

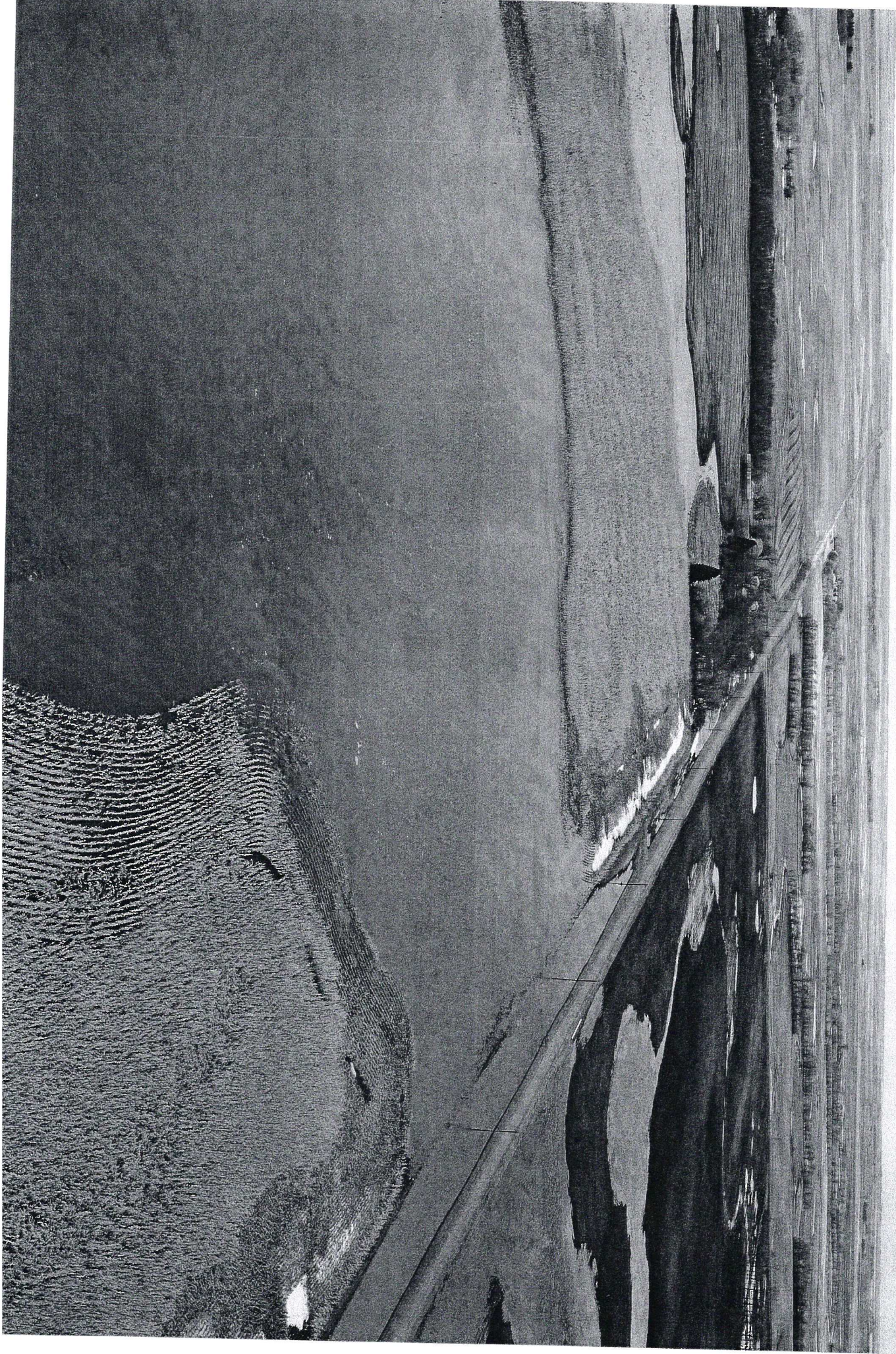
Senate Bill 2324

Feb 12, 2021 9 am

- Good morning, I am Sue Backer from Courtenay, ND. We are a farm family. I grew up on the farm that my family is now farming and farming is our livelihood.
- I am here today in regards to Senate Bill 2324. I am in favor of Senate Bill 2324 to amend Century Code 24-03-08, relating to installation of culverts.
- There have been two engineering studies done on our property showing that a larger culvert needs to be installed on a township road and still no action has been taken by our Township Board.
- My family and I are farming the land that I grew up on near Montpelier. This land has been farmed by my family since my grandfather homesteaded in the early 1900. There is a natural waterway that has flowed through this property every spring on its way to the James River since as long as any of us can remember. Usually by summer this waterway is dry. Seven years ago we began noticing that water was backing up along the township road that separates our farm land and our neighbor to the north. Our neighbor also noticed that the water was backing up on our side of the road. Here are some **aerial photos** that we took with our drone showing the conditions. We contacted our local township with our concern but they kept dismissing the problem as just an unusually wet spring, heavy rain runoff etc. and basically kept avoiding the issue. Every year since, the problem continued to get worse as the wet conditions continued and we lost more and more land that we were previously able to crop, yet our neighbor to the north's field conditions did not change drastically due to the wet conditions. We could physically see that the culvert and roadway was holding back the water that was coming through the natural drain. But our township officers told us that they could not put a bigger culvert in because culverts must be smaller the further upstream you get and if the culvert in question was replaced with a bigger culvert then they would need to replace all of the downstream culverts as well. That got us thinking, so we started to trace the waterway upstream and discovered that the upstream culverts were larger than our downstream culvert. We were elated to have found out that there was an explanation why our culvert was no longer handling the flow of water that was coming downstream. But that information did not seem to make a difference to our township board.
- On Aug 14, 2018, we finally filed a complaint of unauthorized construction of a dike or dam with the Stutsman County Water Resource Board. We were told it was a township issue and they do not have any control over a township road. We again contacted the Township in 2019 and they denied there was a problem so we hired Interstate Engineering to conduct a hydrology study (attached) that backed our claim that the current 18" culvert needed to be replaced with at least a 30" culvert to comply with the stream crossing standards. Again they denied our request.
- After even more research we discovered that the township could order their own ND State Engineer Stream Crossing Determination at NO CHARGE. They refused to request the report.
- We then contacted the Stutsman County Water Board and the Stutsman County Commission to help us with this issue and request a ND State Engineer stream crossing determination and was told it is a township issue and the only way we can get action is to hire an attorney at our expense and sue the township, which we did not want to do.
- So in 2019 my mother paid her real estate taxes under protest and it was only then that we got

the attention of the Stutsman County Commissioners. They requested the Stutsman County Water Board order a "FREE" stream crossing determination.

- On Feb 10, 2020 the request was made and on September 1, 2020 the Stutsman County Water Board received the determination (Copy of State Engineering Determination attached) stating that a culvert needs to be installed that will carry 46 cfs, or cubic feet of water per second, which coincides with Interstate Engineering's determination. Stutsman County Water Board then forwarded the report to the township citing the Century Code and the township still took no action to correct the problem. In the meantime the township replaced the culvert in question on 8/20/2020 with the same size and not with the required size. I did text the chairman and informed him the state engineer's determination was in review and they had already received the independent study but the township still installed a new incorrect culvert.
- My family has gone through many hoops to try and get a correct size culvert installed to no avail. Not to mention how frustrating this has been.
- We have now hired two attorneys which has cost us money besides paying for our own engineering report and still we have had no action from our township which leaves us no recourse except to sue at our expense. One of my attorneys has told me that the current law rewards the township for compliance but does not punish the township for **non**-compliance, so there is very little incentive for the township to comply with the law, and this makes it expensive to enforce the law against the township. I want the law to be enforceable and not put upon the tax payer to have to enforce the law or at least be able to recoup expenses incurred including attorney fees.
- That is why I am requesting that you support SB 2324 to change the language to make this an enforceable law that actually punishes townships for failing to comply with the law.
- Do you have any questions?
- Thank you for listening. I appreciate your time and consideration.



Apr. 20th 2022



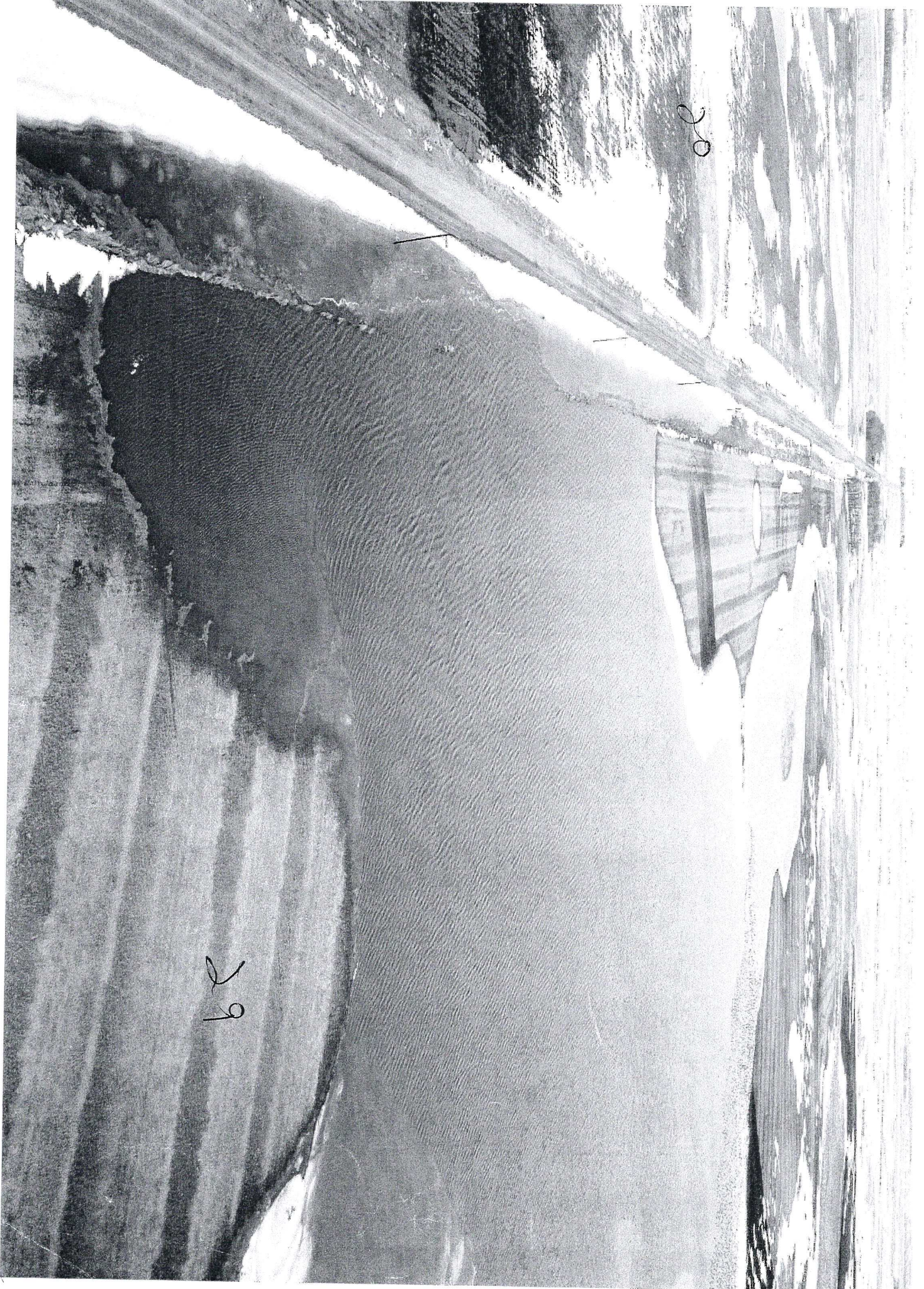
08-2019



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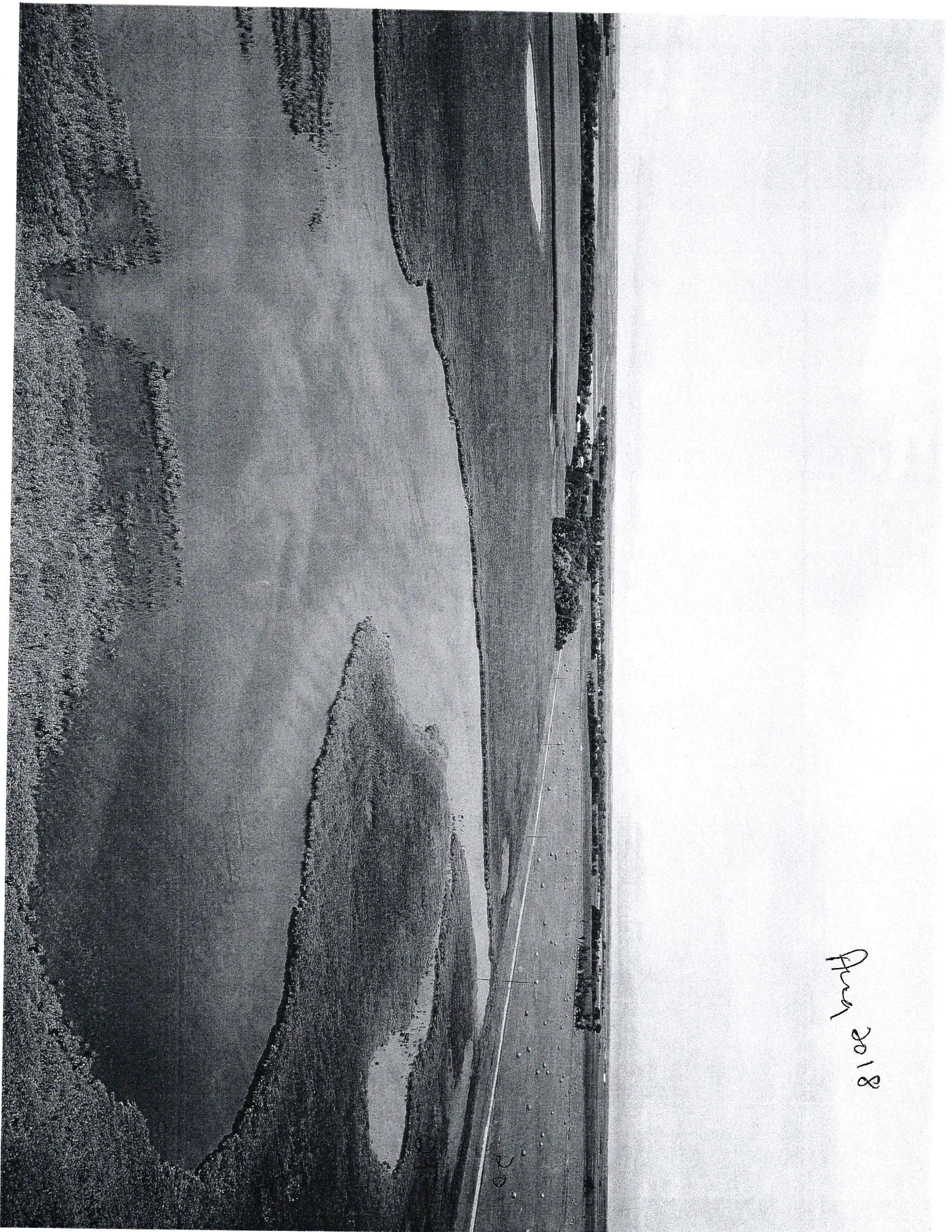
April 2019



29

20

April 2019



Aug 2018

20

COPY

HYDRAULIC STUDY
For
Culvert Recommendation
Montpelier Township
In NE 1/4 of NW 1/4 of Section 29, T 137 N, R 63 W.
Stutsman County, ND
July, 2019



7/18/19
Date

Benjamin B. Aaseth
License No. 10085

Interstate Engineering, Inc.
Jamestown, North Dakota
J19-04-090

I. GENERAL

This hydraulic study has been prepared to investigate the size of structure that would be required to convey the water at a crossing located in the NE 1/4 of NW 1/4 of Section 29, T 137 N, R 63 W, Montpelier Township in Stutsman County, North Dakota. There are no upstream structures that impact this site at the analyzed event year. This site will be designed for a 10-year event, based upon North Dakota Administrative Code 89 for township roads.

The existing pipe onsite has damaged end sections. The upstream end section has a damaged top as well as some rust. The downstream end section is split at the seams.

The existing site has the following characteristics:

- Top of Road = 1489'
- Existing Road Width = 22'
- Tailwater = 10 foot bottom with 10:1 side slopes
- Invert North end = 1484.19'
- Channel elevation near north end = 1484.07'
- Invert South end = 1484.13'
- Channel elevation near south end = 1484.13'
- Lat: 46° 39' 35.23" N Long: 98° 39' 42.12" W

II. HYDROLOGY

Originally when the quad maps were developed it appeared that this culvert drained a much larger area, since that time there has been some change in flow patterns. The water approximately one-mile south of the culvert located just south of the Section Line, flows primarily easterly thru an existing drainage channel. Originally it appeared that this water flowed north to the culvert in quad maps originally developed. Considering that this crossing is only to be sized for a 10-year event only 5% of the larger drainage flows were considered to flow north based upon aerial drone video and photo graphs that were taken in the spring of 2019. See Appendix B. If all of the area to the south would be considered when sizing the culvert, the size would need to be significantly larger. See sheet 3 for the original drainage area identified with the original quad maps, compared to the drainage used for sizing the culvert on Sheets 1 & 2.

The drainage area for this site was determined, using the USGS Quad Maps, to be approximately 0.95 square miles (approximately 608 acres). This area is shown on Sheets 1 & 2. The drainage basin flows through mainly farmland and wetland areas. The main use of the drainage area is agriculture land.

The discharges at the site were determined utilizing the USGS "Techniques for Estimating Peak-Flow Frequency Relations for North Dakota Streams 1992", which takes into consideration different soil types, vegetation, storage,

slope of the basin, and terrain. The area being studied is in Region C, with slopes of approximately 4 feet per mile.

III. HYDRAULIC ANALYSIS

The FHWA HY-8 program was used in the analysis. The following data has been compiled and utilized to determine a sufficient and appropriate structure at this location.

Channel: Area identified on quad maps

Total Drainage Area: 0.95 square miles

Existing Structure at Site:
18" Corrugated Steel Pipe

Existing Upstream Structure:
None or Unknown

Existing downstream Structure:
24" Corrugated Steel Pipe

Site Characteristics: (Small Drainage + 5% of the larger drainage)

Design (2):	9 cfs
Design (10):	43 cfs
Design (15):	56 cfs
Design (25):	74 cfs
Design (50):	103 cfs
Design (100):	136 cfs
Greatest Flood (500 year):	225 cfs

The structure was sized for 10-year event, restricting the headwater to be the pipe diameter + 2 feet which is based on the North Dakota Stream and Crossing Standards.

IV. STRUCTURE COMPARISON

The following chart analyzes the proposed structure for the crossing of the roadway:

<u>Number of Lines</u>	<u>Structure Type</u>	<u>Total Waterway Opening (sq. ft.)</u>	<u>Allowable Headwater Dia. + 2 feet</u>
1	* 30" CSP	4.90	

*24" CSP should be installed at this time due to downstream culvert sizes.

Headwater Comparison

Flood Event	Flow (cfs)	Headwater Existing (ft) 18" CSP	Headwater Proposed (ft) 30" CSP
2 Year	7	1486.06	1485.76
10 Year	32	1489.05	1488.50
25 Year	55	1489.10	1489.08
<i>Overtops road (cfs)</i>		<i>15.01</i>	<i>46.79</i>

V. CONCLUSION & RECOMMENDATION

The recommendation pipe is a 30" Corrugated Steel Pipe, but considering that the downstream culvert is only 24", this culvert should be installed at only a 24" at this time. This pipe should be installed at the existing inverts. The pipe should be installed with end sections as there is evidence that the existing pipe has been damaged from machinery likely mowing the ditches. If further reports are done with a larger study, all the pipes on this drainage should be analyzed to the James River to create a system that would meet state laws.

As per the North Dakota permit from the USACE, counter sinking is only required when there is a stable stream bed. This stream bed is not stable and therefor no need for counter sinking.

Please call at any time if you have any questions or need any further information.

Ben Aaseth

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Dakota | State Engineer
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September 1, 2020

Mr. Joel Lees, Chairman
Stutsman County Water Resource District
PO Box 1727
Jamestown, ND 58402-1727,

RE: Stream Crossing Determination - Montpelier Township - Sections 20 and 29

Dear Mr. Lees:

On February 10, 2020, the Office of the State Engineer received a request from the Stutsman County Water Resource District to perform a stream crossing determination for a stream crossing (Crossing) located between Sections 20 and 29, Township 137 North, Range 63 West, Montpelier Township, Stutsman County. The Crossing is located through what is locally known as 52nd Street SE, which is classified as an off-system township road.

Our office analyzed the Crossing according to the minimum stream crossing standards outlined in North Dakota Administrative Code (N.D.A.C.) article 89-14, and determined the required design discharge at the Crossing is **46 cfs** (10-year event for a township road). While this is the minimum design standard required for the Crossing, N.D.A.C. section 89-14-01-03 states that there is no restriction on a road authority to provide even greater capacity.

According to N.D.A.C. section 89-14-01-01, anyone who fails to comply with these standards is not entitled to the immunity provided in North Dakota Century Code sections 24-03-06, 24-03-08, or 24-06-26.1.

Please contact me at 701-328-4958 or hsobrigewitch@nd.gov if you have any questions concerning this correspondence.

Sincerely,



Hunter Obrigewitch
Water Resource Engineer

HO/1348

Cc: Montpelier Township
Sue Backerman
John Fiebeger

TECHNICAL MEMORANDUM

DATE: **August 13, 2020**

TO: *JP* John Paczkowski, P.E., State Engineer (Interim)

FROM: *AC* Aaron Carranza, P.E., Director, Regulatory Division
ML Matt Lindsay, P.E., Manager, Engineering and Permitting Section
HO Hunter Obrigewitch, Water Resource Engineer

SUBJECT: **Stream Crossing Determination, Montpelier Township Road**

On February 10, 2020, the Office of the State Engineer (OSE) received a request to perform a stream crossing determination from the Stutsman County Water Resource District. The stream crossing (Crossing) is located between Sections 20 and 29, Township 137 North, Range 63 West, Montpelier Township, Stutsman County. The Crossing is located on an off-system township road locally known as 52nd Street SE, between 85th and 86th Avenue SE. (See Exhibit 1).

Contained within North Dakota Administrative Code § 89-14-01-03, flood frequency requirements are presented for varying stream crossings. The Crossing is located on an off-system township road, thus requiring the passage of a 10-year recurrence interval flow event within allowable headwater limitations.

USGS Scientific Investigations Report 2015-5096 (Report) was used to determine the peak runoff at the Crossing, see Figure 1. The input parameters, required for the Report's hydrologic zone C regression equation, include the drainage area (0.997 square miles), stream length (1.51 miles), and corresponding maximum and minimum basin elevations (1509 feet and 1483 feet, respectively).

Variable	Lower Bound (if applicable)	Value	Upper Bound (if applicable)	Units	Comment
DRNAREA =	0.132 ≤	0.997	≤ 2811.637	square miles	Meets Limitations
ELEVMAX =	N/A	1509	N/A	ft	
MINBELEV =	N/A	1483	N/A	ft	
STREAMLENGTH =	N/A	1.51	N/A	miles	
RUGGED (calculated) =	(STREAMLENGTH/DRNAREA)*(ELEVMAX-MINBELEV)				
	21.309 ≤	40.41	≤ 2264.002	feet per mile	Meets Limitations

From Table 4, Region C, for 2, 5, 10, 25, 50, 100, and 500 year events

$$\begin{aligned} \log Q_{50\%} &= 0.555 + 0.425 \times \log(\text{DRNAREA}) + 0.301 \times \log(\text{RUGGED}) \\ Q_{50\%} &= 10.91 \text{ cu. ft./sec. (CFS)} \\ \\ \log Q_{20\%} &= 0.988 + 0.460 \times \log(\text{DRNAREA}) + 0.296 \times \log(\text{RUGGED}) \\ Q_5 &= 29.03 \text{ cu. ft./sec. (CFS)} \\ \\ \log Q_{10\%} &= 1.187 + 0.476 \times \log(\text{DRNAREA}) + 0.294 \times \log(\text{RUGGED}) \\ Q_{10} &= 45.57 \text{ cu. ft./sec. (CFS)} \\ \\ \log Q_{4\%} &= 1.379 + 0.491 \times \log(\text{DRNAREA}) + 0.292 \times \log(\text{RUGGED}) \\ Q_{25} &= 70.38 \text{ cu. ft./sec. (CFS)} \\ \\ \log Q_{2\%} &= 1.493 + 0.500 \times \log(\text{DRNAREA}) + 0.291 \times \log(\text{RUGGED}) \\ Q_{50} &= 91.17 \text{ cu. ft./sec. (CFS)} \\ \\ \log Q_{1\%} &= 1.591 + 0.507 \times \log(\text{DRNAREA}) + 0.290 \times \log(\text{RUGGED}) \\ Q_{100} &= 113.82 \text{ cu. ft./sec. (CFS)} \\ \\ \log Q_{0.2\%} &= 1.769 + 0.520 \times \log(\text{DRNAREA}) + 0.287 \times \log(\text{RUGGED}) \\ Q_{500} &= 169.58 \text{ cu. ft./sec. (CFS)} \end{aligned}$$

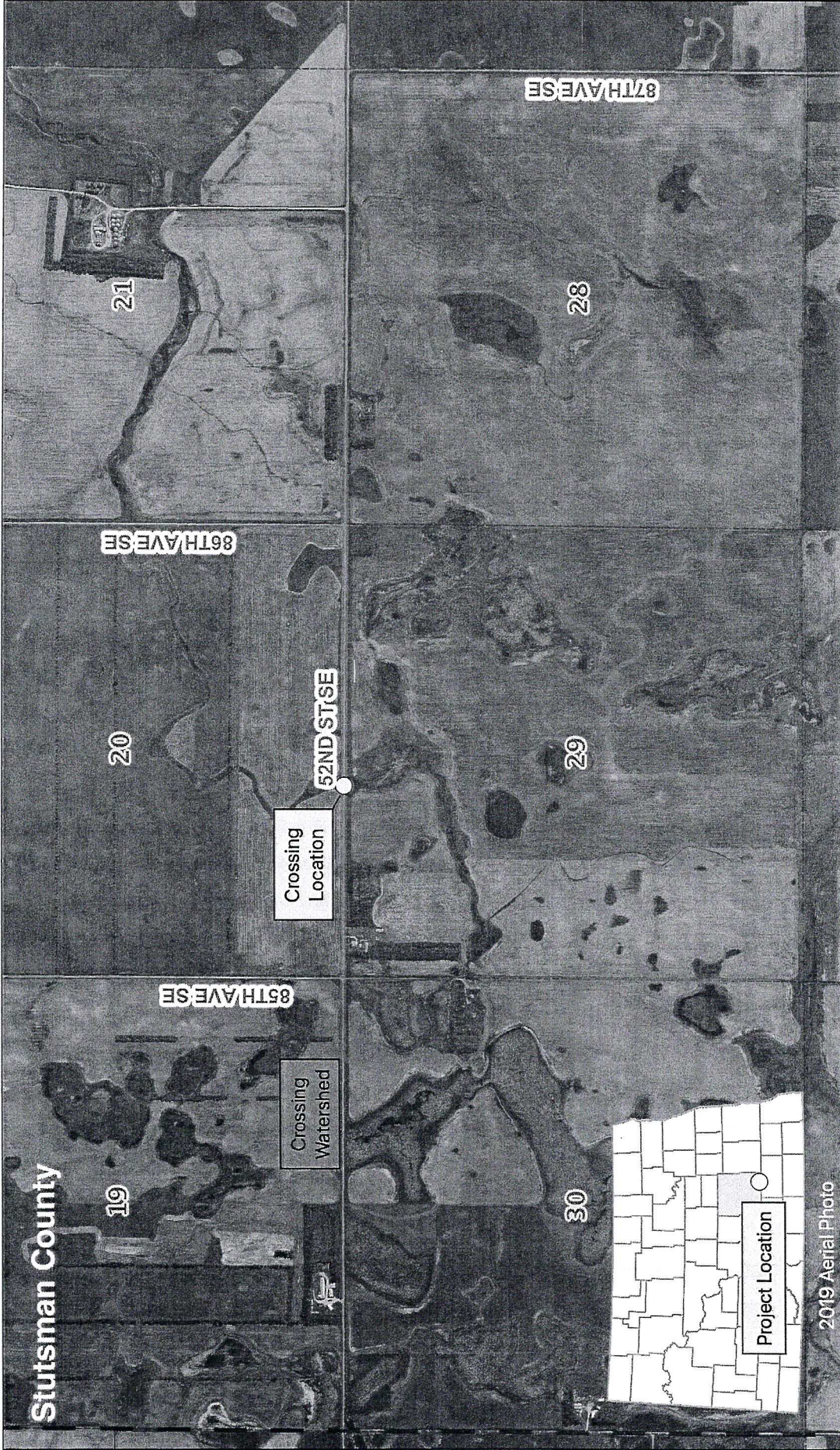
This Location Can Expect To Get:
2 Year Event, in CFS, Q= 11
5 Year Event, in CFS, Q= 30
10 Year Event, in CFS, Q= 46
25 Year Event, in CFS, Q= 71
50 Year Event, in CFS, Q= 92
100 Year Event, in CFS, Q= 114
500 Year Event, in CFS, Q= 170

Figure 1: OSE Regression Calculations for Crossing

Drainage area and maximum and minimum basin elevations were delineated utilizing elevation data from the 2012 James River Basin Phase 1 LiDAR collect. Burnlines were added to the LiDAR where culverts may be so that the flow is accurately represented during delineation. The N.D. Risk Assessment MapService was used to evaluate if the waterbodies in Section 30 and the watercourse or drain immediately south of Section 29 and located in the N ½ of Sections 31 and 32, are contributing areas. After considering the 10-year event, those areas were determined to be non-contributing areas to the watershed. The stream length variable, which is the sum of all mapped streams within the watershed, was determined using the USGS hydrography 24k streams data. The Report's regression equation provided the value for the 10-year recurrence interval and determined to be 46 cfs.

Recommendation

Based on the available information and my analysis, **I recommend that the State Engineer determine the 10-year recurrence interval discharge at the Crossing to be 46 CFS.**



Date: 8/4/2020
 Prepared by: CWN

Exhibit 1 - Stream Crossing Determination

Between Sections 20 and 29, T137N, R63W, Stutsman County