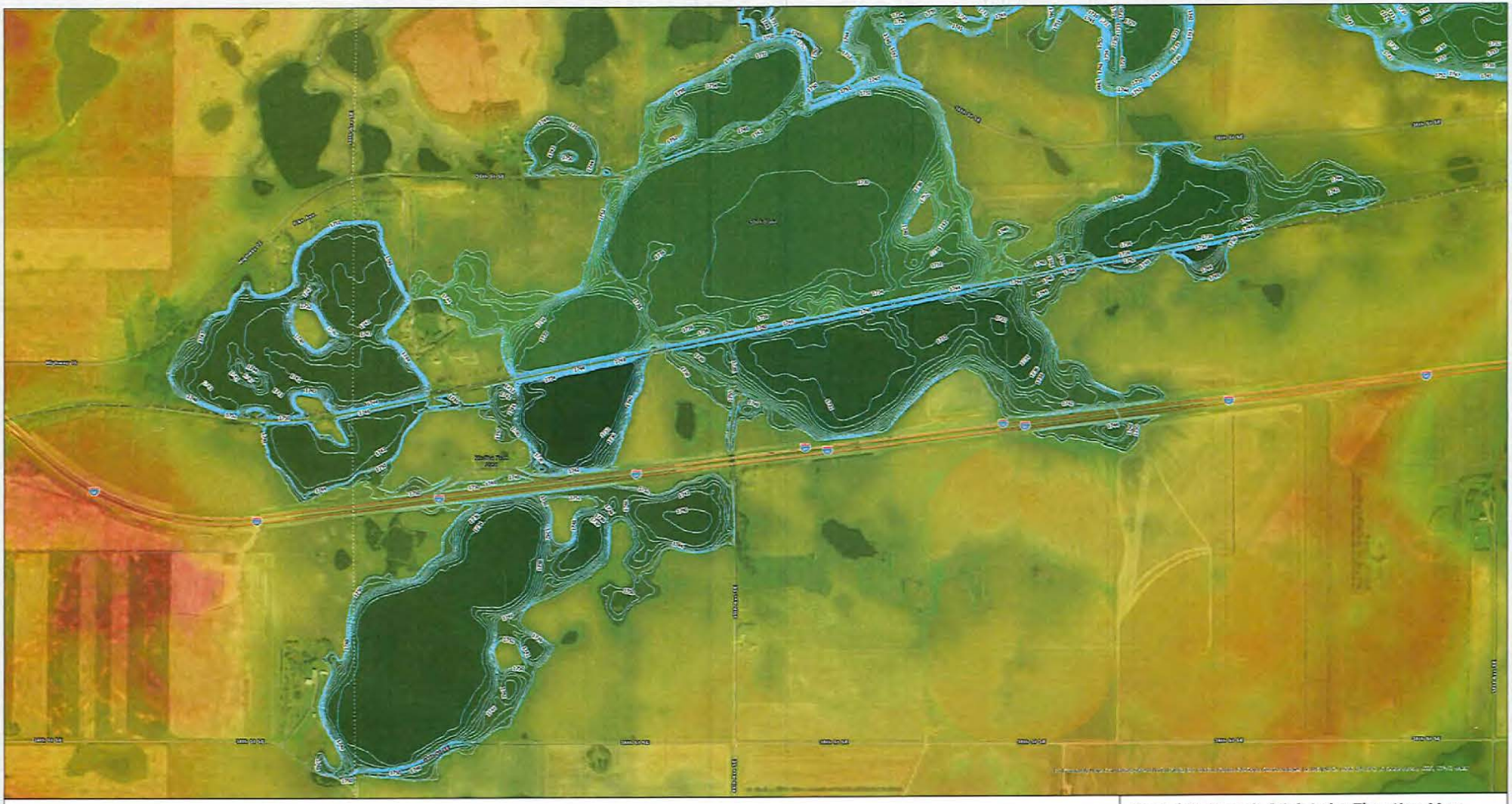
HOUSTON engineering, inc.



Legend

Lakebed Contours

DEM Elevation

Value

1903.03

1727.35

N

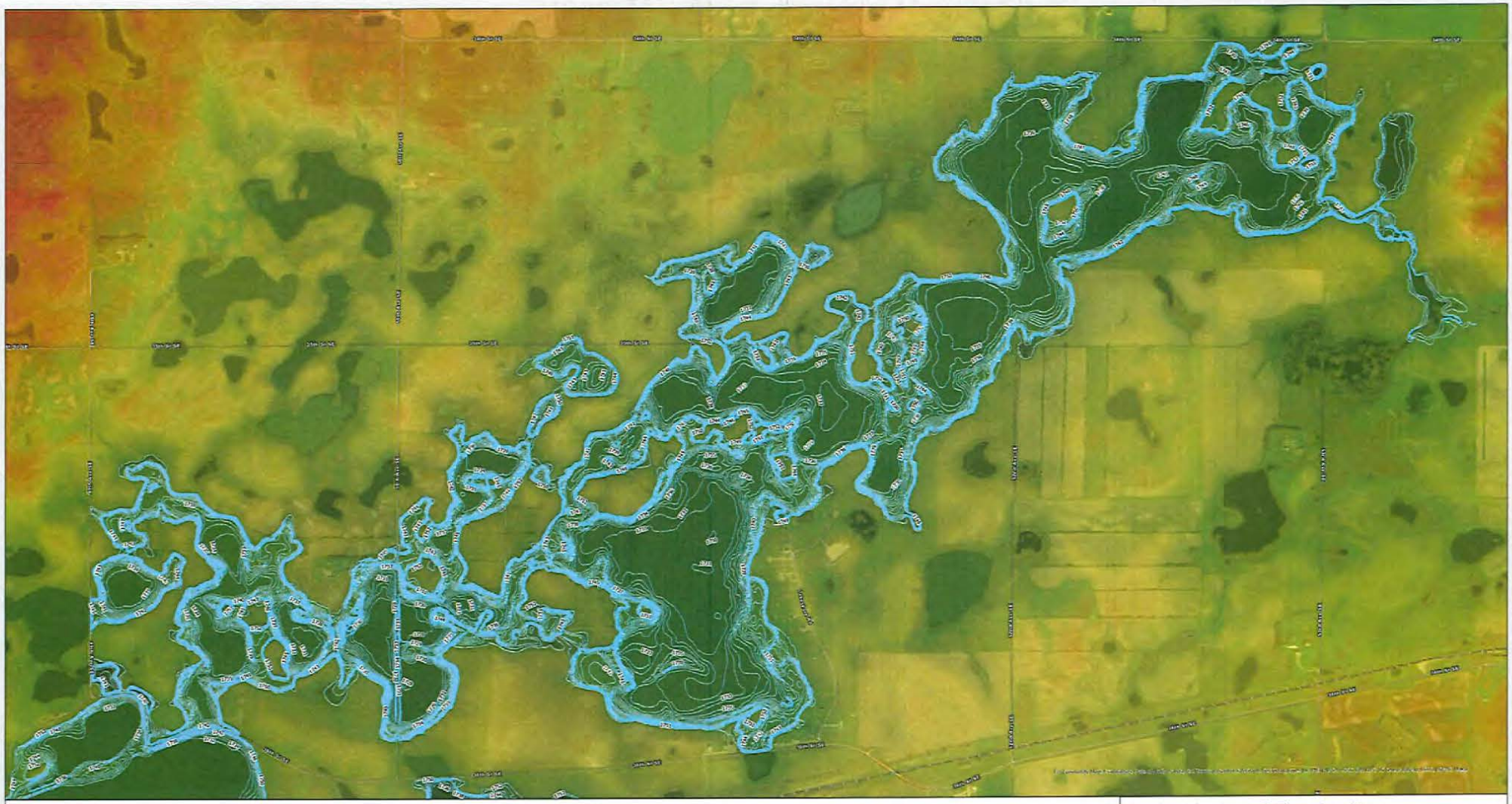
0 0.13 0.25 0.5

Miles

Crystal Springs & Stink Lake Elevation Map

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	EN TP	MG	9356-0001	9/11/2024	2

HOUSTON engineering, inc.



Legend

Lakebed Contours

DEM Elevation

Value

1903.03

1727.35

N

0 0.13 0.25 0.5

Miles

Reule Lake Digital Elevation Map

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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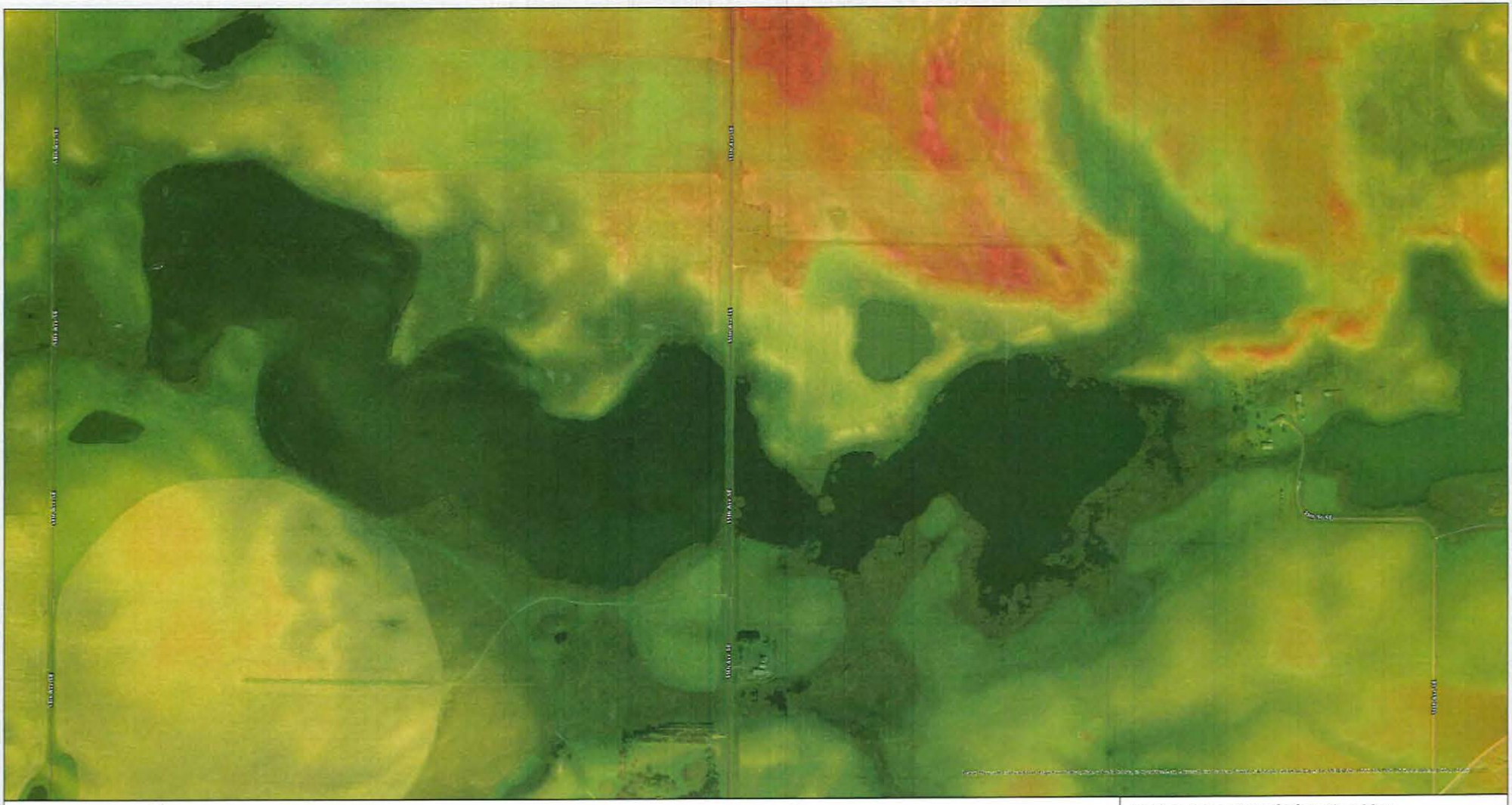
HOUSTON engineering, inc.



Legend

Lakebed Contours

DEM Elevation

Value

1903.03

1727.35

N

0 0.07 0.15 0.3

Miles

Medina Lake Digital Elevation Map

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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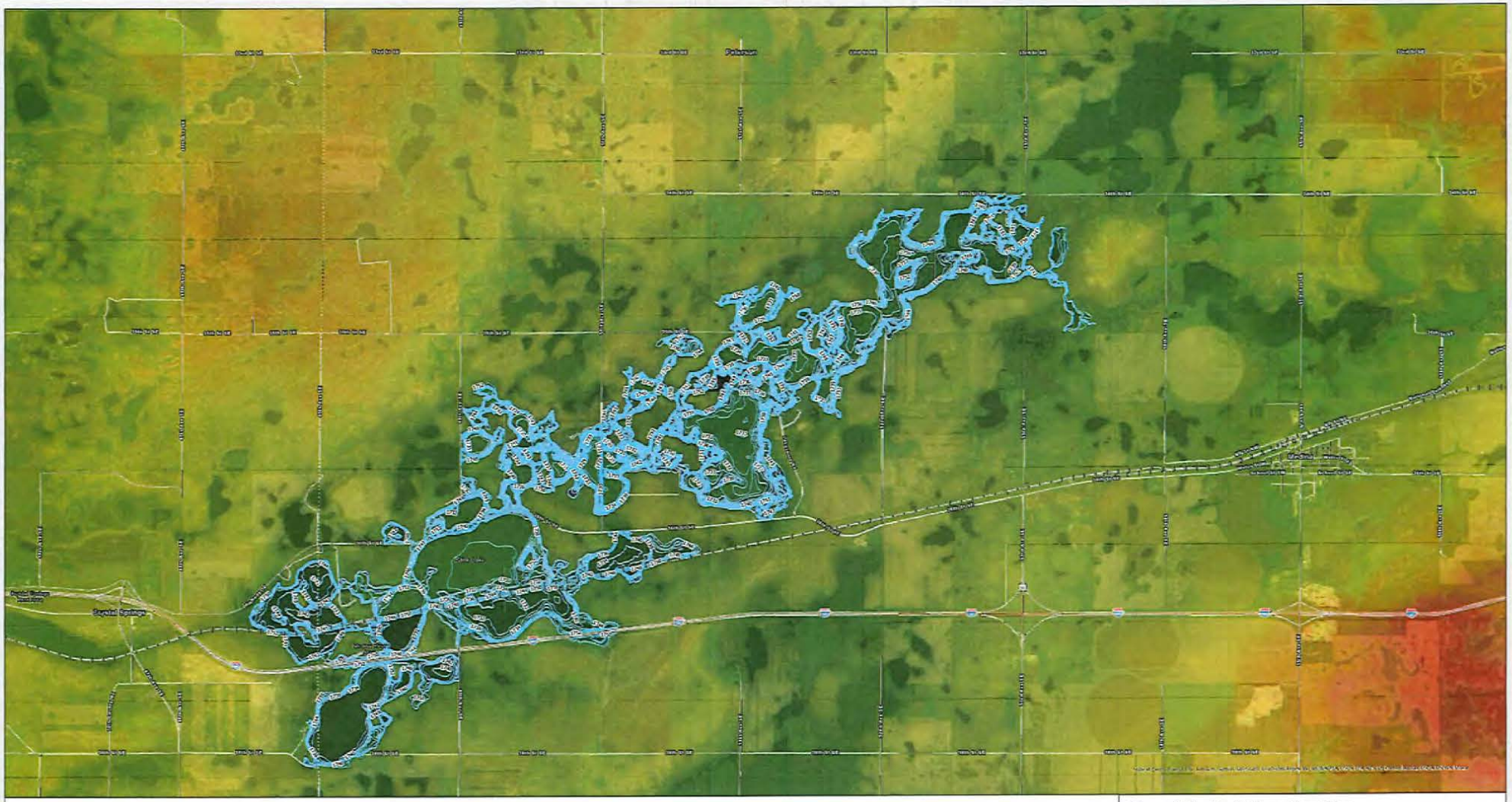
HOUSTON engineering, inc.



Overall Project Elevation Map

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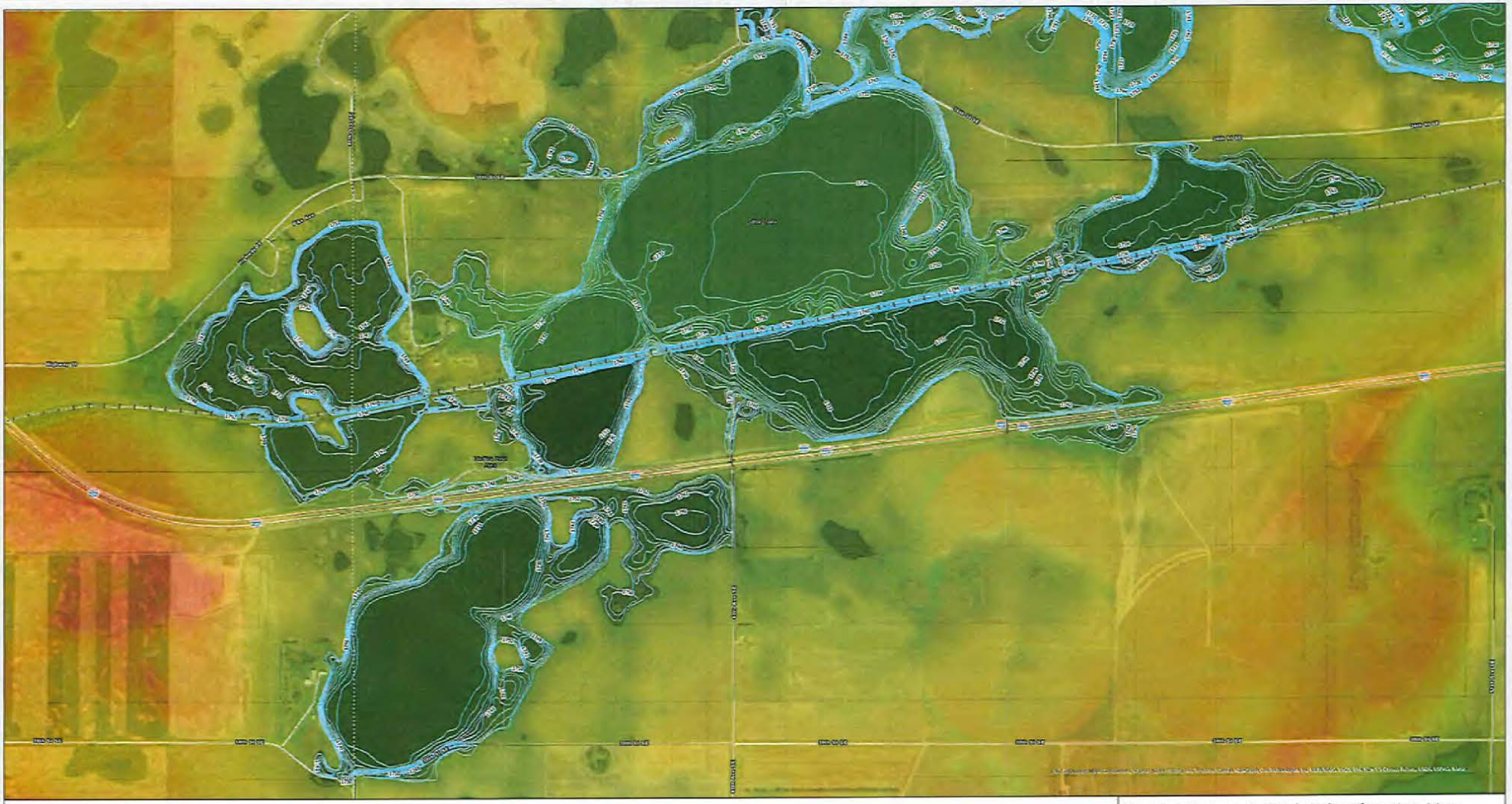
HOUSTON engineering, inc.



Crystal Springs & Stink Lake Elevation Map

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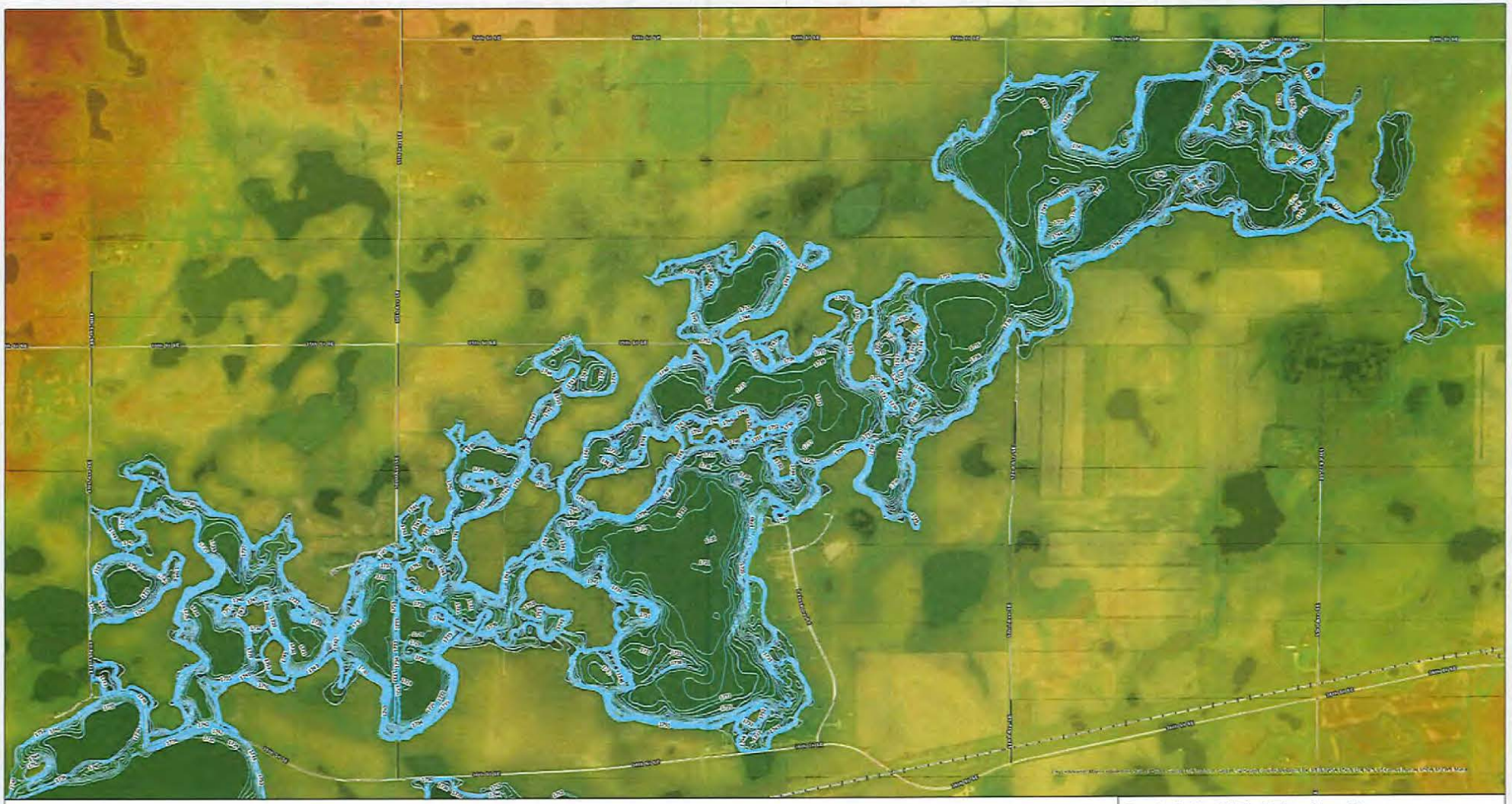
HOUSTON engineering, inc.



Reule Lake Digital Elevation Map

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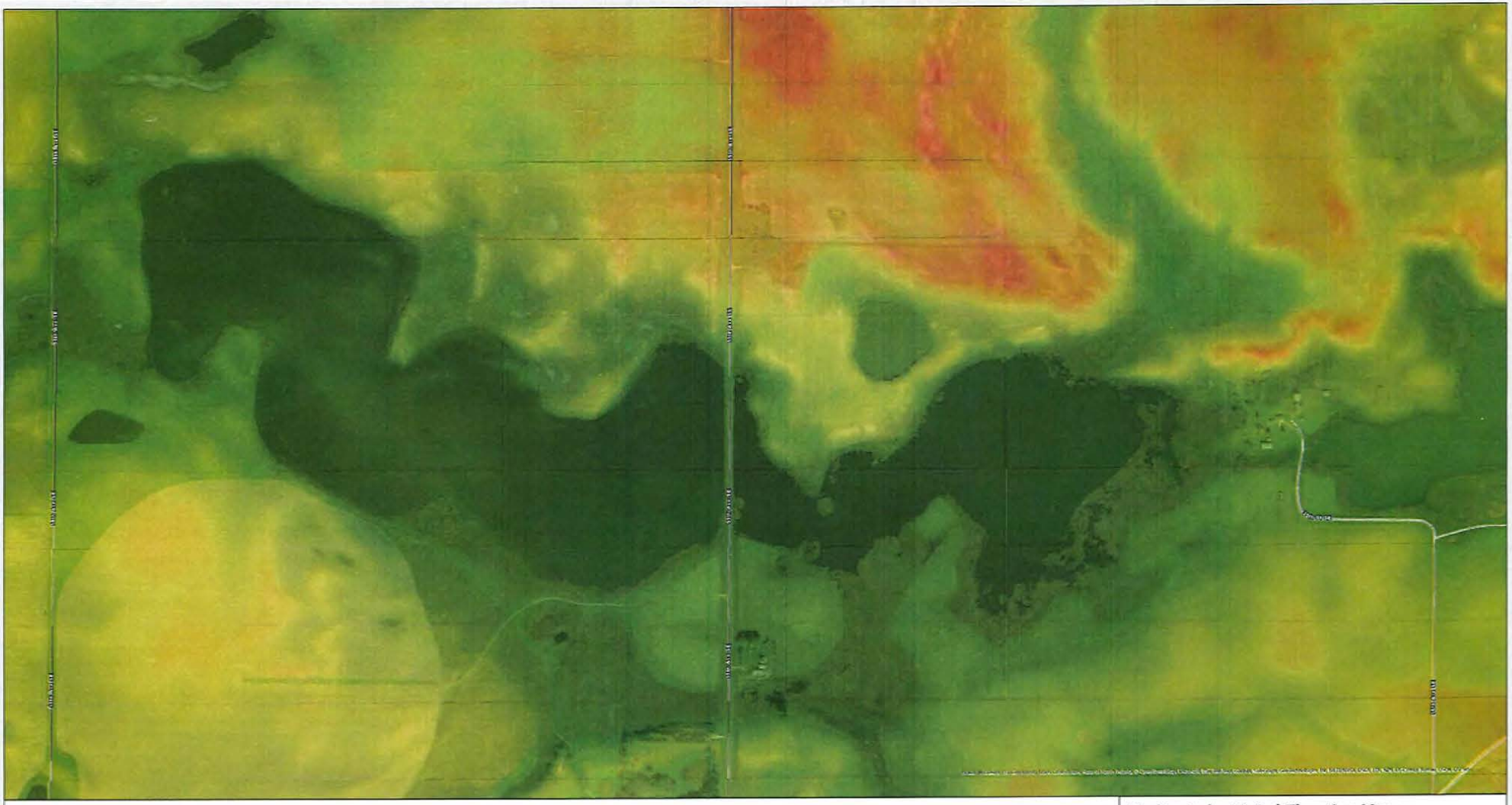
HOUSTON engineering, inc.



Legend

- Lakebed Contours
- DEM Elevation
- Value
  - 1903.03
  - 1727.35

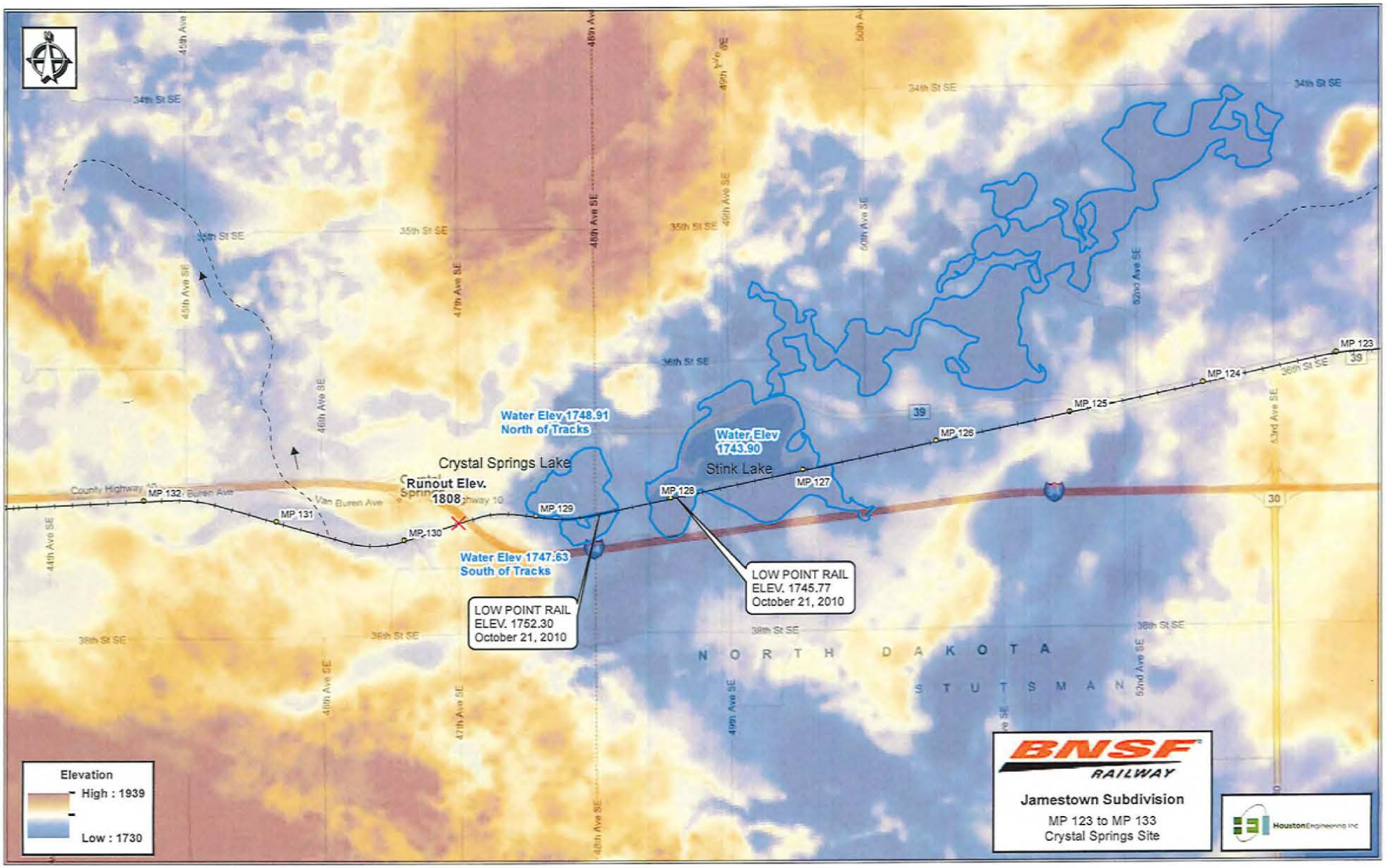
N

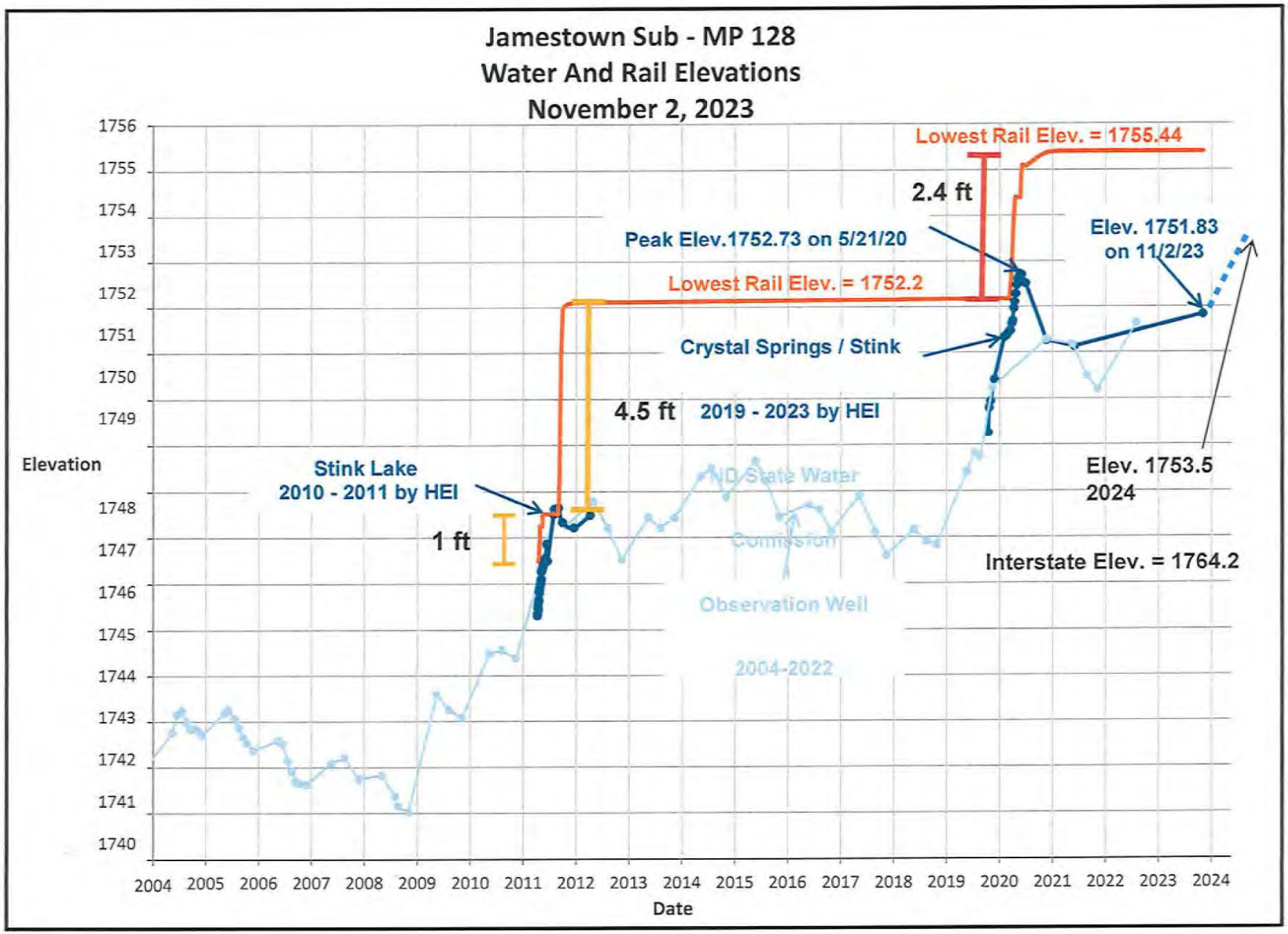
0 0.07 0.15 0.3
Miles

Medina Lake Digital Elevation Map

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	EN TP	MG	9356-0001	9/11/2024	4

HOUSTON engineering, inc.


Water Elev 1748.91
North of Tracks
Water Elev
1743.90
Crystal Springs Lake
Stink Lake
Runout Elev.
1808
Water Elev 1747.63
South of Tracks
LOW POINT RAIL
ELEV. 1752.30
October 21, 2010
LOW POINT RAIL
ELEV. 1745.77
October 21, 2010
MP 123
MP 124
MP 125
MP 126
MP 127
MP 128
MP 129
MP 130
MP 131
MP 132
34th St SE
35th St SE
36th St SE
38th St SE
45th Ave SE
46th Ave SE
47th Ave SE
49th Ave SE
52nd Ave SE
53rd Ave SE
County Highway 10
Van Buren Ave
39
30
N O R T H D A K O T A
S T U T S M A N
Elevation
High : 1939
Low : 1730
BNSF RAILWAY
Jamestown Subdivision
MP 123 to MP 133
Crystal Springs Site
Houston Engineering Inc


Jamestown Sub - MP 128
Water And Rail Elevations
November 2, 2023
Lowest Rail Elev. = 1755.44
2.4 ft
Peak Elev.1752.73 on 5/21/20
Elev. 1751.83
on 11/2/23
Lowest Rail Elev. = 1752.2
Crystal Springs / Stink
4.5 ft 2019 - 2023 by HEI
Stink Lake
2010 - 2011 by HEI
1 ft
ND State Water
Commission
Observation Well
2004-2022
Elev. 1753.5
2024
Interstate Elev. = 1764.2
Elevation
Date
1756
1755
1754
1753
1752
1751
1750
1749
1748
1747
1746
1745
1744
1743
1742
1741
1740
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

Crystal Springs Watershed Initiative

	Contribution		Percent of Local	
o Stutsman County Commission and WRD (Roadway Contribution)	$82,100		67%	
o Kidder County Commission and WRD	$0	NA		
o Burleigh County WRD - Notified	$0	NA		
o State Water Commission (i.e., SWC Secretary/DWR Director)	$99,900	45% Cost Share Grant		
o USFWS Local & Regional – Long Lake NWR		NA		
o BNSF – St. Paul	$0	$20,000 In Kind Information	0%	In-kind
o NDDOT – State Office referred to Valley City District		NA		
o Ruele Lake Landowners	$10,000	Unconfirmed	8%	5K limit?
o Crystal Springs Bible Camp (and Supporters)	$25,000		20%	
o Crystal Springs & Stink Lake Homeowners and adjacent Landowners (Via Camp)	$5,000	$0	4%	
o City of Medina	$0	$0	0%	
Total Study Cost	**$222,000**		**100%**	
Local Share Required	$122,100			
Commited	$40,000			
Remaining	$82,100			

222000
0.45
$99,900.00

HoustonEngineering Inc.
3712 Lockport Street
Bismarck, ND 58503
Phone: 701-323-0200
Fax: 701-323-0300

Project Status and Invoice Description

HEI Project No.:	**12808-00001**
Client	**Stutsman County Commission/Water Resource District**
Project Name:	**Crystal Springs Watershed Initiative**

Billing Period: ***through February 1, 2025***

Professional engineering and consulting services related to the Crystal Springs Watershed Initiative and September 2024 agreement with the Stutsman County Commission/Stutsman County Water Resource District. The following is a summary of the work completed on each task during this invoice period.

Phase 001 – Hydrologic Watershed Evaluation

- Area-Capacity data was created for the four primary lakes based on the ND Game and Fish Bathymetry and most recent LIDAR topography. This has provided insight into the storage capacity of each lake and how it has been utilize by historic runoff and will accommodate future runoff and changes in lake flooding elevations.
- A review was completed for the watershed and contributing areas utilizing updated LiDAR information. This data was integrated into the State of North Dakota's NDRAM 2D Base Level Engineering (BLE) Hydrologic/Hydraulic model. This model was utilized as it uses an existing FEMA/State of North Dakota approved HMS hydrology model. The flow results are then imported into a HEC-RAS hydraulics model which produces resulting changes in the lake system and projected water surface elevations.
- Use of the NDRAM 2D BLE model for event-based runoff, contributing watershed area, rainfall and snowmelt runoff is ongoing.

Phase 002 – Groundwater Influence Review

- A review was conducted of available groundwater wells within the watershed. This provided preliminary conclusions related to the Central Dakota Aquifer and local groundwater levels. A determination of specific groundwater inflows into the lake system is outside the scope of this study, though a generalization its influence on lake levels is being considered. It was noted there is a direct correlation between the lake and the surrounding groundwater levels.
- A meeting with the NDDWR has been scheduled to discuss our preliminary findings.

Phase 003 – Hydraulic Floodwater Removal Alternatives

- Various alternative routings were considered for the removal of excess floodwaters. Most were discounted based on various factors including distance, topography costs and property impacts. The selected preferred alignment is Alternative 4B, which is located along the north side of Interstate #94. This is the shortest system with the least pumping requirements, has available ROW for installation as well as an available natural tributary outfall into the Long Lake Creek watershed.
- A preliminary InfoWater hydraulic pipe and pump system model has been created along the selected alignment, with the proposed system capacity remaining to be determined.

Phase 004 – Regulatory Considerations

- Work on regulatory issues has included contacts with various agencies to determine their concerns and comments regarding the excess floodwater removal project. These related around water quality, stream flows and timing, all which will need to be addressed more during preliminary design. The specifics related to the influence and impacts to properties and USFW easements are outside the scope of this study and would be more fully documented during preliminary design.

Phase 005 – Water Quality Comparison – Influence Area

- A review of available lake water quality was conducted to determine the variables between the CSWI water quality and that of the downstream receiving water bodies. The best removal location for excess floodwaters has been designated at Stink Lake, which has the lowest CSWI system water quality, but is still better than the quality downstream, specifically in the Long Lake National Wildlife Refuge.

Phase 006 – Economic Analysis (Feasibility Level)

- Limited work has been undertaken related to the system installation costs or the damage prevention. NDDOT has provided cost data on the Interstate #94 system, and we have requested information on grade raise costs for roadways and the rail system but are still waiting for that information. The benefit to land on which waters would be removed will be based on acres determined using area-capacity curves and then generalized for agricultural proposes. A second cost inquiry will be made at the second Steering Committee meeting.

Phase 007 – Steering Committee and Feasibility Guidance

- The Steering Committee met for its organizational meeting on September 11, 2024 after which fundraising for the local share started.
- The agenda and presentation at the meeting were drafted and sent to the Steering Committee and will be posted on the County Web Site after committee approval.
- Considerable effort was made to review and determine who should obtain or was interested in obtaining information on the project. Given the public interest an email of those interested was created and will be used to disseminate project status updates.
- While not include in the scope of services, we assisted in the securing of the local cost share funds. This included a review and comments on the BNSF agreement that was create for their participation.
- A status memorandum is being prepared to share with the Steering Committee at their second meeting, which is scheduled for February 11th at the Crystal Springs Bible Camp.

Phase 008 – Future Funding Opportunities

- Services provided in this area was primarily having discussions related to funding options and agencies.
- Assistance was also provided to the Stutsman and Kidder County Emergency Managers to include the CSWI into their Hazard Mitigation Plans, which makes them eligible for future Hazard Mitigation funding opportunities.

Phase 009 - Feasibility Report

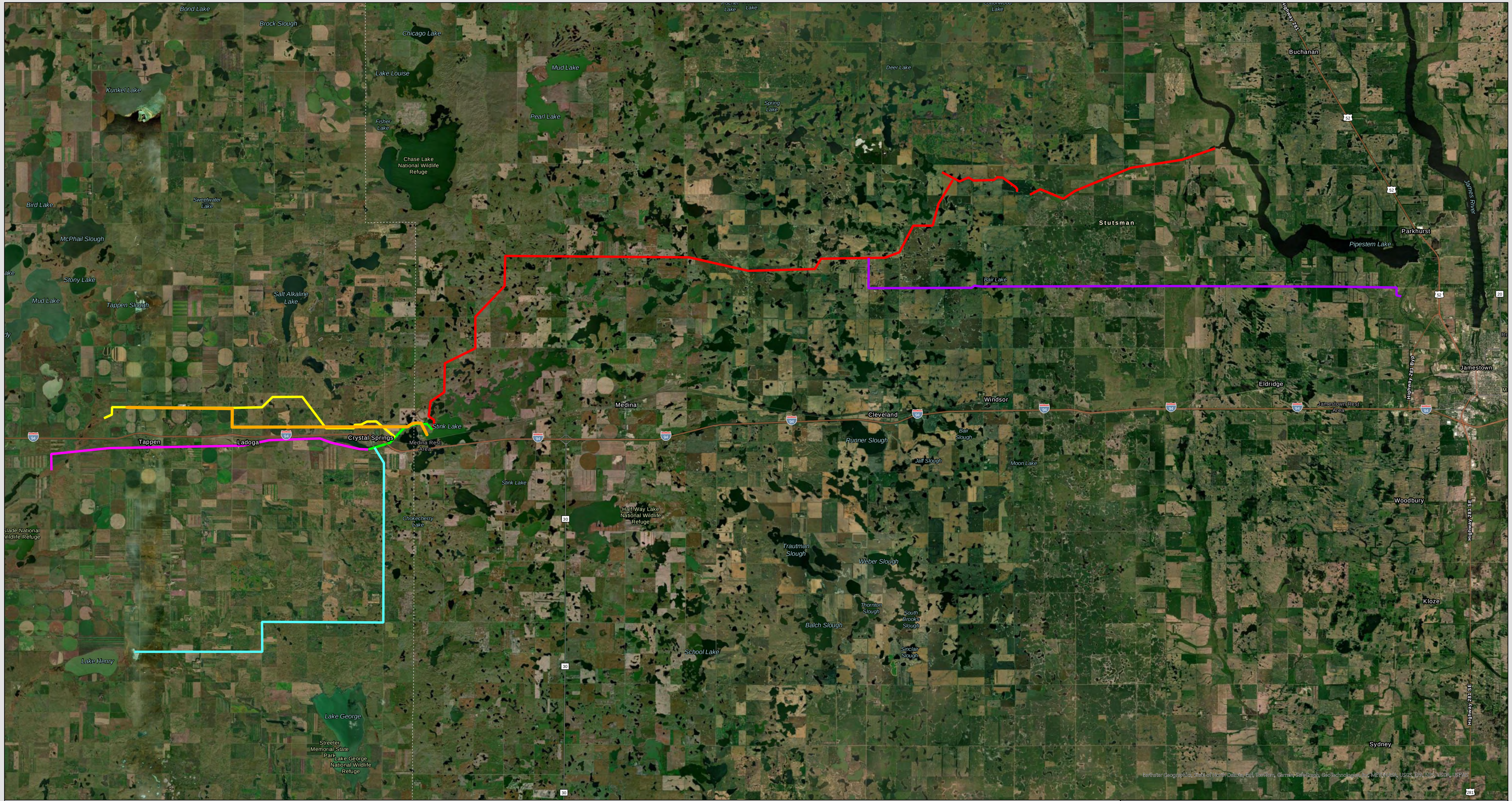
- Completed a preliminary layout for the report and some drafting of various sections is ongoing.

Comments and Issues:

- The overall study effort experienced a delayed start due in part to the local fund raising that was requested to offset county expenses. *Therefore, while the targeted completion date remains March 2025, this may need to be extended, based on study findings and coordination time.* A decision on an extension request will occur later in March.
- The second meeting of the Steering Committee has been scheduled. The number of remaining meetings will depend on study results, however, there will be at least one more for the preliminary draft report and potentially one more as part of the final report.
- To control expenses there was no markup on the Peritiacon Invoice.

See accompanying invoice for personnel cost breakdown.

HEI Invoice	$ 53.321.00
Peritiacon Invoice	$ 33,195.00
Total Invoice	***$ 88,516.00***



N

0 1.5 3 6

Miles

Outlet Options

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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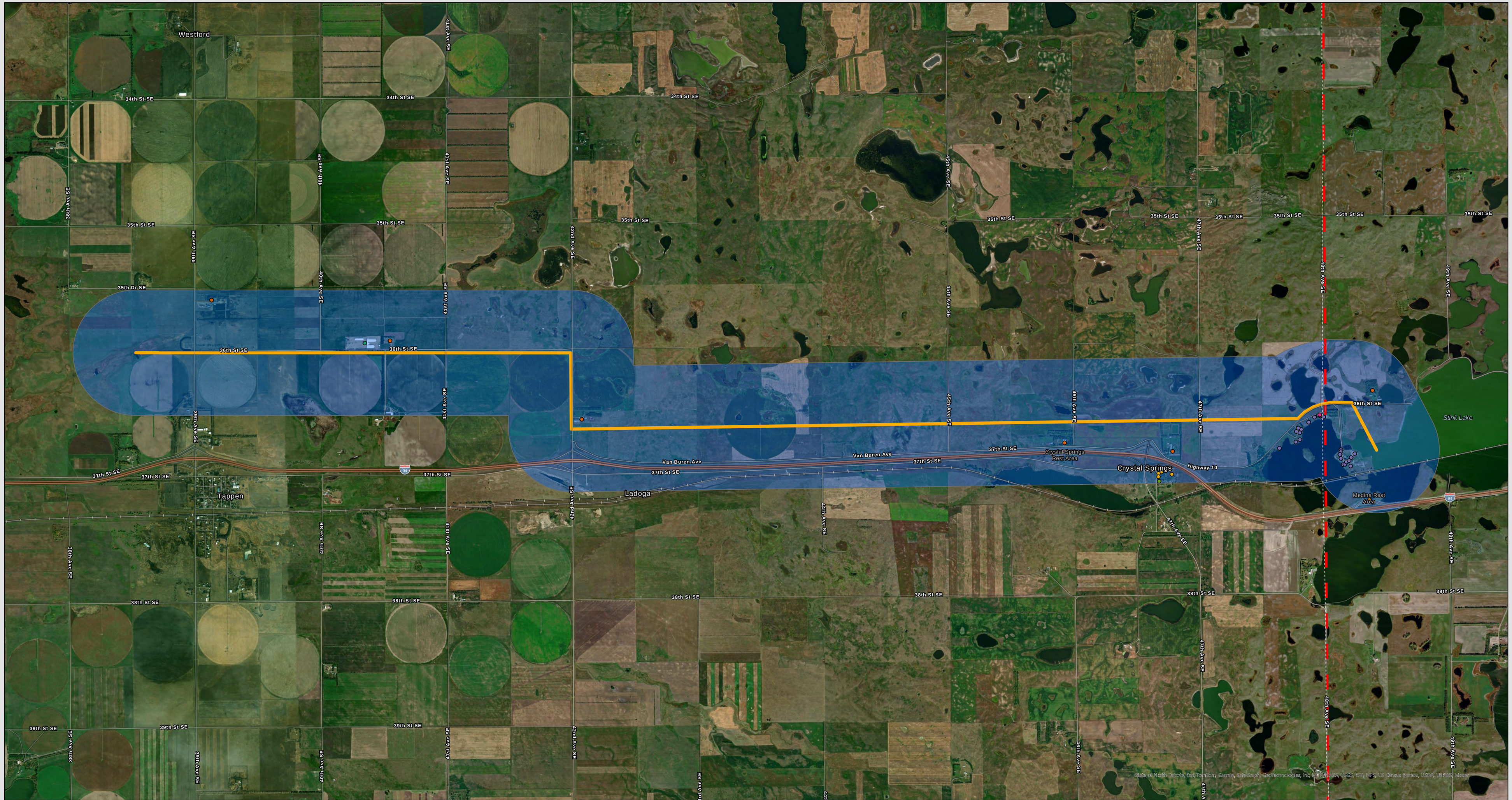
HOUSTON engineering, inc.



Habitable Buildings Count
Kidder County: 25
Stutsman County: 13
Total: 38

Legend

Habitable Buildings
Type
- Business
- Farmstead
- Cabin
- Cain
- Church
- House
- Rest Area

- Pipeline Route
- County Boundaries
- Pipeline Buffer - Half Mile

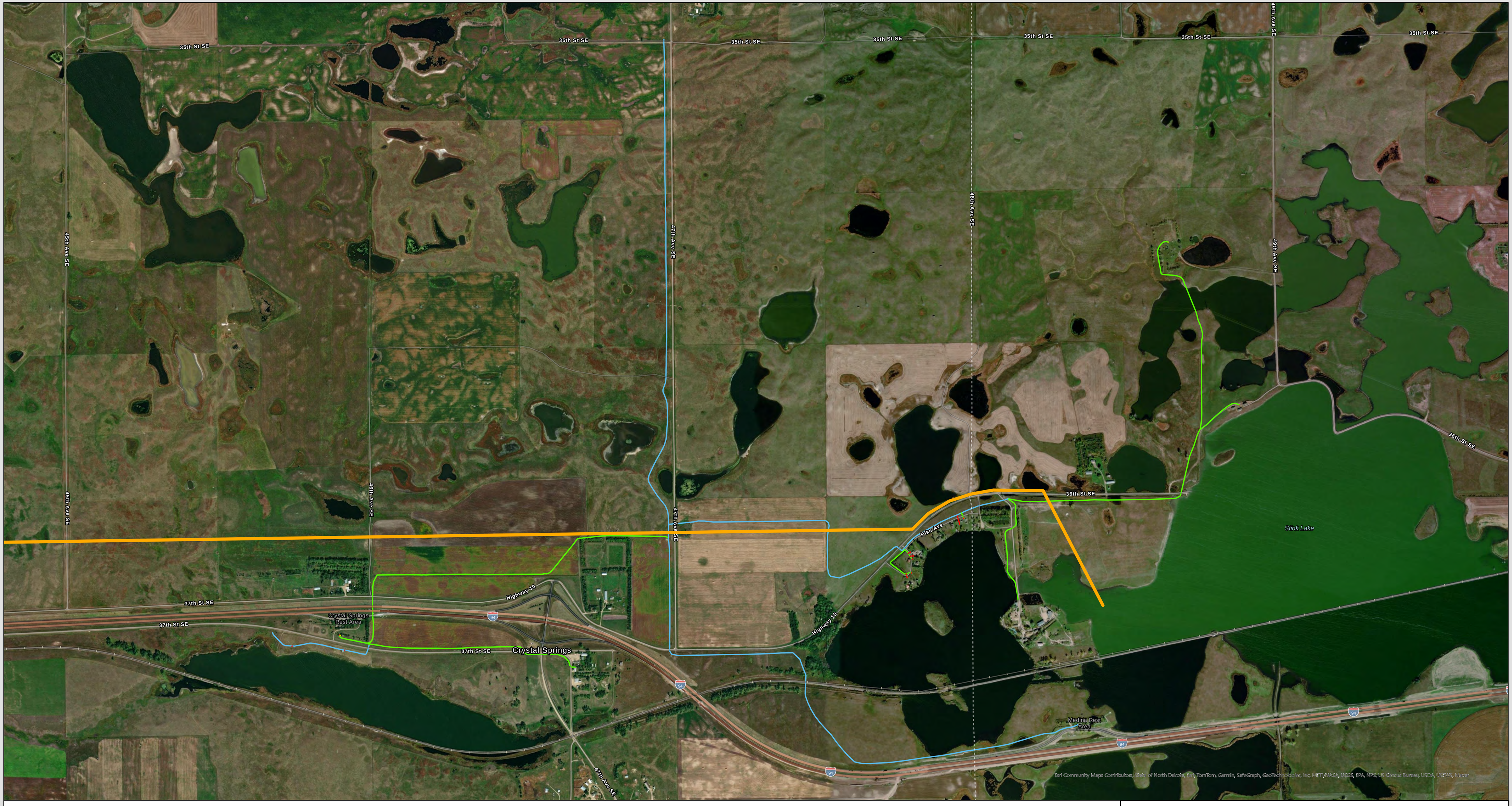
N

0 0.25 0.5 1
Miles

Habitable Buildings Near Crystal Springs Pipeline

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	TP	MG	9356-0001	1/21/2025	1

HOUSTON engineering, inc.



Legend

Pipelines

- 1"
- 1.5"
- 2"
- 3"
- Proposed Crystal Springs Discharge Pipeline Route

N

0 0.13 0.25 0.5

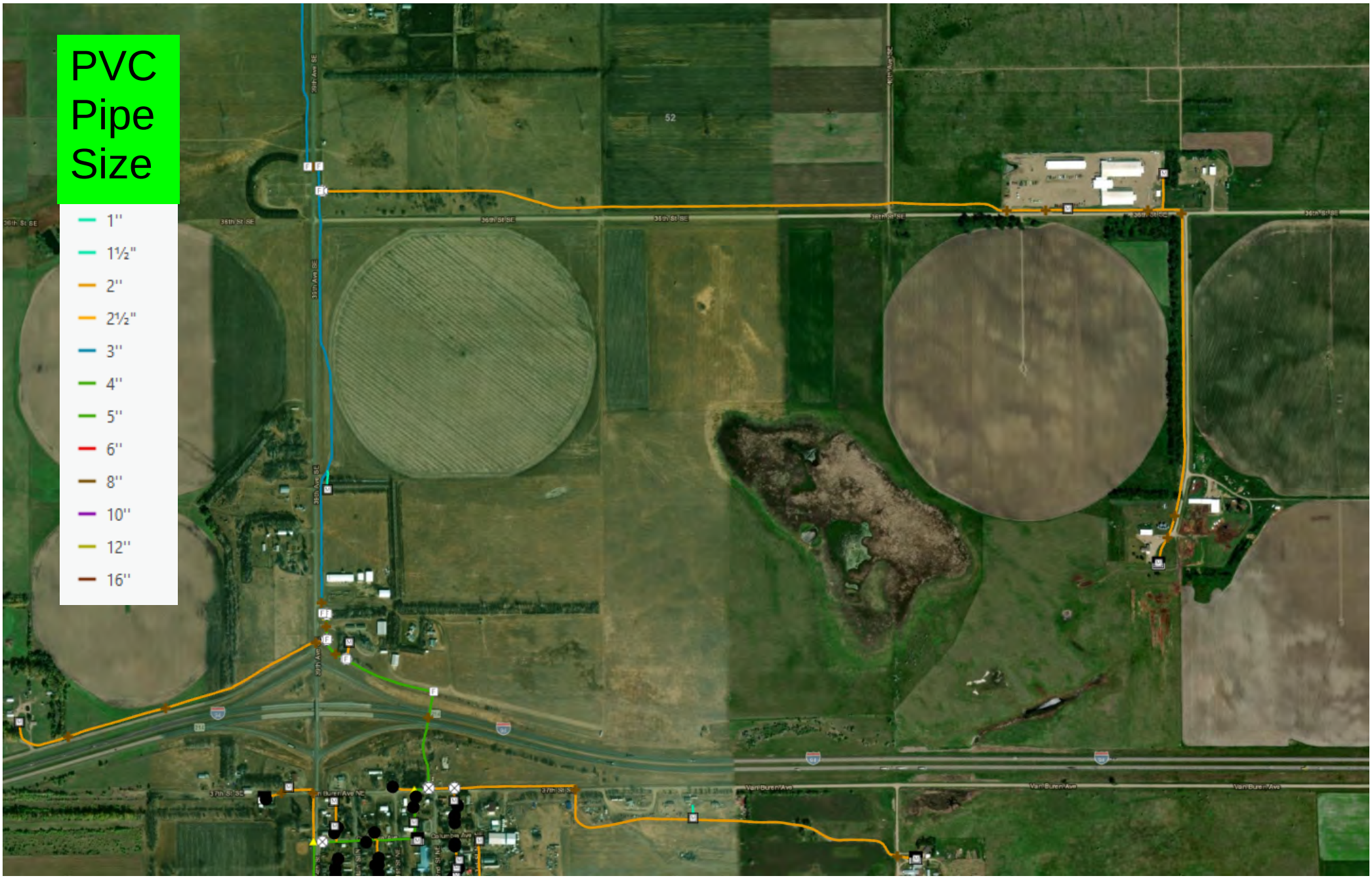
Miles

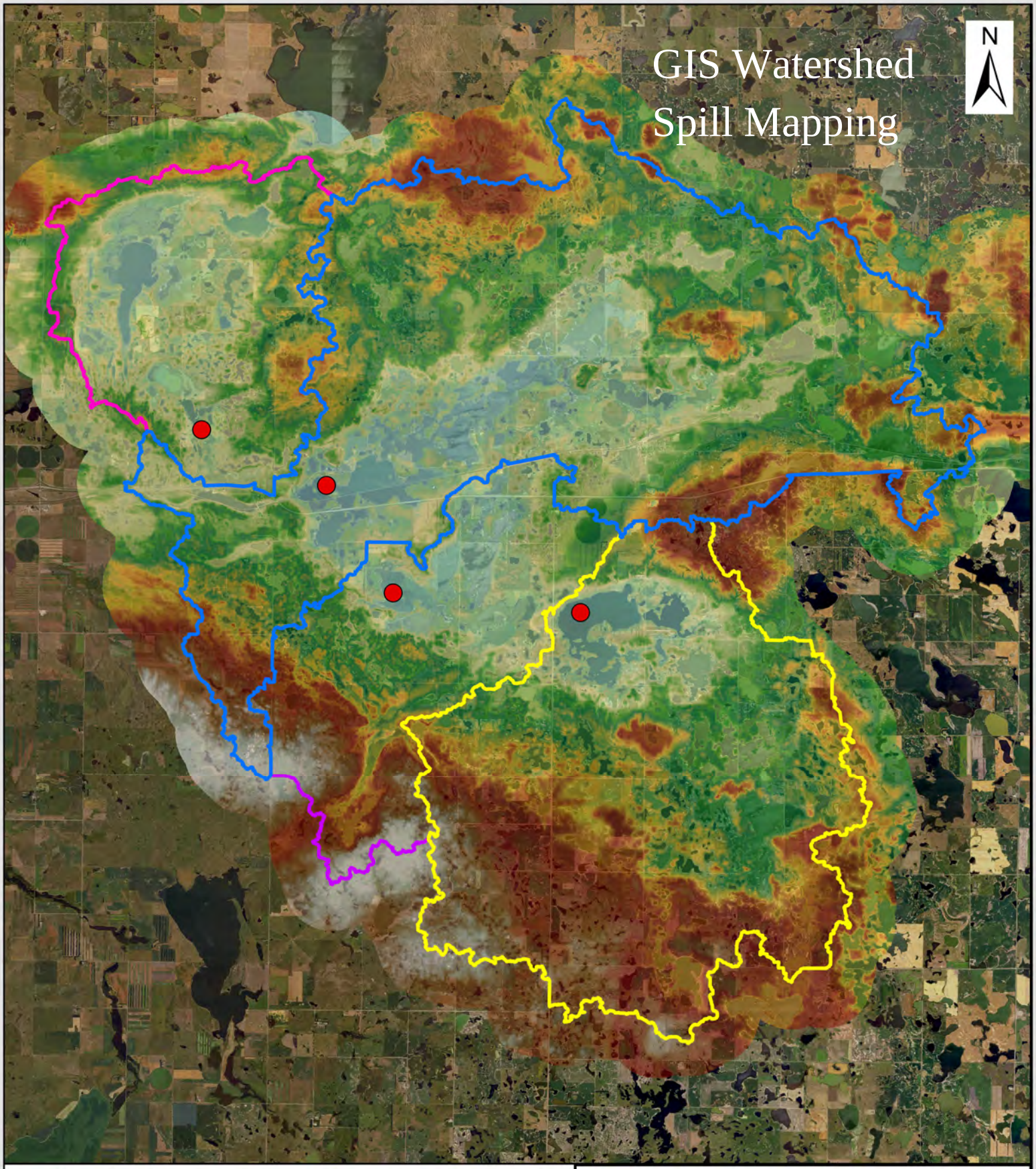
Stutsman County WRD Pipeline Routes

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	TP	MG	9356-0001	2/11/2025	1

HOUSTON engineering, inc.

Tappen Area Watelines





Watershed Drain Points

LiDAR DEM (2019-2021)

Elevation in Meters

647.566

531.69

Watersheds

1 (101.3 Square Miles)

2 (31.9 Square Miles)

3 (32 Square Miles)

4 (70.2 Square Miles)

0 0.751.5 3

Miles

Figure 1: Watershed Surface Area

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS	MG	12808-0001	2/14/2025	

HOUSTON engineering, inc.

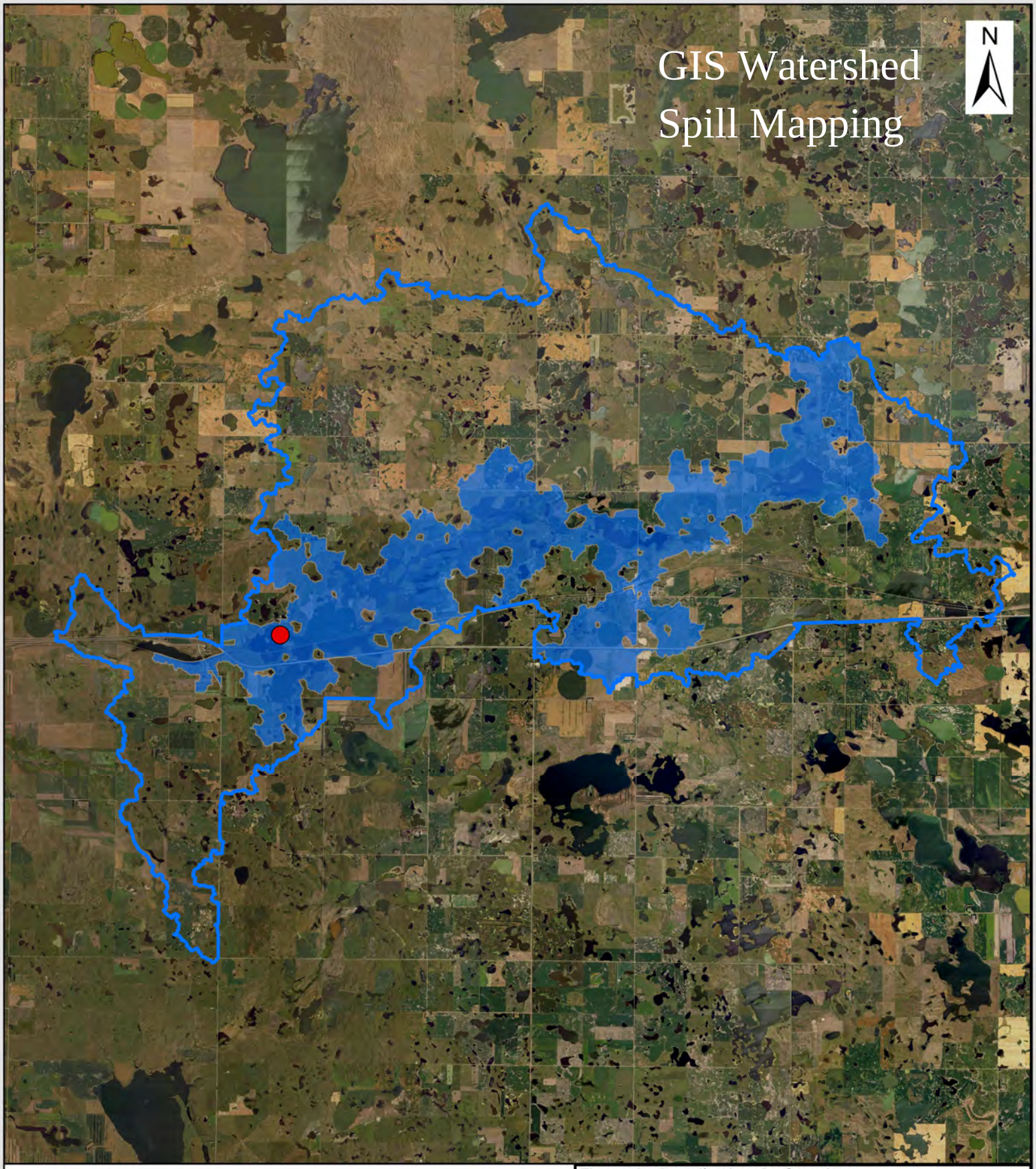


Figure 2: Contributing Surface Area
(5.3 inch Rain Fall)

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS	MG	12808-0001	2/14/2025	

HOUSTON engineering, inc.

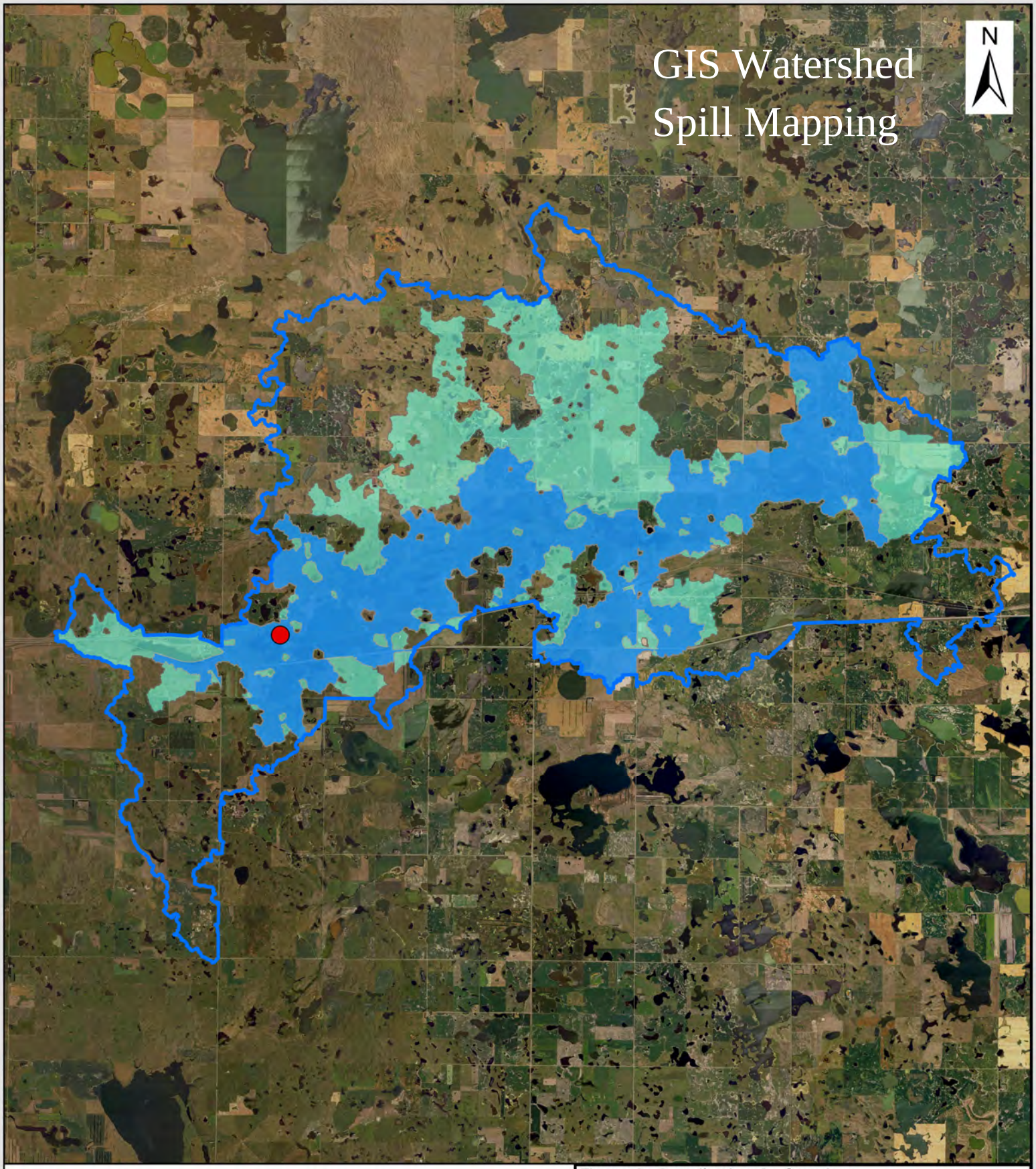
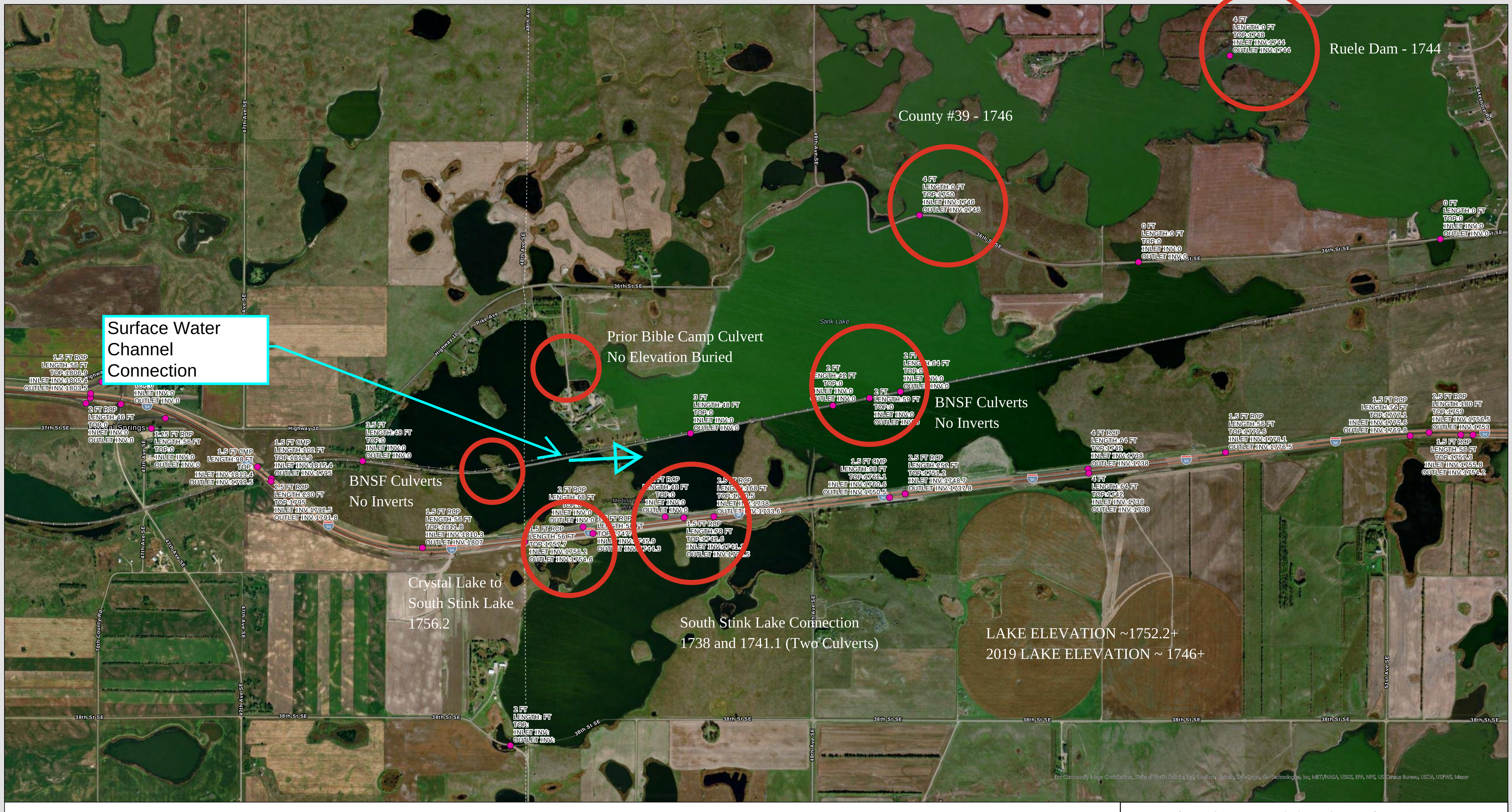


Figure 3: Contributing Surface Area (11 inch Rain Fall)

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS	MG	12808-0001	2/14/2025	

HOUSTON engineering, inc.



Legend

- Culverts

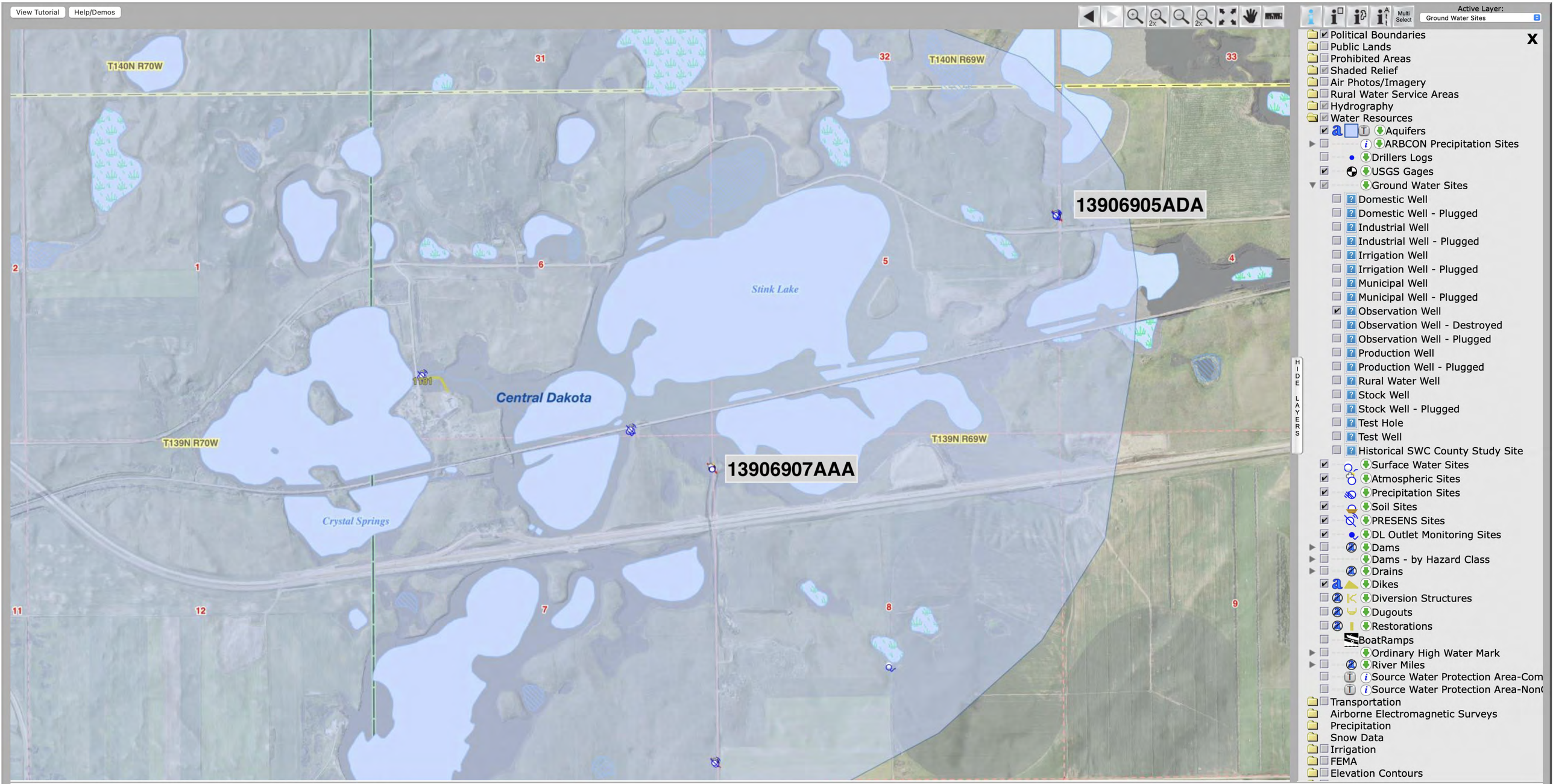
N

0 0.25 0.5 1 Miles

Crystal Springs & Stink Lake Culvert Map

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	EN TP	MG	9356-0001	2/11/2025	1

HOUSTON engineering, inc.



ND Department of Water Resources MapService

The following table represents the data submitted by the Valley City District for this location along with the annual precipitation from the Tappen Station, located approximately 7 miles west of Stink Lake. Based on the data below, the current 10-year average elevation increase is 8.76" per year, however, this rate does not account for annual precipitation or storage.

Year	Annual Precipitation (in)	Recorded Water Surface Elevation (ft)
2010	19.53	1744.90
2011	17.86	1746.30
2012	14.99	
2013	17.46	
2014	15.02	
2015	14.08	1748.51
2016	17.15	
2017	10.78	
2018	17.72	
2019	23.20	
2020	-	1752.2

Interstate 94 RP 223.9 - Historic Water Surface Elevations

Recommendations

The NDDOT policy for grade raise recommendations is to provide 2 feet of freeboard above the basin outlet when practicable. When the height of a grade raise required to provide that amount of freeboard is not feasible, it is common to construct a 5-foot grade raise above the existing water surface elevation. However, at this location, it would be prudent to construct a higher grade raise in order protect the Interstate for a longer duration. Therefore, it is recommended to construct a 10-foot grade raise above the existing pavement surface elevation. This elevation maximizes the protection of the Interstate while minimizing the impacts to the nearby rest area and ramps. This would result in a finished subgrade elevation of approximately 1761.9'. Assuming 18" for aggregate base and 8.5" pavement surfacing, the edge of pavement elevation would be 1764.2'.

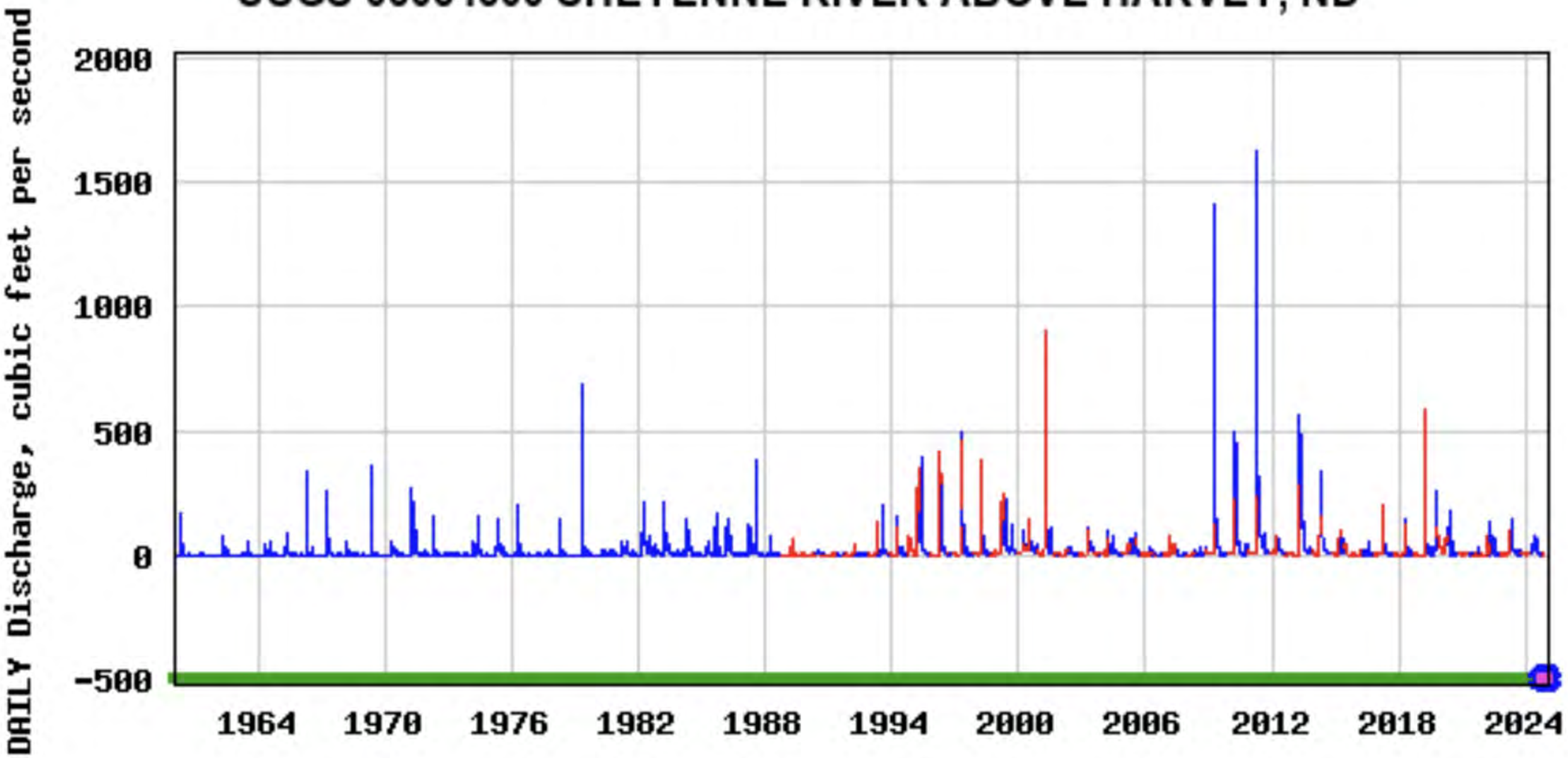
Culvert Recommendations:

As part of the analysis, the 3 existing culverts within the Stink Lake basin were analyzed for compliance with the ND Stream Crossing Standards and the current NDDOT design standards. The NDDOT policy concerning submerged culverts is to extend hydraulically adequate culverts with the use of temporary earthen berms when the depth of water does not exceed 8 feet. Beyond 8 feet of depth, a hydraulically adequate culvert can be replaced instead of extended due to constructability concerns.

Several culvert conditions in the area have changed since the previous grade raise. The most substantial being that the water surface elevation has risen by nearly 6 feet. This increase in tailwater at the crossings resulted in an approximately equal increase in headwater and the culverts no longer meet the allowable headwater values according to the North Dakota Stream Crossing Standards.

USGS

USGS 05054500 SHEYENNE RIVER ABOVE HARVEY, ND

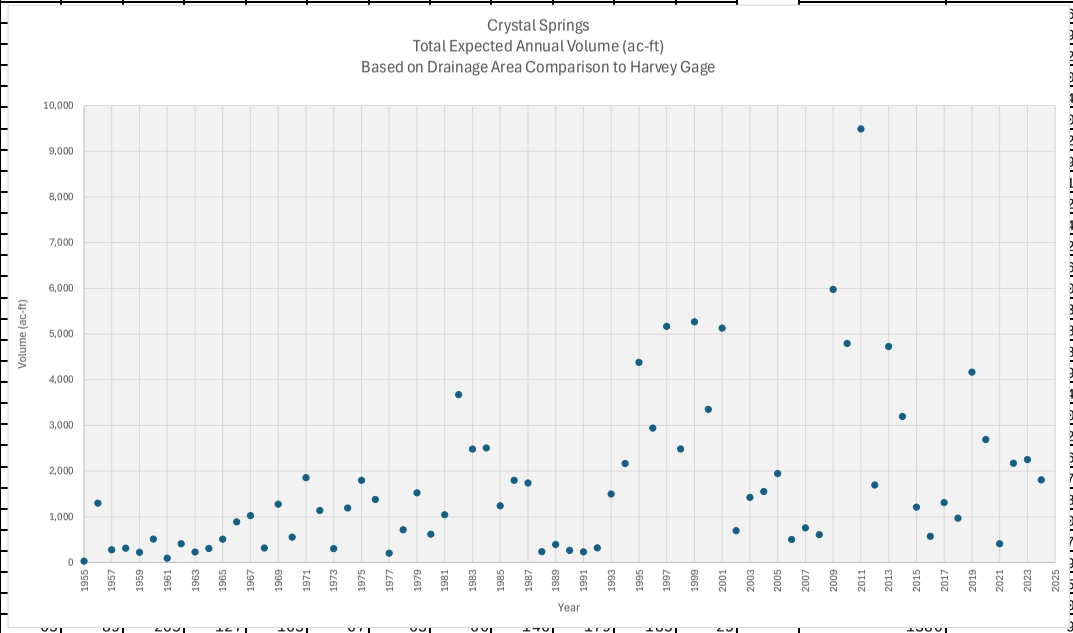


Wells County, North Dakota
Hydrologic Unit Code 09020202
Latitude 47°42'10", Longitude 99°56'55" NAD27
Drainage area 424 square miles
Contributing drainage area 154 square miles
Gage datum 1,548.86 feet above NAVD88

Output formats
HTML table of all data
Tab-separated data
Reselect output format

Convert USGS Mean Monthly Discharges to Monthly Volume Ac-Ft

YEAR	Based on Calendar Year (not water year)												Harvey Gage		crystal springs contributing watershed
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Annual Volume	ac-ft / sq.mi.	Total Expected Annual Volume
													Sum - Ac-ft per Calendar year		Translate ac-ft
days	31	28	31	30	31	30	31	31	30	31	30	31		154	25.8
		29													
1955	0	0	0	0	0	0	0	0	0	87	62	16	165	1	28
1956	7	0	676	4124	1174	1142	215	56	94	81	165	23	7757	50	1300
1957	9	0	331	253	263	142	97	65	126	157	146	68	1657	11	278
1958	39	198	440	296	146	123	427	6	26	66	89	6	1862	12	312
1959	0	0	400	178	159	67	25	0	11	366	58	55	1319	9	221
1960	19	0	1882	343	411	202	11	57	44	34	42	10	3055	20	512
1961	2	11	111	184	101	18	4	2	33	29	48	6	549	4	92
1962															410
1963															230
1964															304
1965															508
1966															888
1967															1024
1968															315
1969															1277
1970															554
1971															1857
1972															1135
1973															302
1974															1192
1975															1796
1976															1380
1977															203
1978															715
1979															1522
1980															618
1981															1042
1982															3672
1983															2480
1984															2506
1985															1240
1986															1799
1987															1739
1988															236
1989															391
1990															264
1991															231
1992	29	216	707	181	132	83	93	47	100	93	140	86	1907	12	319
1993	8	25	1672	458	298	756	3622	1383	278	194	181	65	8940	58	1498
1994	19	8	3370	2035	568	649	258	113	153	2121	2321	1304	12919	84	2164
1995	191	35	8965	6480	7176	1624	910	267	118	159	199	2	26126	170	4377
1996	0	0	2214	9866	3136	940	415	257	111	183	226	206	17554	114	2941



1997	191	157	2687	19303	5429	1095	904	200	69	177	296	330
1998	191	733	5897	4588	1113	436	340	56	180	163	631	505
1999	392	271	5091	6397	6905	2243	1174	3652	2880	1070	750	607
2000	414	1064	2416	1238	1648	4600	4144	1445	970	530	1089	435
2001	176	134	12740	7938	2318	3005	2859	670	180	244	258	95
2002	24	7	118	1041	1236	631	293	125	126	183	233	137
2003	0	0	1451	1440	1549	1738	1094	243	115	174	255	441
2004	713	0	1015	1761	1119	1964	793	371	242	247	414	621
2005	676	540	2195	458	676	1363	3923	830	68	285	384	213
2006	206	194	313	1142	388	186	32	11	35	106	174	211
2007	75	0	1039	348	601	1505	280	95	101	134	189	156
2008	124	97	159	476	215	515	221	172	250	399	678	323
2009	240	217	2091	24444	4519	1845	1058	283	101	290	333	247
2010	244	189	1912	15989	3825	1904	594	266	1119	719	1363	490
2011	539	534	1070	31995	9770	4909	2902	2460	738	584	538	583
2012	544	598	2121	2678	1845	928	328	116	73	283	352	240
2013	176	124	154	3237	9721	8610	2945	713	320	1027	726	449
2014	286	22	1562	7099	5214	1946	1248	515	349	298	268	267
2015	83	179	1396	785	1771	1821	596	84	55	106	192	160
2016	144	227	452	601	221	195	423	298	296	175	198	199
2017	282	329	1383	2880	1310	522	206	102	85	152	325	252
2018	95	7	101	3320	64	982	585	32	127	218	155	105
2019	25	0	1931	3237	1427	833	1051	142	2654	6659	4255	2650
2020	990	765	2687	4588	2798	1000	2146	162	149	274	293	199
2021	82	122	390	365	329	182	90	97	53	422	245	65
2022	0	51	1771	1952	1642	3344	2841	576	205	152	224	209
2023	182	205	239	2458	6186	1553	978	231	244	301	517	347
2024	256	656	664	1089	2484	2416	2398	405	275	145	0	0

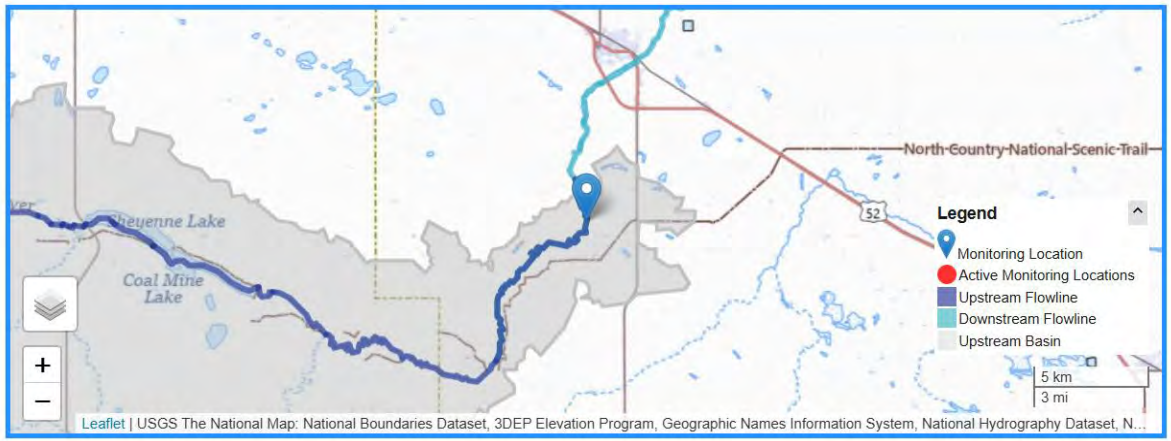
30838	200	5166
14833	96	2485
31432	204	5266
19993	130	3349
30617	199	5129
4154	27	696
8500	55	1424
9260	60	1551
11611	75	1945
2998	19	502
4523	29	758
3629	24	608
35668	232	5976
28614	186	4794
56622	368	9486
10106	66	1693
28202	183	4725
19074	124	3196
7228	47	1211
3429	22	574
7828	51	1311
5791	38	970
24864	161	4166
16051	104	2689
2442	16	409
12967	84	2172
13441	87	2252
10788	70	1807

Removal Days

Days	Months
479	**16**
86	**3**
239	**8**
161	**5**
61	**2**
29	**1**
66	**2**
49	**2**
210	**7**
136	**5**
21	**1**
110	**4**
114	**4**
91	**3**
123	**4**

Days Averaage

1.98 ac-ft/cfs-day
10 cfs system



Open Budget

Operating Expenses
$32.83 Million - 100.00% of all Operating Expenses

Service
Transportation
$9.41 Million - 28.65% of all Operating Expenses

Department
Road and Bridge
$9.39 Million - 28.60% of all Operating Expenses

$9.39 Million 2025

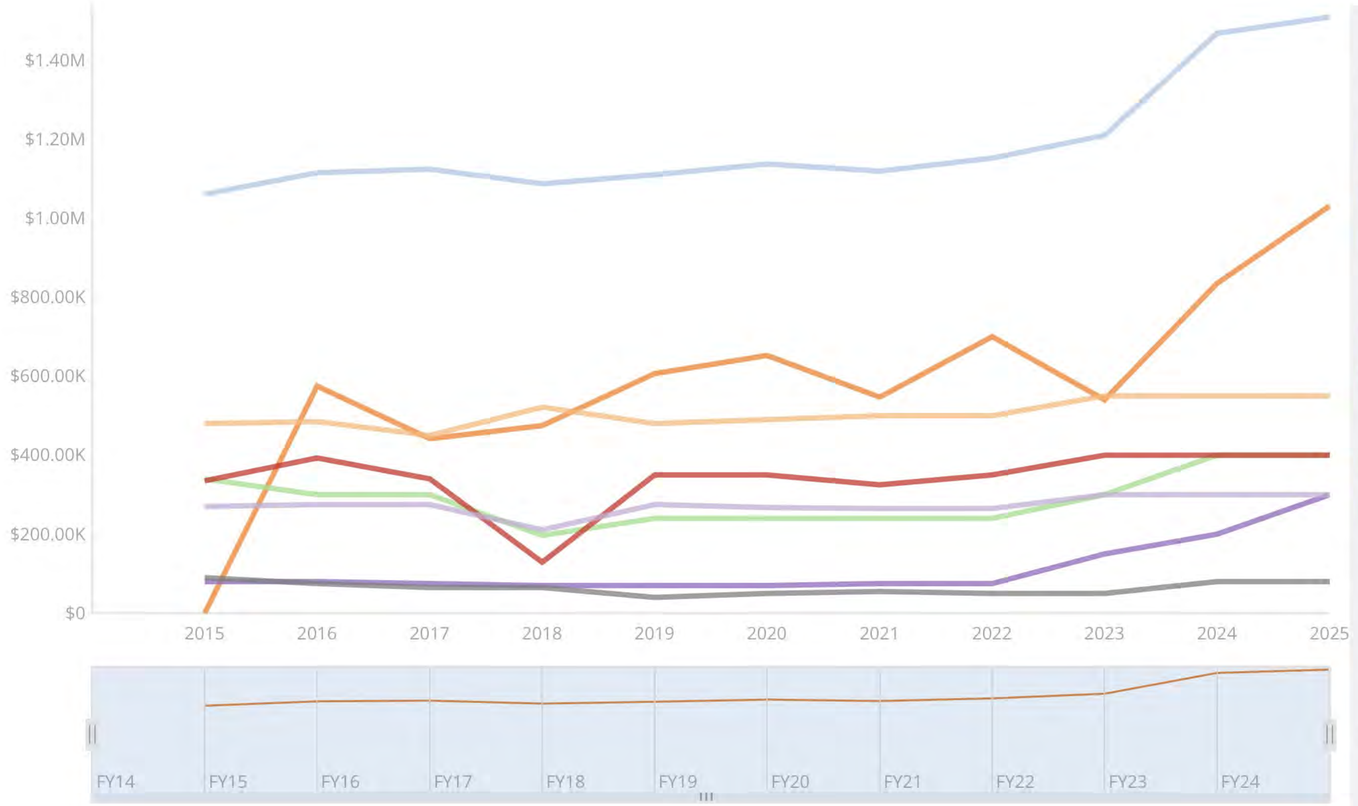
Road and Bridge broken down by Category

Within Transportation

Export Share

← Back

Show: Approved Amount



Total Show

- Transfer
- Salaries-Road & Bridge
- Purchase of Equipment
- Overlaying and Resealing
- Road Construction
- Gas
- Gravel and Crushing
- Group Health Insurance
- Culverts and Bands
- Maintenance and Repairs
- NDPERS
- Building Improvements
- Engineering
- FICA
- Overtime-Road & Bridge

Snapshot
Pie Chart
Over Time

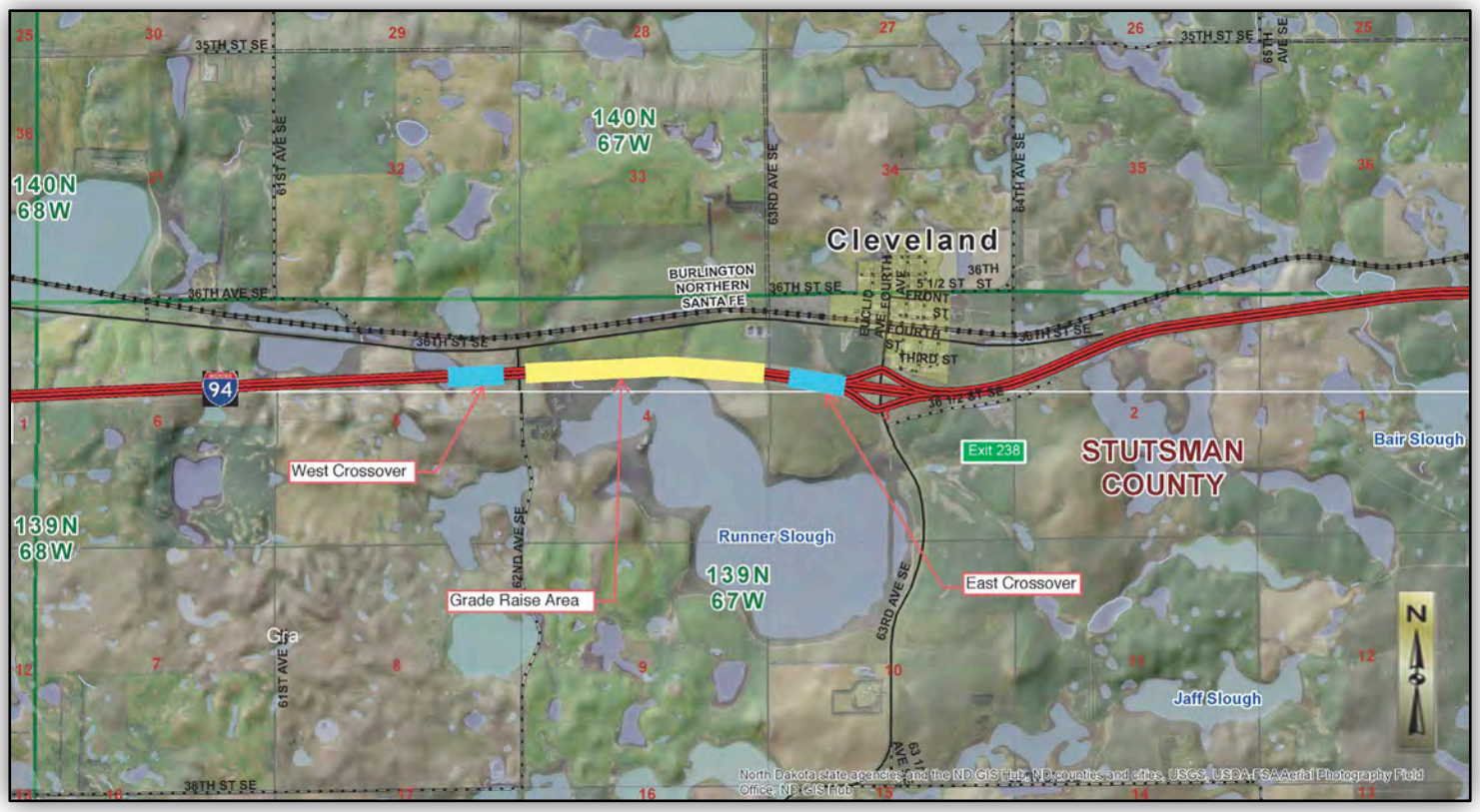
PUBLIC INPUT MEETING

I-94 Grade Raise (Runner Slough)

Project: IM-2-094(236)210

Open House: *Wednesday March 5, 2025~ 4:00 p.m. - 6:00 p.m. CDT*
Cleveland Community Center, Cleveland ND

Project Location……



Welcome……

Welcome and thank you for attending. Your input is appreciated. You are invited to make comments, ask questions, and express your views. Representatives from the NDDOT are available to answer your questions and discuss your concerns.

Purpose of Meeting……

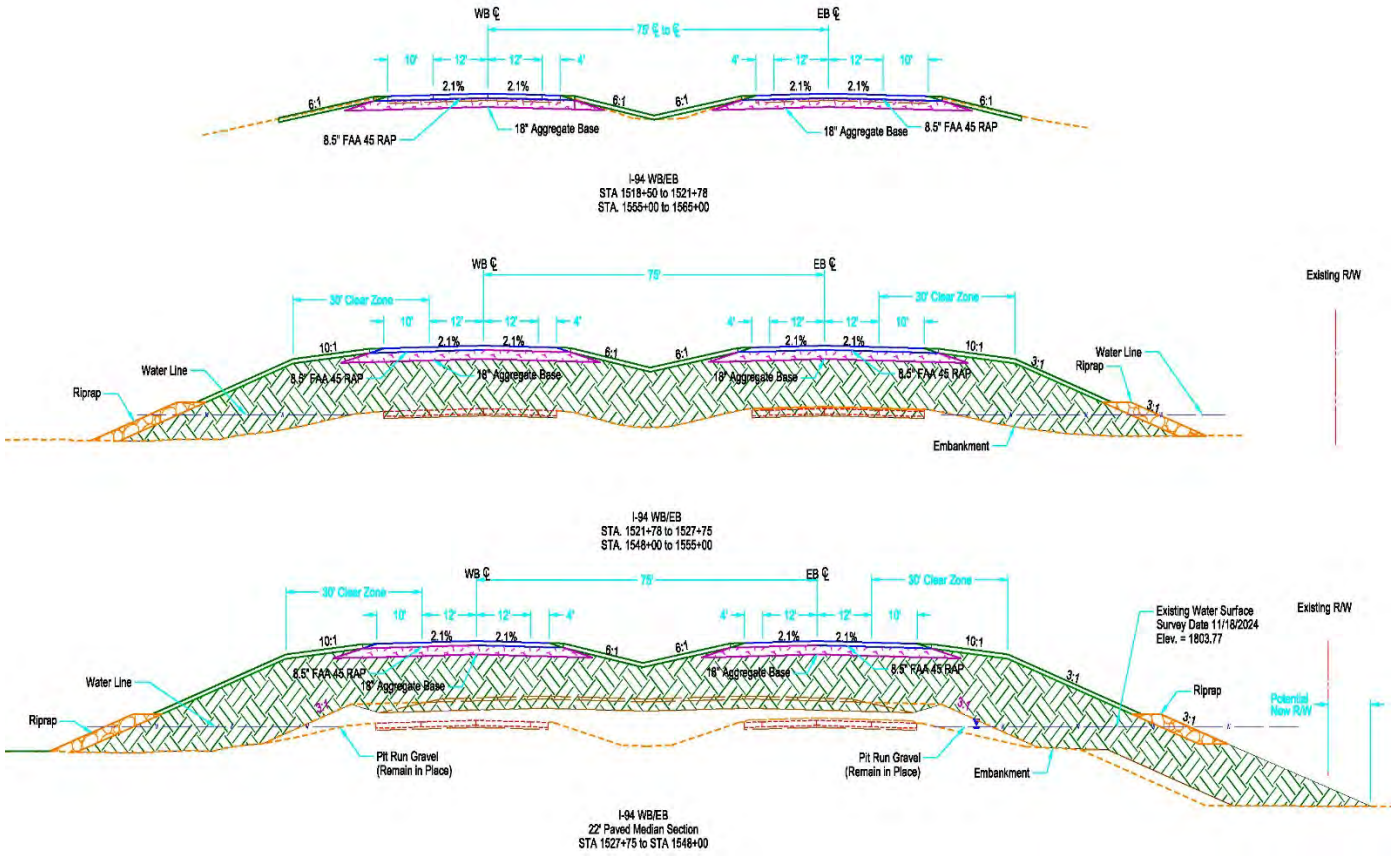
The purpose of this meeting is to provide an opportunity for people with either public or private interests to become fully acquainted with the proposed project and to offer feedback.

Need for Project……

I-94 is a major corridor for rural and agricultural traffic traveling across the state. Recent rains and wet winters have caused the water at Runner Slough to overtop the existing EB/WB roadways just west of Cleveland. A temporary grade raise was constructed in the fall of 2024 to keep rising water off the roadway. Now a permanent grade raise on both the EB and WB direction is needed to re-establish interstate standards and to maintain I-94 traffic.

Proposed Improvements…….

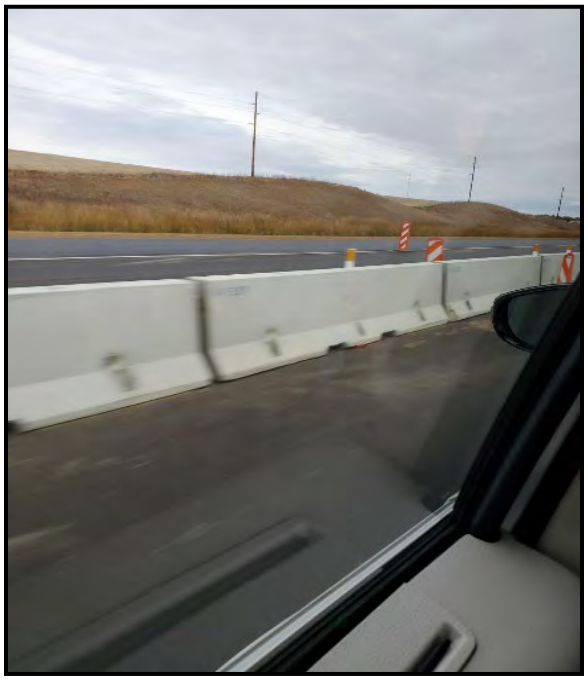
- Remove the current median barriers and existing surfacing.
- Raise the current elevation of the roadway 12.5 feet. This will get it above the natural outflow.
- Extend and install new culverts.
- Re-Establish the 75’ median width.
- Regrade and resurface EB/WB roadways.
- Riprap the roadway slopes to protect from future water elevations.



Proposed Typicals

Work Zone Traffic Control…….

Traffic will be maintained by phasing the roadway work. Traffic will be moved to one set of lanes for head-to-head traffic with work on the other lanes. It may take several phases to complete the finished roadway work.



Comments – Your feedback is appreciated!

Please submit your comments no later than March 19th, 2025. Written statements or comments about this project not submitted at the Public Input Meeting should be sent to:

Leon Eckroth, Design Division
North Dakota Department of Transportation
608 East Boulevard Avenue
Bismarck, ND 58505-0700

Phone: 701-328-2588
Email to: leckroth@nd.gov with "Public Input Meeting – "PCN 24461" in the subject line

Name/Address:_____ Phone:_____

Comments:_____

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