## Report of Findings

# County Ditch No. 59 Water Quality & Storage Impoundment and Reroute

Renville County, Minnesota February 2025 24X.136722.000



Real People. Real Solutions.

### Submitted by:

Bolton & Menk, Inc. 1243 Cedar Street NE Sleepy Eye, MN 56085 P: 507-810-4184

# Certification

## **Report of Findings**

For

## County Ditch No. 59 Water Quality & Storage Impoundment & Reroute

In

Renville County, Minnesota

24X.136722.000 February 2025

## **PROFESSIONAL ENGINEER**

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Signature: Typed or Printed Name: Shaun P. Luker Date: 2/26/20225 License Number: 48756

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## STATE OF MINNESOTA

**RENVILLE COUNTY** 

IN THE MATTER OF THE PETITION TO IMPOUND, REROUTE AND DIVERT COUNTY DITCH NO 59 IN RENVILLE COUNTY, MINNESOTA:

In February 2025, the Renville County Board, acting as the Drainage Authority for County Ditch No. 59 (CD 59) in Renville County, in accordance with Minnesota Statute 103E.227, accepted a petition for the repair and impound portions of CD 59. Subsequent to that authorization, Final field surveys were performed to obtain elevations and establish an alignment for the final open ditch and culvert crossing improvements, as well as to evaluate the outlet for the system.

This Report of Findings summarizes the findings of the research, surveys, and analysis for the Impoundment and Reroute is submitted for consideration by the Ditch Authority.

## I. LOCATION AND SCOPE OF THE IMPOUNDMENT AND REROUTE

County Ditch No. 59 lies within and provides drainage to a large watershed in the north-central portion of Renville County. The proposed Impoundment and Reroute location lies within Section 27 of Winfield Township. The system consists of 1550' of open ditch to be closed and converted to drainage tile. The outlet for CD 59 is CD 37C in section 2 of Emmet Township in Renville County. The Impoundment and Reroute is located about 3.6 miles northeast of Danube, Minnesota. The total estimated watershed for the system from Lidar contour data, is 2,389 acres.

The proposed Impoundment and Reroute for County Ditch No. 59 includes the construction of five WASCOBs (WASCOB 3 & 5 will be private after final completion), partial ditch closure, drainage pipe, wetland creation, and saturated buffer strip. This Impoundment and Reroute is to help store overland water and reduce the overall flow and nutrient runoff. Exhibit 1 shows the general location of CD 59 and the proposed Impoundment and Reroute.

Field survey information was collected by Bolton & Menk, Inc. in November of 2011 and in December of 2024. The survey included GPS locations and elevations for the outlet of the tile and for private and public intakes on the system. The tile system design utilizes Lidar data, provided by the Minnesota Department of Natural Resources. This data, obtained from an aerial flight, results in contours of equal elevation at 2' vertical intervals.

## II. EXISTING DITCH SYSTEM

Public records regarding County Ditch No. 59 were reviewed from Renville County. This information includes the 2024-2025 Improvement project being completed downstream of the proposed Impoundment and Reroute location.

CD 59 was petitioned for establishment on June 26, 1916. Construction was completed on August 1, 1921. The original benefits for the ditch system were \$161,735.

The benefits for CD 59 were recently redetermined. Current benefits for the CD 59 system are \$17,082,508.98.

## **III. CONDITION OF THE EXISTING DRAINAGE SYSTEM**

The portion of the CD 59 system proposed to be Impounded consist of an open ditch and underground tiles. This Impoundment and Reroute will replace existing clay tiles that may

currently have obstructions from collapsed tiles, roots, and animals.

Table 1 below shows the existing capacity after the 2024-2025 project is constructed for both the CD 59 Main Tile and the proposed portion of CD 59 that is to be closed with this Impoundment and Reroute.

	Table 1: Existing System Capacity							
Tile/Branch	Location	Drainage Area (Acres)	Existing Tile Size (Inches)	Existing Grade (%)	Calculated Capacity (CFS) n=0.013	Calculated Coefficient (In. Per Day)		
CD 59 Branch	EOP to Open Ditch	25	6	0.15	0.2	0.21		
CD 59 Tile	Br 104 to Br 123	155	20	0.06	3.4	0.53		
	Br 123 to 1940' East of 310 <sup>th</sup> Street	266	22	0.06	4.4	0.40		
	1940' East of 310th Street to EOP	326	24	0.06	6.0	0.44		
CD 59 Ditch	CD 59 Tile to Br A	2312	N/A	0.07	815	8.46		
	Br A to Pond	2389	N/A	0.07	815	8.19		

As can be seen from Table 1 above, the system can adequately drain the watershed if it was in good repair. Note that while the Open Ditch has a capacity of 8.19 inches/day this only represents the ditch itself and does not consider the cattle crossing located underneath Trunk Highway 71. From the modeling we have done on this Impoundment and Reroute and the 2024-2025 CD 59 Improvement the cattle crossing is the constraint on the system upstream of Trunk Highway 71.

## IV. DISCUSSION OF THE IMPOUNDMENT AND REROUTE

The proposed construction consists of a 15", 24" and 48" tile running in parallel. With a 60" outlet to replace the open ditch. A total of 3.2 (Exhibit 4) acres of open ditch is proposed to be converted back into farmable land. The BMPs create just under 170 acre-feet of water storage. A preliminary survey and hydrologic and hydraulic analysis of such a drainage system was performed to establish preliminary grades and depths for the tile system, to determine quantities for construction of such a system, to determine the size of proposed tile lines and analyze the outlet. General observations and results of the analysis are summarized as follows:

A. DESIGN DATA - DITCH CLOSURE & TILE

The proposed drain to replace the ditch closure is shown in Exhibit 1. The proposed drain tile is also shown in Exhibit 1. The type of pipe that should be used for the construction will be bid as a contractor option as follows:

1. Dual Wall or Triple Wall Polypropylene Drain Tile meeting the requirements of the American Society for Testing Materials F2376. Pipe will be bedded in granular foundation rock.

2. Dual Wall Polyethylene Drain Tile meeting the requirements of the American Society for Testing Materials F 2648. Pipe will be bedded in granular foundation rock as shown on Exhibit 1. Non-perforated pipe will be used. The perforated pipe will include a drain tile sock or micro perforations/slots to avoid granular infiltration into the pipe. An

option would be provided for the contractor to shape the bottom of the trench to conform to the pipe and eliminate some of the granular bedding if the pipe manufacturer would warrant the material installation.

3. Reinforced concrete pipe meeting the requirements of MnDOT Specification 2501, with the joints being covered with geotextile fabric or gasketed joints.

As can be seen in Table 2 the tile capacity for the Impoundment and Reroute system reflects a drainage coefficient of 0.5-inches/day. To get to 0.5-inches/day it requires the capacity of the 8", 24" and 48" tiles running in parallel for the portion shown in Exhibit 1. The option for 3 tiles to run parallel over a singular tile was to mimic drainage conditions of an open ditch more closely. Allowing for two smaller pipes to be perforated and not inundate the construction of the 48" tile. This is within the recommended drainage capacity from the Renville SWCD and NRCS of 0.375 inches/day to 0.625 inches/day. It is worth noting that the referenced 2024-2025 CD 59 Improvement increased the capacity of the tile to a 0.5-inch/day capacity.

	Table 2: Repair System Capacity							
Tile/Branch	Location	Drainage Area (Acres)	Tile Size (Inches)	Tile Grade (%)	Calculated Capacity (CFS) n=0.012	Calculated Coefficient (In. Per Day)		
CD 59 Branch	EOP to Main Tile	25	6	0.15	6	0.23		
CD 59 Tile	Br 104 to Br 123	155	24	0.07	6.0	0.93		
	Br 123 to 1940' East of 310 <sup>th</sup> Street	266	24	0.07	6.0	0.54		
	1940' East of 310th Street to Br A	326	24	0.07	6.0	0.44		
	Br A to CD 59 Main	2312	48	0.06	38.2	0.38		
	и и		24	0.18	10.4	0.11		
	CD 59 Main to Pond	2389	60	0.06	69.3	0.70		

From Table 2 the CD 59 Tile from Branch 104 (west end) to Branch 123 goes to 0.93 inches/day. This is due to the tile size increasing from 20" to 24". Please note that whenever possible it is recommended to match tile sizes and grade for non-improvements. However, where there is not a feasible size readily available it is recommended that the next available size is chosen. We do not recommend the use of clay/concrete tiles. We also do not recommend bell and spigot reinforced concrete tile due to the cost being approximately double that of its HDPE counterparts (except where it can be used in a short run to replace HP tile).

B. DESIGN DATA – WASCOBs

Exhibit 1 shows the locations for proposed water and sediment control basins (WASCOB). WASCOBs will be designed to NRCS practice standards. Select borrow material will be sourced from the Wetland Excavation. From the Agricultural Best Management Practices Handbook for Minnesota, "WASCOBs consist of an embankment across the slope of a field or minor waterway to temporarily detain and release water through a piped outlet or through infiltration. They are constructed perpendicular to the flow direction. The key benefit of WASCOBs is detaining water from contributing areas, inducing sedimentation, and controlling the release of water, thereby reducing the erosive power of the water downstream."

The proposed basins will temporarily store overland runoff from the watershed. Four basins are proposed to be constructed by constructing berms across natural draws in the land. The slopes on the berms in agricultural fields will be at 1V:30H or flatter so that the berms can still be farmed. The top width of the berms will be 30 feet wide so that it can be easily navigated. The material used to construct these berms will come from the wetland excavation. These berms will create storage for runoff and will reduce the peak overland flows discharged to the CD 59 Main Open Ditch.

## C. DESIGN DATA - WETLAND CREATION

The proposed wetland creation is shown on Exhibit 1. Wetland creation will be designed to NRCS Practice Standard 658. The created wetland is designed to have 1.5-foot of permanent storage. Included in the design of the wetland is a wet bottom ditch to remove additional pollutants through sedimentation. In order for the best chance of retaining water within the wetland we recommend using a 24-inch base of topsoil through the bottom of system to prevent infiltration. Wetland Creation will include an upland and wetland native grass and forb seeding to enhance the filtration of sediment and nutrients and benefit wildlife and insect populations.

Table 3: Proposed Storage Summary									
	Unstroom	Hoight	Ponding	Storage	Total	Effective	Total		
System	Landowner	(foot)	Time	Created	Ponding	Watershed	Watershed		
		(leet)	(hr)	(Acre-feet)	Area (Acres)	Area (Acres)	Area (Acres)		
WASCOB-1	Kubesh	1.5	57	117	53	1994	2285		
WASCOB-2	Kubesh	3	57	25	16	115	308		
WASCOB-3	Kubesh	1	8	0.1	0.2	9	9		
WASCOB-4	Lippert	2	40	12.7	10.1	163	163		
WASCOB-5	Kubesh	1	8	0.1	0.3	3	3		
WETLAND	Kubesh	8	82	15	3.2	104	2389		

As a part of the Impoundment and Reroute approximately 3.2 acres of open ditch and buffer strip are being converted back into farmable acres. In contrast 2.3 acres of wetland and buffer strip are being created as shown in Exhibit 1. Exhibit 4 shows a negative value for permanent easement acquisition. We recommend the drainage authority consider the return of farmland as an even trade for wetland creation. This is due to a multitude of reasons including: lower production rates post construction activities, system benefit, impoundment, and the additional WASCOBs on adjacent lands.

## V. ALTERNATE SOLUTIONS

## A. REPAIR (WITHOUT ADDITIONAL STORAGE)

The repair cost of only the CD 59 main tile and branch is \$422,935 this includes the cost of administration and engineering fees. This would not have any additional benefits to the environment, watershed, or wildlife. County staff have noted several repairs that have been done within this system to keep the tile operational. So, repairs without storage would still be warranted.

If this Impoundment and Reroute as described in this report where not to move forward we would recommend that a repair be petitioned and performed to keep the tile in an operable state.

B. IMPROVEMENT PROJECT

It is our estimation that increasing the existing tile from a 24-inch line to a 30-inch line would increase the total cost by \$100,000. With a petition already being filed for an Impound and Reroute from the tile capacities shown in Table 2 we would not recommend additional time and cost associated with changing to an improvement project.

## **VI. PERMIT REQUIREMENTS**

A permit from the Minnesota Pollution Control Agency for stormwater and erosion control for the Impoundment and Reroute would be necessary. This permit requirement, which applies to any construction which disturbs more than one acre of land, requires that the contractor and owner secure a permit for the Impoundment and Reroute. The permit process will also require erosion control measures to be taken during construction. Typical erosion control measures include placing of riprap and grass stabilization of the ditch bank and inlet protection around installed inlet areas. The fee for this permit is currently \$400.00. This permit will be applied for shortly before construction is scheduled so the contractor can sign the permit application.

## **VII. WETLAND CONSIDERATION**

National Wetland Inventory Maps was reviewed to locate potential wetlands subject to regulations. Impacts of the potential drainage system on individual land parcels will be evaluated by the Natural Resources Conservation Service upon filing of a Form AD 1026 by landowners. This NRCS process will identify any wetlands and measures which need to be taken for the drainage construction to avoid impact to these wetlands. Because of federal data privacy requirements, it is not possible for non-landowners to obtain this information. Thus, the obligation for filling out these forms and doing this investigation will rest with individual landowners.

Drainage of non-directly impacted wetlands will be controlled by supplemental drainage systems installed by private owners. Owners are advised that such supplemental drainage may not be permitted under State Wetland Conservation Act, US Army Corps of Engineers and NRCS rules and may affect US Department of Agriculture program eligibility.

## **VIII. CHANGE IN OUTLET DISCHARGE**

The change in outlet discharge can be seen in the table below. The outlet is taken as the cattle-pass underneath Trunk Highway 71. As can be seen there is an overall reduction in discharge rates from closing the open ditch and creating additional storage within the system.

	Table 4: Change in Outlet Capacity						
Storm	Existing Discharge	Proposed Discharge	Change in Discharge				
Event	Rate (cfs)	Rate (cfs)	Rate (cfs)				
2-year	110	70	-40				
5-year	128	70	-58				
10-year	302	70	-232				
25-year	636	85	-551				
50-year	834	217	-617				
100-year	1029	414	-615				

Capacities calculated in Table 4 were completed with a HydroCAD model of the watershed. HydroCAD is a computer model that computes runoff storm hydrograph using methodology developed by the Natural Resources Conservation Service. The peak flows computed in HydroCAD are typically higher than those from other models.

## IX. WATER QUALITY

The total pollution reductions can be seen in the table below, these values were calculated using the MPCA Watershed Pollutant Load Reduction Calculator.

Table 5: Erosion Reduction								
System	Nitrogen (estimated reduction) lbs./yr.	Phosphorous (estimated reduction) lbs./yr.	Sediment (TSS) T/yr.					
WASCOB 1	2526	336	29.2					
WASCOB 2	102	14	1.2					
WASCOB 3	9	1	0.1					
WASCOB 4	205	27	2.4					
WASCOB 5	3	1	0.1					
Wetland	317	10	1.2					
Total	3162	389	34.2					

## X. CLIMATE CHANGE

The objective of this Impoundment and Reroute is not to address groundwater elevations or agricultural tilling needs in the CD 59 watershed. This Impoundment and Reroute is to better equip the landscape's resiliency to ever changing drainage practices upstream of the site. Over 2300 acres drain through tile and overland to this site. Water running over land creates gullies that have deepened over the last century. Without further intervention these areas will continue to erode farmland and eventually discharge into the Minnesota River.

The benefit of an adequate outlet in combination with WASCOBs is the ability to better utilize the landscape. Instead of flooding out one low area for an extended period WASCOBs create artificial low areas. Evapotranspiration is more effective over larger surface areas. So, spreading the ponding areas out allows for more water to be absorbed into the atmosphere and the adjacent Prepared by: Bolton & Menk, Inc. plants.

## XI. ESTIMATE OF COST

The Impoundment and Reroute cost estimate, is described in this report is shown in Exhibit 2. The total estimated cost for the Improvement and Impoundment is \$1,488,979 That price includes the cost of administration and engineering fees.

Included in the estimate are the approximate 21.5 acres of agricultural land which will be temporarily taken out of production by construction. The individual landowners will be compensated for this loss through the damage process of further ditch proceedings.

Renville SWCD applied for a grant on behalf of this Impoundment and Reroute. They received a Water Quality and Storage Grant for this Impoundment and Reroute amounting to \$854,613, with an additional \$75,000 for engineering fees.

With the Grant Dollars won for this project (\$929,613) and the cost to Impoundment and Reroute the existing tile (\$422,935) the total additional cost to the system is \$136,431. The project proposes to remove 34.2 Tons/year of sediment from entering the system (Table 5) and reduce the stream forming (2-year) event by 40 cfs (Table 4). We estimate that the cost savings from ditch cleaning (from soil loss from agricultural fields only) will result in an additional benefit to the system amounting to \$2,500/year. This amounts to the project saving \$136,431 in approximately 50 years or in other words the design life of the project.

There are additional benefits to the system including: flood storage, habitat creation, and decreased discharge rates. These benefits allow for other projects to be feasible downstream without exceeding the existing capacity of CD 59.

## **XII. RECOMMENDATIONS**

The proposed Impoundment and Reroute of CD 59 in Renville County, as described in this report, is feasible, practical and necessary to provide drainage for the cultivation of crops within the watershed area. The existing tile system is in need of a Repair to provide proper drainage for current agricultural practices.

It is our recommendation to proceed with the Impoundment and Reroute as outlined in this report and that the Report of Findings be approved. If there are adequate funds, the Drainage Authority order the Impoundment and Reroute.

Exhibit 1: Preliminary Plans and Profiles

# **RENVILLE COUNTY, MINNESOTA** PRELIMINARY CONSTRUCTION PLANS FOR **COUNTY DITCH 59 WATER QUALITY & STORAGE REPAIR**

DRAIN TILE, SURFACE INTAKES, GRADING, AND TURF ESTABLISHMENT FEBRUARY, 2025



SHEET	NUMBER	
0		

#### SHEET TITLE

GENERAL G0.01 - G0.02

TITLE SHEET LEGEND GENERAL NOTES

CIVIL	
C1.01 - C1.03	DETAILS
C2.01 - C2.08	EROSION CONTROL PLAN, SWPPP
C3.01 - C3.08	GRADING PLAN
C5.01 - C5.07	DRAIN TILE PLAN & PROFILE
C6.01	OPEN DITCH PARTIAL CLOSURE
C6.02 - C6.04	850TH AVE PLAN & PROFILE
C8.01 - C8.04	CD 59 CLOSURE CROSS SECTIONS
C8.05 - C8.06	850TH AVE ROAD RAISE

THIS PLAN SET CONTAINS 38 SHEETS.

PARTIAL MAP OF RENVILLE COUNTY, MN



NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES".

<ul> <li>BM=1077.05</li> <li>BENCHMARK DISC</li> <li>NE QUAD T.H. #71</li> <li>&amp; 850TH AVENUE</li> </ul>	PROJECT DATUM: RENVILLE CO COORDINATES HORIZONTAL: RENVILLE CO - NAD83 (2007ADJ) VERTICAL: NAVD88	RECOR INFO OBSERVER: CONTRACTOR: DATE:	D DRAWING IRMATION
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		I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, O BY ME OR LINDER MY DIRECT SUPERVISION AND THE	OR REPORT WAS PREPARED		1243 CE	DAR STREET NE		NO. ISSUED FOR DATE
		PROFIDENCIAL PROFILER INDER THIN WART THE		N) BULIUN	SLEEPY I Phone:	EYE, MN 56085 (507) 810-4184	JGB, PAD	
			UCTION V	ジ& MENK	Email: SleepyE	ye@bolton-menk.com olton-menk.com	CHECKED SPL	
		48756					247 126722 06	

24X.136722.00

N THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY G CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR

N THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS NES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING

- UNDERGROUND FIBER OPTIC
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND COMMUNICATION
- OVERHEAD ELECTRIC
- OVERHEAD COMMUNICATION
- OVERHEAD UTILITY

EL :

TYPE - QUALITY LEVEL

UNDERGROUND GAS, QUALITY LEVEL A INS CAN BE FOUND IN CI/ASCE 38-22.

ASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. IGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES,

ISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO QUALITY LEVEL D ACTIVITIES.

THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND

 CD 39 WATER QUALITY AND STORAGE REPAIR							
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		NINICOT	<b>.</b>	т			
RET	RETAINING						
RCP	REINFORCED CONCRETE PIPE						
R/W	RIGHT-OF-WAY	51					
R	RADIUS	SY	SOUARE YARD				
PVMT	PAVEMENT	SV	STOCKPILE VOLUME				
PVC		SE	SOLIARE EEET				
PT							
PL DRC							
r'i Di							
		LV					
PERM	PERMANENT	EV					
PERE		FΔ	FACH				
PED	PEDESTRIAN PEDESTAI	CY					
PF	PERMANENT FASEMENT	CV					
PCC		CF					
PC	POINT OF CURVE	AC	ACRES				
OHW	ORDINARY HIGH WATER LEVEL						
NWI	NORMAL WATER LEVEL						
NTS	NOT TO SCALE	WM	WATERMAIN				
NMC		VPT					
NIC	NOT IN CONTRACT	VPI					
MR	MID RADIUS	VPC					
MIN	MINIMUM	VERT	VERTICAL				
MH	MANHOLE	VCP					
ΜΔΧ	MAXIMUM	TYP	ΤΥΡΙCΔΙ				
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GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT				
CDAV	CDAVE	DCC					

LEGEND







## STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

## CD 59 WATER QUALITY AND **STORAGE REPAIR - 2025 RENVILLE COUNTY, MINNESOTA**



#### **RESPONSIBLE PARTIES**

The Contractor and Owner will be joint applicants under the MPCA's General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program.

The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPs.

A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	RENVILLE COUNTY	SETH SPARKS	320-523-3746
SWPPP DESIGNER:	Bolton & Menk, Inc.	JORDAN BENGTSON	507-810-4184
CONTRACTOR:	TBD	TBD	TBD
CONSTRUCTION SWPPP MANAGER:	TBD	TBD	TBD
PARTY RESPONSIBLE FOR LONG TERM O&M:	RENVILLE COUNTY	SETH SPARKS	320-523-3746

The SWPPP Designer, Construction SWPPP Manager, and BMP Installer must have appropriate training. Documentation showing training commensurate with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on the Narrative sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager and BMP Installer prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

#### ADDITIONAL COMPENSATION

Payment for all work associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001) including but not limited to inspection, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

#### DOCUMENT RETENTION

Permittees must make the SWPPP, including all inspection reports, maintenance records, training records and other information required by this permit, available to federal, state, and local officials within three (3) days upon request for the duration of the permit and for three (3) years following the NOT.

#### GENERAL STORMWATER DISCHARGE REQUIREMENTS

All requirements listed in Section 5.1 of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:

- 1. The expected amount, frequency, intensity, and duration of precipitation.
- The nature of stormwater runoff and run-on at the site

Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion. The range of soil particle sizes expected to be present on the site. 4.

Permanent stormwater treatment systems for this project have been designed in accordance with the guidance in the MN Stormwater Manual in place at the time of bidding. Copies of the design information and calculations are part of this SWPPP and will be provided in digital format upon written request to the Engineer

## LEGEND

- **1-MILE BOUNDARY** 
  - PROJECT BOUNDARY
  - IMPAIRED, SPECIAL OR PROTECTED WATERS

  - NATIONAL WETLANDS INVENTORY

ACRES

ACRES

CALCAREOUS FEN

**RECEIVING WATERS** 

#### PROJECT AREAS: Total Project Size (disturbed area) =

26.8 Existing area of impervious surface = 0.1 Post construction area of impervious surface = Total new impervious surface area created =

Planned Construction Start Date:

0.1 0.0 ACRES TBD

TBD

Estimated Construction Completion Date:

#### PERMANENT STORMWATER MANAGEMENT SYSTEM:

Type of storm water management used if more than 1 acre of new impervious surface is created:

Х	Wet Sedimentation Basin
	Infiltration/Filtration
	Regional Pond
	Permanent Stormwater Management Not Required

#### PROJECT LOCATION

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
RENVILLE COUNTY	T116N	R35W	27, 28	44.8217°	-95.0573°

BMP SUMMARY	QUANTITY	UNIT
PERMANENT SEED 1	1.0	ACRES
PERMANENT SEED 2	0.9	ACRES
PERMANENT SEED 3	0.3	ACRES
PERMANENT SEED 4	0.5	ACRES
RAPID STABILIZATION METHOD 4	7500	SQ YD
RANDOM RIPRAP, CLASS III	420	TONS
RANDOM RIPRAP, CLASS I	5	TONS
STABILIZED CONSTRUCTION EXIT	1	LUMP SUM
INLET PROTECTION	20	EACH

#### DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:

Construction activities include: Site grading, drain tile repair, temporary erosion and sediment control, and permanent stabilization

Stormwater currently flows over agricultural fields then underground into drain tile. The drain tile discharges out into CD 59 open ditch then into a storm water retention pond. Finally it discharges back into CD 59 open ditch.

After construction is complete stormwater will continue to flow through drain tile but will discharge into a wetland prior to the retention pond.

This project includes the following stormwater management BMPs such as:

- 1 Permanent Seed
- 2. Rapid Stabilization Method 4
- 3. Random RipRap
- 4. Stabilized Construction Exit
- 5. Temporary Seed (By SWCD)
- 6. Inlet Protection



# RECEIVING WATERS

#### NAME OF WATER BODY

CD 59 OPEN DITCH

Special, prohibited, and restricted waters are listed in Section 23 of the MN Construction Stormwater General Permit (MNR100001) <sup>2</sup> Identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota, <sup>3</sup> Construction Related TMDLs include those related to: phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717 of the Minnesota Standard Specifications for Construction.

- Construct drain tile repairs.
- Perform backfill and topsoil placement over tile.
- Construct grading and shaping repairs
- Perform backfill, topsoil placement and finish grading operations.
- Install Turf Establishment
- Ensure final stabilization measures are complete.
- considered complete.

JGB JGB, PAD SPL 4X.136722.000





Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, within 1-mile of the project boundary are identified on the USGS 7.5 min quad map above. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in the permit for special, prohibited, restricted, or impaired have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

TYPE (ditch, pond, wetland, lake, etc.)	Special, Prohibited, Restricted Water <sup>1</sup>	Flows to Impaired Water Within 1-Mile <sup>2</sup>	USEPA Approved Construction Related TMDL <sup>3</sup>
DITCH N/A		N/A	N/A

1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes. Install perimeter sediment control, inlet protection, and construction exit

Add additional temporary BMPs as necessary during construction based on inspection reports.

10) Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner. 11) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is

RENVILLE COUNTY, MINNESOTA	SHEET
CD 59 WATER QUALITY AND STORAGE REPAIR	C2 01
STORMWATER POLLUTION PREVENTION PLAN	
SWPPP PLAN	
	,

Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN RI00001 (Permit) as they apply to this project. All provisions of the Permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the Permit is available at: https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf

#### SWPPP AMENDMENTS AND SUBMITTALS

Contractor must prepare and submit to the Engineer a SWPPP amendment as necessary to include additional Best Management Practices (BMPs) to correct problems identified or address the following situations

- 1. Contact information and training documentation for Construction SWPPP Manager and BMP Installer
- 2. There is a change in construction method of phasing, operation, maintenance, weather or seasonal conditions not anticipated during the design of the SWPPP including but not limited to:
- a. Types and/or Locations of BMPs

b. Material Storage and Spill Response

c. Fueling Plans

d. Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and

e. Project Phasing

- 3. It is determined that the SWPPP is not achieving objectives of minimizing pollutants in stormwater discharges associated with construction activity, or
- 4. The SWPPP is not consistent with the terms and conditions of the permit.

The Contractor may implement SWPPP amendments immediately and is not required to wait for Engineer review of the submittal. The responsibility for completeness of SWPPP amendments and compliance with the Permit lies with the Contractor. Review, comment, or lack of comment by the Engineer on a SWPPP amendment shall not absolve the responsibilities of the Contractor in any way.

If a change order is issued for a design change the SWPPP amendment will be prepared by the Engineer and included in the change order

In addition to SWPPP amendments, the Contractor shall submit to the Engineer Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedules, inspection logs, and maintenance logs with the field copy of the SWPPP. A PDF copy of these documents will be provided along with a copy of the final Field Copy of the SWPPP to the Engineer along with the signed Notice of Termination when final stabilization is complete.

#### EROSION PREVENTION PRACTICES

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of the wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.

Energy dissipation shall be installed at all temporary or permanent pipe outlets within 24 hours of connection to a surface water or permanent stormwater treatment system

The Contractor shall phase construction and use construction methods to the extent practical to minimize exposed soils. The project phasing shall be documented in the Weekly Erosion and Sediment Control Schedule.

#### SEDIMENT CONTROL PRACTICES

Down gradient BMPs including perimeter BMPs must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All BMPs that have been adjusted or removed to accommodate short-term activities shall be re-installed or replaced the earlier of the end of the work day or before the next precipitation event even if the activity is not complete

Inlet BMPs may be removed for specific safety concerns. The BMPs shall be replaced as soon as the safety concern is resolved. The removal shall be documented in the SWPPP as a SWPPP amendment

Temporary stockpiles must have sediment control BMPs. The Contractor shall prepare and submit to the Engineer a SWPPP amendment showing the location of temporary stockpiles and the BMPs for each stockpile. The SWPPP amendment must meet the minimum requirements of Section 9 of the Permit.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

The use of polymers, flocculants, or other sedimentation treatment chemicals are not proposed as part of this SWPPP as designed by the Engineer. If methods or phasing of construction require the use of any of these chemicals, the Contractor shall prepare and submit to the Engineer a SWPPP amendment that meets the minimum requirements of Section 9 of the Permit.

#### TEMPORARY SEDIMENTATION BASINS

A temporary sedimentation basin has not been included in this SWPPP as designed by the Engineer. If a basin is later determined to be desirable or necessary the Contractor shall prepare and submit to the Engineer a SWPPP amendment. Temporary sedimentation basins shall meet or exceed the minimum requirements of Section 14 of the Permit and shall include a basin draining plan meeting or exceeding the minimum requirements of Section 10 of the Permit. Where the site discharges to Special and/or Impaired Waters the SWPPP amendment shall also meet or exceed the minimum requirements of Section 23 of the permit.

#### DEWATERING

A dewatering plan has not been included in this SWPPP as designed by the Engineer. If dewatering is required for this project, the Contractor shall prepare and submit to the Engineer a SWPPP amendment. All dewatering shall meet or exceed the min requirements of Section 10 of the Permit.

#### POLLUTION PREVENTION

Products and materials that have the potential to leach pollutants that are stored on the site must be stored in a manner designed to minimize contact with stormwater. Materials that are not a source of potential contamination to stormwater or that are designed for exposure to stormwater are not required to be covered.

Hazardous materials including but not limited to pesticides, fertilizer, petroleum products, curing compounds and toxic waste must be properly stored and protected from stormwater exposure as recommended by the manufacturer in an access restricted area.

Solid waste must be stored, collected and disposed of in compliance with Minnesota Administrative Rules Chapter 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. No engine degreasing is allowed on site. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

The Contractor shall prepare and submit a SWPPP amendment detailing the location and BMPs proposed for storage of materials, solid waste, portable toilets, and exterior vehicle or equipment washing on the site. The SWPPP amendment shall include a spill prevention and response plan that is appropriate for the materials proposed to be on the site. The SWPPP amendment shall meet or exceed the minimum requirements of Section 12 of the Permit.

#### **INSPECTION & MAINTENANCE**

A trained person shall routinely inspect the entire construction site at the time interval indicated on this sheet of the SWPPP during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted at the time interval indicated in the Receiving Waters Table found on the SITE PLAN AND INFORMATION SHEET of the SWPPP.

All inspections and maintenance conducted during construction must be recorded on the day it is completed and must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

The Contractor may request a change in inspection schedule for the following conditions:

- a. Inspections of areas with permanent cover to be reduced to once per month.
- b. Inspections of areas that have permanent cover and have had no construction activity for 12 months to be suspended until construction resumes
- c. Inspections of areas where construction is suspended due to frozen ground conditions, inspections to be suspended until the earlier of within 24 hours of runoff occurring, or upon resuming construction.

No change in inspection schedule shall occur until authorized by the Engineer.

#### Inspections must include

- 1. All erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness
- 2. Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
- 3. Construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles
- 4. Infiltration areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or as soon as field conditions allow.

Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.

Any sediment that escapes the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization. Paved surfaces such as streets shall have any escaped or tracked sediment removed by the end of the day that it is discovered. Sediment release, other than payed surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

#### PUBLIC WATER RESTRICTIONS:

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period. MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

#### FINAL STABILIZATION

Final Stabilization is not complete until all the following requirements have been met

1. Substantial Completion has been reached and no ground disturbing activities are anticipated.

2. Permanent cover has been installed with an established minimum uniform perennial vegetation density of 70 percent of its expected final growth. Vegetation is not required in areas where no vegetation is proposed by this project such as impervious surfaces or the base of a sand filter.



1242 CEDAR STREET NE SLEEPY EYE, MN 5608 Phone: (507) 810-4184 Email: SleepyEye@bolton-menk.com www.bolton-menk.com

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**FORGONSTRUCTION** 

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3. Accumulated sediment has been removed from all permanent stormwater treatment systems as necessary to ensure the system is operating as designed.

4. All sediment has been removed from convevance systems

5. All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designated on the SWPPP to remain to decompose on-site may remain.

6. For residential construction only, permit coverage terminates on individual lots if the structures are finished and temporary erosion prevention and downgradient perimeter control is complete, the residence sells to the homeowner, and the nermittee distributes the MPCA's "Homeowner Fact Sheet" to the homeowner

7. For agricultural land only (e.g., pipelines across cropland), the disturbed land must be returned to its preconstruction agricultural use prior to submitting the NOT.

#### SITE STABILIZATION COMPLETION:

Stabilization of exposed soils shall begin immediately and shall be	
completed after the construction activity has temporarily or	14 calendar days
permanently ceased no later than:	

#### SITE INSPECTION INTERVAL:

A trained person shall routinely inspect the entire construction site during active construction at an interval of no more than:	7 calendar days
-	

#### SPECIAL ENVIRONMENTAL CONSIDERATIONS AND PERMITS:

Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
Does any portion of this site discharge to a Calcareous fen.	NO
Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
Have any Karst features have been identified in the project vicinity?	NO
Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
Has the MN DNR promulgated "work in water restrictions" for any Public Water this site disharges to during fish spawning?	NO

	PERMITTING AGENCY	PERMIT STATUS AND CONDITIONS
er NPDES	MPCA	

SWPPP DESIGNER TRAINING DOCUMENTATION:

UNIVERSITY OF MINNESOTA

#### Jordan Bengtson

Construction Site Management (May 31 2026) Design of Construction SWPPP (May 31 2025)

RENVILLE COUNTY, MINNESOTA	SHEET
CD 59 WATER QUALITY AND STORAGE REPAIR	C2 02
STORMWATER POLLUTION PREVENTION PLAN	CZ.02
SWPPP NARRATIVE	



## LEGEND



SCALE



PROJECT BOUNDARY

SOIL TYPE

IMPAIRED, SPECIAL OR PROTECTED WATERS

NATIONAL WETLANDS INVENTORY

DWSMA, LOW VULNERABILITY

STEEP SLOPES (>33.3%)

RECEIVING WATERS

## SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
MUSYM	MUNAME	HYDGRP	MUHELCL
112	Harps clay loam, 0 to 2 percent slopes	C/D	NHEL
1355B	Amiret-Swanlake loams, 2 to 6 percent slopes	В	CLASS 1
1375D	Storden-Ves complex, 10 to 16 percent slopes, moderately eroded	В	CLASS 2
423	Seaforth loam, 1 to 3 percent slopes	С	CLASS 1
L163A	Okoboji silty clay loam, 0 to 1 percent slopes	C/D	NHEL
L83A	Webster clay loam, 0 to 2 percent slopes	C/D	NHEL
954C2	Storden-Ves complex, 6 to 10 percent slopes, moderately eroded	В	CLASS 2

NHEL - Not Highly Erodible Land PHEL - Potentially Highly Erodible Land HEL - Highly Erodible Land

## LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
SITE MAP	C2.04 - C2.05
DIRECTION OF FLOW	C2.04 - C2.05
FINAL STABILIZATION	C2.04 - C2.06
SOILS	C2.03
STORM SEWER PLAN & PROFILE SHEETS	C5.01 - C5.03
EROSION & SEDIMENT CONTROL DETAILS	C1.02
EROSION CONTROL TABULATION	C2.01
TURF ESTABLISHMENT TABULATION	C2.01
NARRATIVE & NOTES	C2.01 - C2.02

RENVILLE COUNTY, MINNESOTA	SHEET
CD 59 WATER QUALITY AND STORAGE REPAIR	ີດວັດຈ
STORMWATER POLLUTION PREVENTION PLAN	
SWPPP SOILS	



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MS	MACHINE	SLICED SILT FE				ABILIZATION,	~~``		
	EXISTING/F	PROPOSED		<u> </u>	PERMAN	ENT SEED 1			
15050505050505	DRAINAGE	FLOW D CONSTRUCTI	ION +++	<u>,                                    </u>	32-231 @	9 60 LB/ACRE			
	EXIT (TO B	E MARKED ON CONTRACTOR)			+ 33-261 @	55 LB/ACRE			
	CLAY BOTT	ГОМ			34-272 @	9 45 LB/ACRE			וש     
	HYDRAULI MnDOT 38	C MULCH MAT 384.2.8.2	RIX		PERMAN 25-141 @	ENT SEED 4 9 100 LB/ACRE			C
	@ 2500 LB		SEEDING QU	ANTITY TABLE		2		→ 27-06830-00 KUBESH/DAVID & MARGAREI/TR	
BID ITEM	M QTY (ACRES)	SE MIX	ED QTY (LBS)	FERT TYPE	ILIZER QTY (LBS)	EROSION CO TYPE	NTROL QTY (LBS)	1080	A
PERMANANT SEED 1	1.0	32-231	60	10-10-10	350	HYDRAULIC MULCH MATRIX	2500	2- 59 BRAIN	
PERMANANT SEED 2	0.9	33-261	50	10-10-10	315	HYDRAULIC MULCH MATRIX	2250	CD 59 BRANCH 12 22 LL	//
PERMANANT SEED 3	0.3	34-272	14	10-10-10	105	HYDRAULIC MULCH MATRIX	750		
SEED 4 RAPID	0.5	25-141	50	10-10-10	175	MULCH MATRIX	1250		$\sim$ $)$ )
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1243 CEDAR STREET NE SLEEPY EYE, MN 56085 Phone: (507) 810-4184 Email: SleepyEye@bolton-menk.com www.bolton-menk.com



RENVILLE COUNTY, MINNESOTA	
CD 59 WATER QUALITY AND STORAGE REPAIR	
CROSS SECTIONS - CD 59 DITCH CLOSURE	
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Exhibit 2: Preliminary Cost Estimate

### ENGINEER'S ESTIMATE

CD 59 WATER QUALITY & STORAGE RENVILLE COUNTY, MN BMI PROJECT NO. S15.112473

Item No. Item Estimated Quantity Unit Unit Price Total Amount CD 59 DITCH CLOSURE CD 59 MAIN TILE REPAIR CD 59 BRANCH TILE REPAIR WASCOB 3 & 5 TILE W   Item No. Item Quantity Unit Unit Price Total Amount Est. Qty. Cost	WATER QUALITY & STORAG Est. Qty. Cost	E ROAD RAISE & BERM
Quantity Est. Qty. Cost Est. Qty. Qty. Qty. Qty. Qty. Qty. Qty. Qt	Est. Qty. Cost	Est. Otv. Cost
BASE BID		
1 LUMP SUM \$50,000.00 \$50,000.00 0.40 \$20,000.00 0.25 \$12,500.00 0.02 \$1,000.00 0.02 \$1,000.00 0.02	0.25 \$12,500.	0 0.06 \$3,000.0
2 Exploratory Excavation 85 HOUR \$300.00 \$25,500.00 10 \$3,000.00 40 \$12,000.00 10 \$3,000.00 10 \$3,000.00	10 \$3,000.	0 5 \$1,500.0
3 Aggregate Surfacing, Class 5 260 TON \$30.00 \$7,800.00 30 \$900.00		200 \$6,000.0
4 Common Embankment - Ditch Closure 11,100 CU YD \$4.50 \$49,950.00 11,100 \$49,950.00		
5 Common Embankment - WASCOB 8,860 CU YD \$4.50 \$39,870.00	8,860 \$39,870.	0
6 Common Embankment - Road Raise 6,200 CU YD \$4.50 \$27,900.00		6,200 \$27,900.0
7 Common Embankment - Disposal Site 1,110 CU YD \$4.50 \$4,995.00		1,110 \$4,995.0
8 Common Excavation - Wetland 28,700 CU YD \$6.00 \$172,200.00	28,700 \$172,200.	0
9 Tile Connections - 8" or Less 45 EACH \$600.00 \$27,000.00 5 \$3,000.00 30 \$18,000.00 4 \$2,400.00 5 \$3,000.00	1 \$600.	0
10   Tile Connections - 10" to 12"   2   EACH   \$1,000.00   \$2,000.00   2   \$2,000.00		
11   Tile Connections - 15" to 24"   2   EACH   \$1,500.00   2   \$3,000.00		
12 Tile Connections - 30" or Larger 1 EACH \$2,000.00 \$2,000.00 1 \$2,000.00		
13 Granular Foundation Rock 12,038 LIN FT\$13.00 \$156,494.00\$55,848.00\$67,860.00860\$11,180.00\$1240\$16,120.00	222 \$2,886.	0 200 \$2,600.0
14 6" Hickenbottom Intake 10 EACH \$1,500.00 \$15,000.00 1 \$1,500.00 3 \$4,500.00 4 \$6,000.00 2 \$3,000.00		
15 10" Hickenbottom Intake 2 EACH \$2,000.00 \$4,000.00 2 \$4,000.00		
16 12" Hickenbottom Intake 5 EACH \$2,250.00 \$11,250.00 1 \$2,250.00 4 \$9,000.00		
17 4" Perforated Singlewall Drain Tile 300 LIN FT\$8.00 \$2,400.00 40 \$320.00	180 \$1,440.	0 80 \$640.0
18 6" Perforated Drain Tile 2,230 LIN FT \$15.00 \$33,450.00 120 \$1,800.00 860 \$12,900.00 1,240 \$18,600.00	10 \$150.	0
19 8" Perforated Drain Tile 700 LIN FT\$17.00 \$11,900.00 700 \$11,900.00		
20 8" CS Tile 20 LIN FT \$30.00 \$600.00	20 \$600.	0
21 15" Perforated Drain Tile 660 LIN FT \$20.00 \$13,200.00 660 \$13,200.00		
22 18" CS Tile 20 LIN FT \$40.00 \$800.00 20 \$800.00		
23 24" Perforated Drain Tile 1,280 LIN FT\$32.00\$40,960.00\$40,960.00		
24 24" Non-Perforated Drain Tile 5,220 LIN FT \$32.00 \$167,040.00 5,220 \$167,040.00 5,220		
25 24" RC Tile, Class III 24 LIN FT \$125.00 \$3,000.00	24 \$3,000.	0
26 24" RC Apron and Trash Rack 2 EACH \$2,000.00 \$4,000.00	2 \$4,000.	0
27 24" CS Culvert 120 LIN FT \$80.00 \$9,600.00		120 \$9,600.0
28 24" CS Apron 4 EACH \$1,000.00 \$4,000.00		4 \$4,000.0
29 48" Heavy Duty Drain Tile 1,380 LIN FT \$130.00 \$179,400.00 1,380 \$179,400.00		
30 60" RC Tile, Class III 96 LIN FT \$400.00 \$38,400.00 96 \$38,400.00		
31 60" RC Apron 1 EACH \$5,000.00 \$5,000.00 1 \$5,000.00		
32 Random Riprap, Class I 5 TON \$150.00 \$750.00	5 \$750.	0
33 Random Riprap, Class III 420 TON \$120.00 \$50,400.00 220 \$26,400.00	200 \$24,000.	0
34   Inlet Protection   21   EACH   \$150.00   \$3,150.00   5   \$750.00   10   \$1,500.00   4   \$600.00   2   \$300.00		
35 Permanent Seeding 1, (32-231) 1 ACRES \$4,000.00 \$4,000.00 1.0 \$4,000.00	·	
36 Permanent Seeding 2, (33-261) 1 ACRES \$4,000.00 \$3,600.00 0.9 \$3,600.00		
37 Permanent Seeding 3, (34-272) 0 ACRES \$4.000.00 \$1.200.00 0.3 \$1.200.00		
38 Permanent Seeding 4. (25-141) 1 ACRES \$3.000.00 \$1.500.00		0.5 \$1.500.0



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### ENGINEER'S ESTIMATE

CD 59 WATER QUALITY & STORAGE RENVILLE COUNTY, MN BMI PROJECT NO. S15.112473

																Date:	2/26/2025
Itom No	ltow	Estimated	11-34		CD 59 DITCH CLOSURE	CD 59 MAIN TILE REPAIR CD 59 BRANCH TILE REPAIR		I TILE REPAIR	WASCOB 3 & 5 TILE		WATER QUALITY & STORAGE		ROAD RAISE	& BERM			
Item No	. item	Quantity	Unit	Unit Price	Total Amount	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost
39	Rapid Stabilization Method 4, (25-141)	7,500	SQ YD	\$2.50	\$18,750.00			25	\$62.50	25	\$62.50					7,450	\$18,625.00
40	Stabalized Construction Exit	1	LUMP SUM	\$4,000.00	\$4,000.00	0.40	\$1,600.00	0.25	\$1,000.00	0.02	\$80.00	0.02	\$80.00	0.25	\$1,000.00	0.06	\$240.00
		SUBTOTAL ESTIN	IATED CONSTR	UCTION BID ITEMS:	\$1,200,059.00		\$469,878.00		\$300,362.50		\$38,122.50		\$45,100.00		\$265,996.00		\$80,600.00
	Temporary Right-of-Way Damages (Tile)	9.4	ACRE	\$600.00	\$5,640.00			9.4	\$5,640.00								
	Temporary Right-of-Way Damages (Open Ditch)	) 1.1	ACRE	\$600.00	\$660.00	1.1	\$660.00										
	Temporary Right-of-Way Damages (WQ&S)	11.0	ACRE	\$600.00	\$6,600.00					1.6	\$960.00	2.4	\$1,440.00	6.1	\$3,660.00	0.9	\$540.00
	Permanent Right-of-Way (Saturated Ruffer)	1 1	ACRE	\$16,000,00	\$17 600 00	1 1	\$17,600,00										
	Permanent Right-of-Way (Wetland)	1.1	ACRE	\$16,000.00	\$19,000.00	1.1	\$19,000.00										
	Open Ditch Closure	3.2	ACRE	-\$11,500.00	-\$36,800.00	3.2	-\$36,800.00										
				SUBTOTAL:	\$1,212,959.00		\$470,538.00		\$306,002.50		\$39,082.50		\$46,540.00		\$269,656.00		\$81,140.00
				8% CONTINGENCY:	\$96,010.00		\$37,590.00		\$24,030.00		\$3,050.00		\$3,610.00		\$21,280.00		\$6,450.00
			ENGINEERING,	ADMIN & TESTING:	\$180,010.00		\$70,480.00		\$45,050.00		\$5,720.00		\$6,770.00		\$39,900.00		\$12,090.00
	1	TOTAL ESTIMATED	D REPAIR & IMF	POUNDMENT COST:	\$1,488,979.00		\$578,608.00		\$375,082.50		\$47,852.50		\$56,920.00		\$330,836.00		\$99,680.00
									Total Repair Cost:	\$422,935.00			Total	Impoundment	Cost:	\$487,436.00	
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Exhibit 3: Technical Specifications

# TECHNICAL SPECIFICATIONS REPAIR AND IMPOUNDMENT OF MAIN OPEN DITCH OF COUNTY DITCH NO. 59

## **RENVILLE COUNTY, MN**

02210 - SUBSURFACE INVESTIGATION 02220 - REMOVING PIPE AND MISCELLANEOUS STRUCTURES 02240 - DEWATERING 02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL 02370 - EROSION CONTROL 02625 - AGRICULTURAL DRAIN TILE 02630 - SURFACE WATER INTAKES 02920 - TURF RESTORATION

#### SECTION 02210 - SUBSURFACE INVESTIGATION

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to conducting subsurface investigation as shown on the drawings, as specified herein, and/or as specified by the Engineer.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. No exception to the referenced specification is made.

#### 1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Section 2123 shall apply, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### PART 2 -- PRODUCTS

- 2.1 MATERIALS
  - A. No exception to the referenced specification is made.

#### **PART 3 -- EXECUTION**

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall:
  - 1. Perform underground utility exploration as directed by the Engineer which involves excavation to locate pipelines for location and elevation verification.
  - 2. Other work associated with the Project, as directed by the Engineer.
  - 3. Subsurface investigation shall consist of a rubber-tired backhoe, operator and laborer to find the tile.
- B. Where exploratory excavation is performed in a location that will not be disturbed later, the backfill shall be placed and compacted to the density specified elsewhere in these Specifications for the type of utility located.

#### \*\*\*\*END OF SECTION\*\*\*\*

#### SECTION 02220 - REMOVING PIPE AND MISCELLANEOUS STRUCTURES

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the removal of pipe and miscellaneous structures as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. The UNIT PRICE bid for removing miscellaneous structures shall include all costs of labor, materials, equipment and ultimate disposal required to complete the work, as specified.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated removal and excavation items. Such items of work include but are not limited to:
  - 1. Off-site disposal of debris.
  - 2. Fees and permits for the disposal of materials.
  - 3. Removal and disposal of existing tiles which conflict with the construction
  - 4. Bulkheading the ends of existing pipes designated by the Engineer to be abandoned in place.
  - 5. Salvage and reinstall fence (as needed)
  - 6. Protection from damage of structures or other surface improvements that are not to be removed, and subsequent repair and/or replacement if damaged by Contractor operations.

#### 1.3 SPECIFICATIONS REFERENCES

- A. Mn/DOT Specification Section 2104 shall apply to the removal of pipe and miscellaneous structures, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

A. No exception to the referenced specification is made.

#### PART 2 -- PRODUCTS

2.1 NO EXCEPTION TO THE REFERENCED SPECIFICATION IS MADE.

#### **PART 3 -- EXECUTION**

- 3.1 CONSTRUCTION REQUIREMENTS
  - A. Salvage existing fences where shown on the plans and/or required for the construction of the project, including posts and hardware. Replace when construction is complete, including new posts and wire if needed.

- B. Dispose of all concrete items, rubbish and debris outside of the construction zone. It shall be the Contractor's responsibility to secure all required permits and pay all fees associated with the disposal of the material and to secure the disposal site.
- C. The Contractor shall take full responsibility to protect structures or other surface improvements from damage that are not to be removed. If damage to these facilities occurs due to the construction of the project, the Contractor shall replace or repair them.
- D. Where existing pipes are to be abandoned in place, the exposed pipe ends shall be bulkheaded shut with a watertight non-shrink concrete grout at a thickness of not less than one pipe diameter.

#### \*\*\*\*END OF SECTION\*\*\*\*

#### **SECTION 02240 - DEWATERING**

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the dewatering of trenches as necessary to construct the elements shown on the drawings or as specified herein.
- B. This item shall be considered exempt from the requirements of Supplementary Condition 11.03.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. No dewatering payment will be made for dewatering for the construction.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for other associated improvements, as indicated. Such items of work include but are not limited to:
  - 1. The costs of furnishing discharge pumps, rock, piping including bends, and adapters, include in the price bid for tile construction.
  - 2. Protecting existing improvements from damage, include in the price bid for tile construction.
  - 3. Digging a portion of the ditch, allowing it to dewater, and returning later to finish the installation, include in the price bid for tile construction.

#### 1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Section 2451.3C shall apply to the dewatering of trenches, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### PART 2 -- PRODUCTS

#### 2.1 MATERIALS

A. None

#### PART 3 -- EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall furnish and install all necessary discharge piping and obtain all permits, easements, rights-of-way, etc. to convey and discharge the water at a sufficient distance from the project area to eliminate recharge of the ground water a the project site.
- B. Water from dewatering operations shall not be discharged where it will pond or cause damage to cropland or personal property due to the presence of standing or flowing water.

C. Water shall be discharged into temporary sedimentary basins prior to ultimate discharge into natural streams or waterways.

#### \*\*\*\*END OF SECTION\*\*\*\*

#### SECTION 02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to maintenance of utility service, trench excavation, bedding and backfill necessary for the construction of underground utilities and structures, as indicated on the drawings or as specified herein.

#### 1.2 DEFINITIONS

- A. Excess Material Material that is not needed to complete the earthwork balance.
- B. Suitable Material Sand, silty sand or low plasticity clay soils with no organic content. The Engineer shall make the final determination as to what material will be considered suitable.
- C. Unsuitable Material Soil with organic content including topsoil, swamp deposits, peat, muck, or other material deemed by the Engineer to be unsuitable for fill or embankment construction.

#### 1.3 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Rock Excavation
    - (a) No extra payment will be made for rock excavation.
  - 2. Items specifically identified in the *Schedule of Unit Prices* will be compensated in accordance with the description of measurement and payment contained in the section applicable to the individual item. Otherwise, no direct compensation shall be granted for compliance with the provisions contained herein.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the individual pipeline items associated with the stated specific item or work effort. Such items of work include but are not limited to:
  - 1. Interference with other above and underground structures and utilities.
    - (a) The removal and restoration, or protection of existing structures and utilities that are shown on the plans and for which there is no bid item for removing and restoring, or working around the utility.
  - 2. Any dewatering necessary for construction.
  - 3. Foundation materials placed in addition to or in lieu of performing necessary dewatering.
  - 4. Bulkheading of existing pipes to be abandoned in place.
  - 5. Granular foundation, granular bedding and granular encasement materials.
  - 6. Granular foundation materials used in lieu of bedding materials in the specified bedding zone, where specified.
  - 7. Granular foundation materials used in unstable trench conditions.
  - 8. The removal and disposal of native materials that are unsuitable for bedding and/or backfill.

- 9. Providing and maintaining flow through the existing tiles.
- 10. The removal of excess materials above the original topography resulting from the additional volume created from pipe and pipe bedding.
- 11. Delays due to other utility conflicts that result during the course of construction.
- 12. Protecting existing improvements and previously accepted elements of this construction from damage.
- 13. Protecting the inverts of other utility pipes from the accumulation of debris and soil, the removal of blockages that threaten to damage property, and/or the cleaning of both the newly constructed lines and the existing lines of all debris and soil that accumulated during the construction.
- 14. Providing temporary bypass pumping / control of storm water flows around the construction zone, include in the price bid for the associated items being installed.
- 15. The use of special construction techniques such as trench boxes, sheeting, shoring, etc., include in the price bid for the associated items being installed.
- 16. Shaping and grading of the construction zone so that surface drainage is restored following the construction.

#### 1.4 SPECIFICATION REFERENCES

- A. Reference CEAM Specification No. 2600 shall apply to excavating, installing bedding, and backfilling all trench excavation construction necessary for the completion of work, except as modified herein.
  - 1. All references to Mn/DOT specifications shall mean the specific edition, including Supplemental Specifications and Technical Memoranda as identified in Section 01420 of these Specifications.
  - 2. CEAM Specification 2600.3.A1 Maintenance of Traffic is hereby deleted, See Section 01555 of these Specifications.
  - 3. CEAM Specification 2600.3.A2 Establishing Line and Grade is modified by Section 01720 of these Specifications.
  - 4. CEAM Specification 2600.3.A3 Protection of Surface Structures:

(a) The last sentence in the third paragraph is deleted.

- CEAM Specification 2600.3.A5 Removal of Surface Improvements All rubble and debris to be disposed of off-site, shall be disposed of at a location secured by the Contractor and in a manner in compliance with applicable Local, State and Federal regulations.
- 6. CEAM Specification 2600.3.B3 Excavation Limits and Requirements OSHA limitations shall also apply to the top of trench width determination. The seven day written notice is waived if changing soil conditions and OSHA compliance apply.
- 7. CEAM 2600.3.F1 Turf Restoration is hereby deleted, See Section 02920 of these Specifications.
- 8. CEAM 2600.4 Method of Measurement Paragraphs B and C are hereby deleted. See applicable sections of these Specifications.
- B. Reference Mn/DOT Specification No. 2451 shall apply to granular materials for foundation, bedding and encasement of utility line construction, except as modified herein.
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.5 SUBMITTALS

A. No exception to the referenced specification is made.

#### PART 2 -- PRODUCTS

- 2.1 GRANULAR MATERIALS
  - A. <u>Granular Bedding and Granular Encasement</u> Granular bedding and granular encasement materials used in the pipe zone in dry conditions shall conform to CEAM specifications, with the gradation limits modified as shown below.

Granular Bedding and Granular Encasement						
Sieve Size	Percent Passing					
11/2"	100					
# 4	35 - 85					
# 10	20 - 70					
# 40	5 - 35					
# 200	0 - 15					

B. <u>Granular Foundation</u> - Granular foundation material shall be rock material, with the gradation limits as modified as shown below. This material shall be used in lieu of standard granular bedding and granular encasement materials where added pipe support is needed due to poor or wet subgrade soil conditions. This rock material shall also be used along with the required trench dewatering to provide for a stable pipe foundation.

Granular Foundation					
Sieve Size	Percent Passing				
2"	100				
11/2"	95 - 100				
3⁄4	20 - 40				
# 4	0 - 5				

#### PART 3 -- EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

#### 3.2 EXCAVATION AND PREPARATION OF TRENCH

- A. Interference and Protection of Underground Structures
  - 1. If an existing utility is shown on the plans and there is no bid item for removing and restoring, or working around the utility, the Contractor shall be required to remove and restore, or protect the utility.
  - 2. The inverts of existing tiles, culverts, drains, etc. shall be protected during construction. The Contractor is responsible to inspect and clean, if necessary, all lines which have become compromised by the construction operations.
- B. Excavation Limits and Requirements

- 1. The trench for all flexible pipe shall be undercut six-inches below the pipe barrel to permit the installation of granular bedding or foundation material.
- 2. The Contractor shall be responsible for any damage to adjacent structures or buildings caused by the dewatering operations
- 3. Use of granular foundation material in lieu of performing dewatering is permitted.
- C. Preparation and Maintenance of Foundation
  - 1. Flexible Pipe Materials
    - (a) In ordinary trench conditions, the pipe shall be bedded in compacted granular bedding which extends from 6" below the bottom of the pipe to the spring line of the pipe. The Contractor shall bed and encase the pipe in bedding and encasement material, as shown on the plan details. The bedding and encasement shall be compacted to 95% Standard Proctor Density, or as recommended by the pipe manufacturer, whichever is denser.
    - (b) Where the trench foundation has been found to be unstable and/or not suitable for pipe support, the trench shall be undercut until acceptable conditions are found. The Contractor shall furnish and install compacted granular foundation material from the bottom of the excavation to the bottom of the pipe. Bedding material shall then be placed to the spring line of the pipe.

#### 3.3 INSTALLATION OF PIPE AND FITTINGS

- A. The Contractor shall keep accurate records as to the location of the tile connections, utility crossings, etc. either constructed or encountered during the construction Measurements to lines shall be taken from the two nearest permanent structures (i.e., roads, intakes, etc). Final payment for the project will not be made until the information is in the possession of the Owner.
- B. When connection to an existing tile is required, the Contractor shall expose and verify the elevation of the existing tile prior to laying any pipe toward, or away from, the connection point. If the elevation of the existing tile does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.
- C. Connection and Assembly of Joints
  - 1. For dual wall polyethylene pipe, a soil-tight joint is required.
- D. Bulkheading Open Pipe Ends
  - 1. The Contractor shall furnish, install and maintain a temporary, water-tight plug adequately blocked in place to prevent flooding of the existing downstream tile system. The plug shall be placed at the beginning of the project or at the end of each working day at the end of the day's operation.
  - 2. When flows are diverted from an existing tile to be abandoned in place, the Contractor shall construct a water-tight plug on the open end of the abandoned pipe.
  - 3. Permanent watertight plugs shall be constructed with concrete grout with a thickness of not less than 1 pipe diameter.

#### 3.4 BACKFILLING OPERATIONS

- A. Backfill material around all utilities shall be compacted with hand machines. The maximum lift thickness shall be 6-inches.
- B. Flexible Pipe Materials
  - 1. Granular bedding and granular encasement material shall be furnished, placed and compacted to bed and encase the pipe to an elevation 12 inches above the pipe the full width of the trench. The

contractor shall bed and encase the pipe in granular bedding and granular encasement material to 95% Standard Proctor Density or as recommended by the pipe manufacturer, whichever is denser. Select native material shall be used above the bedding and encasement material (12-inches above the pipe) up to the bottom of the subgrade excavation zone.

C. Trench backfill for road crossing shall be compacted in accordance with the Quality Compaction Method. In agricultural fields, no compaction is required on the trench above the bedding and encasement zone.

#### 3.5 SOURCE QUALITY CONTROL

- A. The Contractor shall arrange for having the following testing performed:
  - 1. One (1) gradation test per each 500 tons or 275 cubic yards (CV) of granular materials.

#### \*\*\*\*END OF SECTION\*\*\*

#### SECTION 02370 -EROSION & SEDIMENT CONTROL

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to storm water management as indicated on the plans or as specified herein or as directed by the Engineer.
- B. The Contractor and Owner shall identify a person knowledgeable and experienced in the application of erosion and sediment control BMP's who will oversee the implementation of the SWPPP.
- C. Minnesota Pollution Control Agency (MPCA) General Storm Water Permit for Construction Activity (MN R100001)
  - 1. The Owner has developed a Storm Water Pollution Prevention Plan (SWPPP) in accordance with Part III (Storm Water Discharge Design Requirements) of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System Permit that is included in the Appendix or in the drawings.
  - 2. As a condition of the Award, the Contractor shall assume the role of "**Operator**" under the NPDES Permit by applying and paying for the permit within 7 days of acknowledging the *Notice of Award*. Late submittals will not be rejected; however, the MPCA reserves the right to take enforcement for any unpermitted discharges or permit noncompliance for the new registered party that has assumed control of the site.
  - 3. For storm water discharges from construction activities where the Owner or Operator (Contractor) changes, the new Owner or Operator can implement the original SWPPP created for the project or develop and implement their own SWPPP.
  - 4. **Permittee(s)** shall ensure either directly or through coordination with other **Permittee(s)** that their **SWPPP** meets all terms and conditions of this permit and that their activities do not render ineffective another party's **erosion prevention** and **sediment control Best Management Practices (BMP's)**."
  - 5. The Contractor shall maintain copies of the SWPPP <u>on the project site</u> at all times and comply with all provisions contained therein.
  - 6. Process Summary:
    - (a) Owner issues Notice of Award to Contractor
    - (b) Contractor acknowledges the Notice of Award
    - (c) Within 7 days of acknowledgement, the Contractor applies and pays for the *MPCA Permit Application* to the MPCA to accept the responsibilities of the "Operator" on the NPDES Permit. Copies of the application shall be sent to the Owner and the Engineer.
    - (d) The Contractor may then review the SWPPP and propose changes or a new SWPPP to the Engineer for review and comment; and the Owner for approval.
      - (1) During the review and modification period, all work performed on the project shall be in compliance with the original SWPPP, including having copies available on the project site.
      - (2) Once a SWPPP is modified / amended, the Contractor shall distribute new copies to the Owner, the Engineer, the on-site project supervisor and the construction observer.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Erosion and Sediment Control
    - (a) Payment for "<u>Inlet Protection</u>" shall be at the contract price per EACH for furnishing, installing, maintaining, and removing the materials as detailed in the plans. Eighty percent (80%) of payment shall be made upon installation. The remaining 20% shall be made upon complete removal of the control measure, removal of any accumulated sediment and surface restoration.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated erosion control and excavation items. Such items of work include but are not limited to:
  - <u>Complying</u> with the Minnesota Pollution Control Agency (MPCA) General Storm Water Permit for Construction Activity (MN R100001) – Reference Storm Water Pollution Prevention Plan (SWPPP) included in the Appendix.
  - 2. <u>Maintaining</u> clean exit areas or roads from the site.
  - 3. <u>Clean</u> adjacent roads of excess soil.
  - 4. <u>Cleaning</u> drain tiles and culverts that have been partially or completely obstructed by sediment that originated from the site.
  - 5. <u>Geotextile</u> fabric for rock installation.
  - 6. <u>Emergency</u> erosion control mobilization.

#### 1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Section 2573 shall apply to temporary erosion control.
- B. Mn/DOT Specification Section1717.2 shall apply to erosion control.
- C. Section 02930 of these specifications shall apply to Rapid Stabilization, if applicable.
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### PART 2 -- PRODUCTS

#### 2.1 EROSION CONTROL

A. Seeding shall be performed as outlined in Section 02920.

#### PART 3 -- EXECUTION

#### 3.1 GENERAL

- A. Construction and/or installation of all erosion & sediment control devices shall be completed prior to any soil disturbing activities. The rock check dam shall be installed prior to starting any excavation work.
- B. Prior to construction, the Owner, Engineer and Contractor shall observe the existing open ditch and discharge area and shall document the existing conditions. Upon completion of turf establishment, the open ditch and discharge area shall be observed and all increased sediment deposits shall be removed and disposed of by the Contractor. All increases in sediment deposits shall be considered to have originated from the project site.

- C. Exit areas or roads shall be kept clean of excess soil by routine blading.
- D. The Contractor shall salvage, transport and place cohesive materials excavated from the work for use in constructing berms for temporary sediment traps.

#### 3.2 CONSTRUCTION REQUIREMENTS

- A. A goal of the project during construction is to get the cleanest water possible into the drainage system and protect critical and unique areas. Every effort shall be required by the Contractor to achieve these goals.
- B. The Contractor shall limit the area of disturbance and shall finish shaping and restoring an area before progressing into new areas. Less than one half mile of tile shall be under construction and not fully graded and leveled at any one time.
- C. The Contractor shall control drainage and erosion on the project including: haul roads, temporary construction, waste disposal sites, plant and storage locations. The contractor shall clean up the area, shape the area to allow storm runoff with a minimum of erosion and/or siltation, replace topsoil, and establish vegetative cover to the satisfaction of the Engineer on areas where the potential for pollution has been increased due to the Contractor's operations.
- D. If Contractor fails to install and/or perform the appropriate erosion and sediment control practices, as determined by the Engineer, the Engineer may issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the required work or be subject to a \$ 500 per calendar day deduction for non-completion.
- E. When the Engineer determines that the erosion and/or sediment control practices installed by the Contractor have failed, the Contractor shall correct the cause and alleviate all sediment deposition, to the fullest extent possible. If the corrective action is not taken in a timely manner, the Engineer may issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the **required work or be subject to a \$ 500 per calendar day deduction for non-completion.**
- F. The Contractor shall remove all deltas and sediment deposited in drainage ways or tiles and re-stabilize the areas where sediment removal results in exposed soil. The removal and stabilization shall take place within 7 calendar days of discovery.
- G. Where applicable, the Contractor will be required to co-sign for a "General Storm Water Permit" for construction activity with the Minnesota Pollution Control Agency (MPCA). The application form and information is included an appendix of these specifications. The Owner will initiate the Permit process and pay the required "Application Fee." The Contractor will be required to comply with all of the terms and conditions of the Permit that also includes performing the required inspections of the erosion control devices and maintaining an Inspector's Log for the MPCA Storm Water Permit. A copy of the proposed log form is available from the Engineer.
- H. Energy dissipation or other outlet treatment must be installed within 24 hours of connection to surface water.

#### 3.3 EROSION CONTROL

A. Unless precluded by snow cover, all exposed soil areas, including topsoil stockpiles, shall have temporary erosion control or permanent cover for the exposed soil areas within 14 days where the area has not been, or will not be, worked by the Contractor.

# NOTE THAT THIS REQUIREMENT WILL RESULT IN MULTIPLE MOBILIZATIONS IN ORDER TO PROVIDE THE REQUIRED STABILIZATION.

#### 3.4 SEDIMENT CONTROL

- A. The Contractor shall install Sediment Control Devices where control is required and/or where directed by the Engineer. The control measures as shown on the plans shall be considered the minimum requirements with additional measures required dependent on construction sequencing and scheduling.
- B. Inlet Protection shall be used around inlets and/or other surface water accesses to any existing or proposed storm water conveyance system.
- C. The Contractor shall take all steps necessary to prevent excess soil erosion of the project. Temporary erosion control devices shall be constructed, maintained and left in place to such time as permanent erosion control measures are in place or instructed to remove them by the Engineer.
- D. The Contractor shall construct temporary sediment traps with granular outlets within the disturbed area and shall stockpile a sufficient quantity of suitable fill material to regrade sedimentation ponds and temporary ditches to match the subgrade elevation.

#### 3.5 INSPECTION AND MAINTENANCE:

- A. The Contractor shall routinely inspect the construction site once every seven (7) days during active construction and within 24 hours of a rainfall event greater than 0.5 inches in a 24 hour period.
- B. All inspections performed during construction must be recorded and records retained with the SWPP in accordance with the Storm Water Permit.
- C. Silt fence, erosion control, and other BMP's must be replaced, repaired, or supplemented when they reach 50% design load.

#### 3.6 FINAL STABILIZATION:

- A. The Contractor shall ensure final stabilization of the site. The Contractor shall submit a Notice Of Termination within 30 days after final stabilization is complete or control has been passed to another owner.
- B. The Contractor shall remove all temporary erosion control measures and BMP's as part of the final site stabilization.
- C. The storm water permit further defines final stabilization and its requirements.

#### \*\*\*\*END OF SECTION\*\*\*\*

#### SECTION 02625 – AGRICULTURAL DRAIN TILE

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to drain tile construction as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Drain Tile Pipe
  - (a) Measurement of main line drain tile pipe shall be along the centerline of the pipe. Payment shall be at the unit price bid for the specified size, type and class of pipe, regardless of depth.
  - 2. Tile Connections
  - (a) Measurement for the connection of existing lateral drain tile to the new main line tile where necessary, shall be per each connection and paid for at the unit price bid.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the drain tile items, as indicated. Such items of work include but are not limited to:
  - 1. Excavating, salvaging, stockpiling and replacing the full depth of existing topsoil over the trench in agricultural and turf areas, include in the price bid for drain tile.
  - 2. Providing, installing and compacting granular bedding and encasement material for the polyethylene tile construction.
  - 3. Providing and installing granular foundation materials if unsuitable soils are encountered, include in the price bid for drain tile.
  - 4. Furnishing and placing geotextile fabric at open pipe joints, include in the price bid for drain tile.
  - 5. Furnishing and installing necessary bends, fittings, wyes, tees and adaptors on the drain tile line, include in the unit price bid for the drain tile.
  - 6. Providing an inventory of additional pipe, bends, fittings, wyes, tees and adaptors of various sizes at the project site to accommodate changes which occur during construction and ordering additional materials as needed to complete the work, include in the price bid for drain tile.
  - 7. Marking the location of existing tiles with lathe so that the Engineer can record the location on the plan, include in the price bid for lateral tile connection.
  - 8. Connection of existing lateral drain tiles to the new main tile, including tees, wyes, bends and fittings, include in the price bid for lateral tile connection.
  - 9. Performing the required 12 inch deep tillage of all disturbed areas, include in the price bid for drain tile.
  - 10. Trench excavation, backfill and compaction, include in the price bid for drain tile.
  - 11. Bulkheading of existing pipes to be abandoned in place, include in the price bid for drain tile.

- 12. Maintenance of an appropriate drain tile outlet during construction, include in the price bid for drain tile.
- 13. Dewatering or trench pumping necessary for drain tile construction, include in the price bid for drain tile.
- 14. Removing and replacing fences as necessary to construct the improvements, include in the price bid for drain tile.
- 15. Removing and disposing of miscellaneous trees and brush necessary to construct the improvements, include in the price bid for drain tile.
- 16. Delays due to other utility conflicts, which result during the course of construction, include in the price bid for drain tile.
- 17. Protecting existing improvements from damage, include in the price bid for drain tile.
- 18. Protecting the inverts of other pipes from the accumulation of debris and soil, the removal of blockages which threaten to damage property, and/or the clearing of both the newly constructed lines and the existing lines of all debris and soil which accumulated during construction, include in the unit price bid for drain tile.
- 19. Interference and protection of underground structures and utilities, include in the price bid for drain tile.
- (a) The removal and restoration, or protection of existing utilities for which there is no bid item for removing and restoring, or working around the utility.
- (b) The utility information included on the Plan may not be complete and is furnished from information supplied by various utility companies as an indication of the presence of utility lines in the vicinity of construction. The Contractor shall contact the utility companies to determine the extent and exact location of their facilities. In the event of accidental damage to any such facility, the Contractor shall immediately notify the utility company and cooperate fully in whatever is necessary to repair such facility or restore service.

#### 1.3 SPECIFICATION REFERENCES

- A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.
- B. CEAM Specification No. 2621 shall apply to construction of pipe sewers/drain tile, except as modified herein.
- C. MnDOT Specification No. 2503 shall apply to measurement and payment of pipe sewers/drain tile, except as modified herein.
- D. MnDOT Standard Plates Manual with latest revisions.
- E. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### PART 2 -- PRODUCTS

- 2.1 DRAIN TILE PIPE
  - A. Perforated Dual Wall Polyethylene Pipe
    - 1. Dual wall perforated and non-perforated corrugated polyethylene pipe shall conform to the requirement of the American Society for Testing Materials F2648 and shall be perforated or non-perforated as shown on the plans. Perforated pipe shall be installed with woven geotechnical sock. Joints shall be water tight gasketed joints.
- B. Reinforced concrete pipe
  - 1. All reinforced concrete pipe shall meet MnDOT Standard Plate 3000 or 3006.
  - 2. Reinforced concrete pipe shall conform to MnDOT 3236 with tongue and groove joints, Class 3 minimum except as shown otherwise on the plans. Provide geotextile wrap of all joints.
  - 3. Pipe ties shall be required for all joints.
  - 4. Fittings for bends and lateral tile connections shall be precast.
  - 5. Connections of private tile shall be made by sawing a hole in the pipe and making a field connection using inserta-tee fittings or equivalent connections.

#### 2.2 GEOTEXTILE FABRIC

A. Mn/DOT 3733, Type I, knit sock.

#### PART 3 -- EXECUTION

#### 3.1 INSTALLATION OF PIPE AND FITTINGS

- A. Drain Tile
  - 1. All piping shall be installed in accordance with the details in the Plans. Granular bedding and encasement materials shall be installed and compacted as noted.
- B. Equipment
  - 1. The use of rubber tired earth moving equipment shall not be permitted on the agricultural fields. Backfill and leveling shall be accomplished with dozers.
- C. Bulkheading Open Pipe Ends
  - 1. When flows are diverted from an existing drain tile to be abandoned in place, the Contractor shall construct a water-tight plug on the open ends of the abandoned tile. The plugs shall be constructed with concrete grout and with a thickness of not less than 1 pipe diameter.

#### D. Backfilling

1. The initial lift of native backfill material, from the top of the granular material to 2' higher, shall be gently placed with a backhoe to avoid placing rocks on the pipe and to avoid impacting the pipe.

#### 3.2 DRAIN TILE CONNECTIONS

- A. Connect to Main Tile
  - When connection to an existing tile or concrete main is made, the Contractor shall expose and verify the elevation of the existing tile prior to laying any tile to, or from, the connection point. If the elevation of the existing tile does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.
  - 2. When connecting to a plastic main, appropriate fittings shall be furnished and installed for the connection so that the main tile does not need to be cut for the connection.
  - 3. If there is a vertical elevation difference of more than 2 feet between the existing tile and the new tile connection, the existing tile shall be reconstructed upstream to a point where the tile can be laid at a 45 degree slope to the connection. The tile shall rest on undisturbed soil or soil which has been compacted to a density of the adjacent soil.

### \*\*\*\*END OF SECTION\*\*\*\*

#### SECTION 02630 - SURFACE WATER INTAKES

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to intake construction as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Surface Water Intakes
    - (a) Surface water intakes shall be measured by the individual unit based on the inside diameter of the riser.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the intake items, as indicated. Such items of work include but are not limited to:
  - 1. Locating and connecting to drain tile, include in the price bid for Surface Water Intakes.
  - 2. The costs of furnishing bends and adapters, include in the price bid for Surface Water Intakes.
  - 3. Trench excavation, backfill and compaction, include in the price bid for Surface Water Intakes.
  - 4. Furnishing and installing a Hickenbottom riser, or approved equal, on the intake.
  - 5. Furnishing and installing a field marker at each intake.

#### 1.3 SPECIFICATION REFERENCES

- A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.
- B. CEAM Specification No. 2621 shall apply to construction of pipe, except as modified herein.
- C. Mn/DOT Standard Plates Manual with latest revisions.
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### PART 2 -- PRODUCTS

#### 2.1 PIPE AND FITTINGS

- 1. Dual Wall polyethylene pipe as specified in Section 02625.
- 2. Hickenbottom tee and riser sections, or approved equal.

#### 2.2 GEOTEXTILE FABRIC

A. Mn/DOT 3733, Type II, non-woven for use in wrapping joints in pipe.

#### PART 3 -- EXECUTION

- A. Surface water intake locations and sizes will be staked by the Engineer as the project progresses. Surface water intakes shall be constructed within two days following the tile construction.
- B. The Contractor shall assure that surface water has an outlet at all times into either the existing tile system, or once it is constructed, the new tile. If the Contractor fails to provide such an outlet, any claims for crop damages will be deducted from payments to the Contractor.
- C. Additional grading shall be performed around the intakes to permit farming operations around the intakes.

\*\*\*\*END OF SECTION\*\*\*\*

#### **SECTION 02920 - TURF RESTORATION**

#### PART 1 -- GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to turf restoration as indicated on the drawings or as specified herein.
- B. A goal of the project during construction is to get the cleanest water possible into the protected drainage systems as quickly as possible and protect critical and unique areas. Every effort shall be required by the Contractor to achieve these goals.
- C. Temporary seeding may be necessary during construction in erosion sensitive areas. The Contractor shall do temporary seeding work as specified herein, as required to comply with the MPCA permit or as directed by the Engineer at no additional expense.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Payment for seeding shall include the costs for furnishing and placing the designated seed mixture, fertilizer and mulch at the rate specified and shall be measured by the ACRE.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated seeding and sodding items. Such items of work include but are not limited to:
  - 1. Complying with the Minnesota Pollution Control Agency (MPCA) General Storm Water Permit for Construction Activity (MN R100001) Reference Section 02370 Storm Water Pollution Prevention Plan (SWPPP).
  - 2. Subgrade preparation and topsoil placement as required on all areas shown on the plans.
  - 3. Maintenance of newly seeded areas, as specified, include in the unit price for the associated items.
  - 4. All re-work necessary to repair areas that do not grow, include in the unit price for the associated items.

#### 1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Sections 2575, 3876, and 3878, Controlling Erosion, Establishing Vegetation and Seed shall apply to the establishment of grass and sod as shown on the plans.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### PART 2 -- PRODUCTS

#### 2.1 MATERIALS

- A. Seeding Items
  - 1. The seed mixtures to be used are shown below. In general, all application rates for mixes, except oats, are 150% the rate in Mn/DOT Table.
  - 2. Seeding with the various seed mixture designations shall utilize the following combinations of seed, fertilizer and mulch:

- (a) Type 1 mulch shall consist of clean straw with no pasture hay.
- (b) Temporary seeding, if required, shall use Seed Mixture 110B Oats.
- (c) Fertilizer shall be 22-5-10. (Phosphorous use in fertilizer for first establishment and the first year is allowed unless limited or prohibited by local ordinances.)

APPLICATION RATES						
		FERTILI	ZER	MU	JLCH	
Seed Mix	Rate	Туре	Rate	Туре	Rate	Typical Use
	lb/AC		lb/AC		ton/AC	
25-141 (Mesic General Roadside)	105	22-5-10	200	1	2	All.
21-111 (Oats)	100	22-5-10	200	1	2	All, temporary seeding
Temporary Stabilization- Ag Areas				1	2	Pipe Trench Areas

#### B. Seed Mixtures:

1. The application rates for Mn/DOT seed mixes shall be at 1.5 times that specified in the referenced specification.

#### PART 3 -- EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

#### A. GENERAL

- Prior to construction, the Owner, Engineer and Contractor shall observe the existing storm water outfall system and discharge area and shall document the existing conditions. Upon completion of surface restoration (i.e., paving and turf establishment), the storm water outfall system and discharge area shall be observed and all increased sediment deposits shall be removed and disposed of by the Contractor. All increases in sediment deposits shall be considered to have originated from the project site.
- 2. Prior to construction, the Owner, Engineer and Contractor shall review the project to identify critical areas that could require rapid stabilization during the construction process, and develop a plan to either mitigate disturbance to those areas or identify the methods of rapid stabilization most appropriate.
- 3. If Contractor fails to install and/or perform the appropriate rapid stabilization practices and immediate ditch seeding within 7 days following final slope shaping, the Contractor will **be subject** to a \$ 500 per calendar day deduction for non-completion.
- 4. The subgrade shall be shaped to approximate contour of the finished surface. All construction debris shall be removed from the area prior to the placement of the topsoil.
- 5. The topsoil shall be shaped to the approximate the contour of the finished surface, with a minimum depth of 12-inches. All construction debris shall be removed from the area prior to seeding. The topsoil shall be loosened with a disc or harrow to its full depth prior to seeding.
- 6. The Contractor shall be responsible for providing water and maintenance until final acceptance by the Engineer or Owner, to firmly establish the seed. The term maintenance shall include mowing, weed control and watering, as necessary.
- 7. The Contractor shall remove all rocks and debris from the surface prior to seeding and mulching.

#### B. SEEDING REQUIREMENTS

- 1. Turf establishment by seeding shall be done utilizing the various combinations of seed mixtures, fertilizing and mulching as described.
- 2. Areas prepared for seeding shall be free of rocks, debris and clumps of soil. The areas shall be graded uniformly dragged until free of chunks exceeding 1 inches diameter.

- 3. Seed shall be applied with a drill seeder, unless otherwise approved in writing by the Engineer.
- 4. The Contractor shall furnish weight tickets documenting pounds of fertilizer placed and pounds of seed placed. The seed tickets shall show individual plant species along with the percent purity and percent germination. The fertilizer tickets shall show mix proportions. The Contractor shall also furnish its QA/QC data to the Engineer.
- 5. Dormant seeding and snow seeding may be utilized in accordance with the referenced specification and technical memorandum, provided the final acceptance standards are met.
- 6. Final acceptance of seeding shall be based on an established growth of 6-inches with a uniform density to cover 70% of the designated area, free of weeds and bare spots. Any re-seeding necessary shall be performed at the Contractor's expense.

#### \*\*\*\*END OF SECTION\*\*\*\*

Exhibit 4: Right-of-Way Table

# County Ditch 59 Water Quality and Storage Repair

Renville County, MN Right-of-way Table



Real People. Real Solutions.

							Date:		2/26/2025
Parcal No.	Broporty Owner	Logal Description		Rep	oair Right-of	-Way		Temporary	Permanent
Parcerno.	Property Owner	Legal Description	Station	to Station	Length	Width	Area (Acres)	\$600	\$16,000
	Branch Main - Tile								
27-00770-00	SCHNEIDERMAN/JEANETTE	SE 1/4, SW 1/4	114+66	122+59	793	80	1.46	\$876.00	
27-00760-00	KUBESH/DAVID & MARGARET/TR	NE 1/4, SW 1/4	122+59	129+20	661	80	1.21	726.00	
		NW 1/4, SW 1/4	129+20	137+44	824	80	1.51	906.00	
	WASCOB - 2	NW 1/4, SW 1/4	128+60	131+60	300		2.72	1632.00	
27-00770-00	SCHNEIDERMAN/JEANETTE	SW 1/4, SW 1/4	137+44	143+90	646	80	1.19	714.00	
27-00830-00	KUBESH/DAVID & MARGARET/TR	SE 1/4, SE 1/4	144+57	158+79	1422	80	2.61	1566.00	
	WASCOB - 4	SE 1/4, SE 1/4	157+82	158+79	97		0.51	306.00	
27-00801-00	LIPPERT/JAMES & CAROL/TRUSTEES	SW 1/4, SE 1/4	158+79	166+21	742	80	1.36	816.00	
	WASCOB - 4	SW 1/4, SE 1/4	158+79	159+60	81		0.34	204.00	
	Branch Main - Open Ditch	1		•	•				
27-01720-00	KUBESH/DAVID & MARGARET/TR	SW 1/4, SE 1/4	101+04	114+66	1362	35	1.09	654.00	
	WASCOB - 1	SW 1/4, SE 1/4	111+66	112+80	114		1.00	600.00	
	WETLAND	SW 1/4, SE 1/4	99+00	101+04	204		2.32		\$37,120.00
	Open Ditch	SW 1/4, SE 1/4	99+00	114+50	1550		3.17		-\$50,720.00
	· · · · · · · · · · · · · · · · · · ·								
	Branch - Tile	•		•	•				
27-01720-00	KUBESH/DAVID & MARGARET/TR	SW 1/4, SE 1/4	200+15	206+39	624	80	1.15	690.00	
27-01760-00	MCCM PROPERTIES LLC	NW 1/4, NE 1/4	206+39	208+90	251	80	0.46	276.00	
	Private Main	•		1	1	1			
27-00830-00	KUBESH/DAVID & MARGARET/TR	NE 1/4. SE 1/4	219+72	227+84	812	80	1.49	894.00	
	WASCOB - 3	NE 1/4. SE 1/4	225+07	227+84	277		0.79	474.00	
	Private Branch	•		1					
27-00830-00	KUBESH/DAVID & MARGARET/TR	NE 1/4 SE 1/4	230+42	235+10	468	80	0.86	516.00	1
27 00030 00	WASCOB - 5	NE 1/4, SE 1/4	232+85	235+10	225		0.69	414.00	
			202.00	200120			0.05		
	Berm								
27-01730-00	HARTUNG PARTNERSHIP	SE 1/4. SE 1/4					0.93	558.00	
	Total	1		Total Improve	- ment Right-of-\	Nay Damages =	20.52	\$9,690.00	-\$13,600.00
		1	1	1	0	,			,
T:\KNCU\24X136/2200	uvis_uesignia_calculationsi(136722_ROW.xlsx)Sheet1								

Exhibit 5: Petition for Repair & Impoundment

### STATE OF MINNESOTA RENVILLE COUNTY BOARD OF COMMISSIONERS SEATED AS THE DRAINAGE AUTHORITY FOR RENVILLE COUNTY DITCH 59

In the Matter of the Petition to Impound, Reroute, and Divert Renville County Ditch 59 (Kubeshes & Renville SWCD, et al.)

#### AMENDED PETITION

Pursuant to Minn. Stat. § 103E.227, Petitioners seek to impound, reroute, and divert portions of Renville County Ditch 59 as described below. For their Petition, the undersigned Petitioners states and alleges the following:

- The undersigned Petitioners submit this Amended Petition as an amendment to the Petition of David & Margaret Kubesh and the Renville County Soil & Water Conservation District dated December 14, 2024, attached here to as Exhibit 1 ("Petition").
- 2. Petitioners hereby restate and reallege the allegations contained in the Petition attached as **Exhibit 1.**
- 3. The purpose of this Amended Petition is to include with the proposed impound, reroute, and diversion of Renville County Ditch 59 ("CD 59") the addition of four water and sediment control basins (WASCOBs) on portions of CD 59 within Sections 27 & 28 of Township 116 North, Range 35 West (Winfield Townsip), Renville County.
- 4. Petitioners are the owners of the following described real property within the benefitted area of CD 59, where the four additional WASCOBs are proposed to be located:

Property Owners/Address	Parcel I.D. #	Description
	WASCOB #1	
Kubesh/David & Margaret/Tr 85554 310th St Danube, MN 56230	27-01720-00	27-116-35 NE4 – Ex BLDG SITE IN E2 OF NER - & W2 OF SE4 7 N2 OF NE4 OF SE4
	WASCOB #2	
Kubesh/David & Margaret/Tr 85554 310th St. Danube, MN 56230	27-00760-00	27-116-35 S2 OF NW4 & N2 OF SW4
Schneiderman/Dale & Rachel 29688 840th Ave. Danube, MN 56230	27-00770-00	27-116-35 S2 OF SW4 -EX SCHNEIDERMAN PLOT

WASCOB #3					
Kubesh/David & Margaret/Tr 85554 310th St. Danube, MN 56230	27-00830-00	28-116-35 E2 OF SE4			
WASCOB #4					
Kubesh/David & Margaret/Tr 85554 310th St. Danube, MN 56230	27-00830-00	28-116-35 E2 OF SE4			
Lippert/James & Carol/Trustees 89118 Co. Rd. 1 Danube, MN 56230	27-00801-00	28-116-35 W2 OF SE4			

- 5. To conserve and make a more adequate use of water resources, Petitioners requests that the Renville County Board of Commissioners, acting as the public drainage authority under Minnesota Statutes, chapter 103E for Renville County Ditch 59, impound, reroute, and divert the Renville County Ditch 59 Main Ditch within Sections 27 & 28 of Township 116 North, Range 35 West (Winfield Township), Renville County as described in the Petition and this Amended Petition.
- 6. The Petition (**Exhibit 1**) Exhibit A concept plan for the proposed project and map identifying the areas likely to be affected by the project includes the original impoundment described in the Petition and the four additional WASCOBs described above. The Petition Exhibit B is an engineer's cost of the proposed project, inlcuding the original impoundment described in the Petition and the four additional WASCOBs described abov e.
- 7. The WASCOBs will provide temporary water storage for the CD 59 drianage system, which flows directly into Beaver Creek. The water storage and reduction in peak flows will reduce sediment and nutrients in CD 59 and Beaver Creek.
- 8. Petitioners anticipate a significant portion of the project costs will be paid for by a grant made available by the Board of Water and Soil Resources. Petitioners request that costs not covered by the grant funding be covered by the Renville County Ditch 59 drainage system funds.
- 9. In support of Petitioners request for drainage system funds, Petitioners note that the tile in Sections 27 & 28 of Winfield Township has been televised recently by the Renville County Drainage Authority and are in need of repair. Petitioners note that the proposed project will provide temporary and permanent water storage for the CD 59 system, providing a significant benefit to the CD 59 drainage system, and avoid the need for incurring repair costs.
- 10. Petitioners do not believe a public-waters-work permit or a water-use permit from the commissioner of natural resources is required under Minnesota Statutes, chatper 103G for the project.

- 11. Pursuant to Minnesota Statutes, section 103E.227, subd. 2(b), a bond is not required since this Petition is filed by the Renville County Soil and Water Conservation District.
- 12. Pursuant to Minnesota Statutes, section 103E.227, subds. 3-5, Petitioners request the Renville County Drainage Authority appoint Professional Engineer Shaun Luker and Bolton & Menk, Inc. to include investigation of the effect of the proposed installation of the WASCOBs in his report of findings on the Petition, and notice and conduct a public hearing on the Petition, Amendment Petition, and report of findings.
- 13. The proposed proejct is of public and private benefit, and will not impair the utility of the Renville County Ditch 59 drainage system or deprive affected landowners of its benefit.
- 14. Petitioners will cooperate with the Renville County Drainage Authority in granting the necessary rights-of-way and flowage easements for the proposed project.

Respectufly submitted as of the last date below, by Petitioners:

[signature pages to follow]

P. Kuhah

\_\_\_\_

1-30-25 Date:

David Kubesh, Trustee of the David & Margaret Kubesh Trusts

Margaret Kubesh, Trustee of the David & Margaret Kubesh Trusts

Date: 1-30-25

••

Renville County Soil & Water Conservation District

Swith Tule;

By Phil Smith, Board Chair

Date: 2-13-25

123/2025 Date:\_

Dale Schneiderman

neiderman

Rachel Schneiderman

2025 Date:\_\_\_

James Lippert, Trustee of the James & Carol Lippert Trusts

\_\_\_\_ Date: <u>/ - 23-25</u>

#### STATE OF MINNESOTA RENVILLE COUNTY BOARD OF COMMISSIONERS SEATED AS THE DRAINAGE AUTHORITY FOR RENVILLE COUNTY DITCH 59

In the Matter of the Petition to Impound, Reroute, and Divert Renville County Ditch 59 (Kubeshes & Renville SWCD)

PETITION

Pursuant to Minn. Stat. § 103E.227, Petitioners seek to impound, reroute, and divert a portion of Renville County Ditch 59. For their Petition, the undersigned Petitioners states and alleges the following:

1. Petitioners David & Margaret Kubesh are the owners of the following described real property currently within the benefitted area of County Ditch 59:

Property Owners/Address	Parcel I.D. #	Description
Kubesh/David & Margaret 85554 310 <sup>th</sup> St Danube, MN 56230	27-01720-00	27-116-35 NE4 – Ex BLDG SITE IN E2 OF NER - & W2 OF SE4 7 N2 OF NE4 OF SE4

- 2. Petitioner Renville County Soil and Water Conservation District is a political subdivision of the state of Minnesota that promotes sustainable use of water and soil resources through innovative and mutually beneficial conservation activities with local stakeholders.
- 3. To conserve and make a more adequate use of water resources, Petitioners requests that the Renville County Board of Commissioners, acting as the public drainage authority under Minnesota Statutes, chapter 103E for Renville County Ditch 59, impound, reroute, and divert the Renville County Ditch 59 Main Ditch within Sections 27 & 28 of Township 116 North, Range 35 West (Winfield Township), Renville County.
- 4. Attached hereto as **Exhibit A** is a concept plan for the proposed project, and a map that identifies the areas likely to be affected by the project. Attached hereto as **Exhibit B** is an engineer's estimates of cost of the proposed project.
- 5. The impound pond will provide temporary and permannet water storage for the CD 59 drianage system, which flows directly into Beaver Creek. The water storage and reduction in peak flows will reduce sediment and nutrients in CD 59 and Beaver Creek.
- 6. Petitioners anticipate a significant portion of the project costs will be paid for by a grant made available by the Board of Water and Soil Resources. Petitioners request that costs not covered by the grant funding be covered by the Renville County Ditch 59 drainage system funds.

- 7. In support of Petitioners request for drainage system funds, Petitioners note that the tile in Sections 27 & 28 of Winfield Township has been televised recently by the Renville County Drainage Authority and are in need of repair. Petitioners note that the proposed project will provide temporary and permanent water storage for the CD 59 system, providing a significant benefit to the CD 59 drainage system, and avoid the need for incurring repair costs.
- 8. Petitioners do not believe a public-waters-work permit or a water-use permit from the commissioner of natural resources is required under Minnesota Statutes, chatper 103G for the project.
- 9. Pursuant to Minnesota Statutes, section 103E.227, subd. 2(b), a bond is not required since this Petition is filed by the Renville County Soil and Water Conservation District.
- Pursuant to Minnesota Statutes, section 103E.227, subds. 3-5, Petitioners request the Renville County Drainage Authority appoint an engineer to investigate the effect of the proposed installation and file a report of findings, and notice and conduct a public hearing on the Petition and report of findings.
- 11. The proposed proejct is of public and private benefit, and will not impair the utility of the Renville County Ditch 59 drainage system or deprive affected landowners of its benefit.
- 12. Petitioners David & Margaret Kubesh will cooperate with the Renville County Drainage Authority in granting the necessary rights-of-way and flowage easements for the proposed project.

Respectufly submitted as of the last date below, by Petitioners:

ODK.10

David Kubesh

Kidren

Margaret Kubesh

Renville County Soil & Water Conservation District

By Phil Smith, Board Chair

Date: 12 - 14 - 24

Date: 12 -14 - 24

Date: 12/12/2014

Page 2 of 2

## CD 59 WATER QUALITY & STORAGE

RENVILLE COUNTY, MN



### PROJECT OVERVIEW JULY 2024



### **RENVILLE COUNTY, MN**



**DETAILS - 1** JULY 2024

**BOLTON** & MENK

## CD 59 WATER QUALITY & STORAGE

**RENVILLE COUNTY, MN** 



### DITCH CLOSURE MAY 2024



Renville County











WASCOB - 2

Renville County







Renville County



WASCOB - 4

### ENGINEER'S ESTIMATE

CD 59 WATER QUALITY & STORAGE RENVILLE COUNTY, MN BMI PROJECT NO. S15.112473



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				Date:	8/27/2024
ltem No.	Item	Estimated Quantity	Unit	Unit Price	Total Amount
BASE BID					
1	Mobilization & Traffic Control	1	LUMP SUM	\$40,000.00	\$40,000.00
2	Exploratory Excavation	30	HOUR	\$220.00	\$6,600.00
3	Common Borrow - Ditch Closure	11,500	CU YD	\$6.00	\$69,000.00
4	Common Embankment - WASCOB	5,085	CU YD	\$6.00	\$30,510.00
5	Common Excavation - Wetland	38,700	CU YD	\$8.00	\$309,600.00
6	Tile Connections - 12" or Less	33	EACH _	\$1,000.00	\$33,000.00
7	Tile Connections - 15" to 24"	2	EACH _	\$1,500.00	\$3,000.00
8	Tile Connections - 30" or Larger	5	EACH _	\$2,000.00	\$10,000.00
9	Granular Foundation Rock	7460	LIN FT	\$13.00	\$96,980.00
10	6" Hickenbottom Intake	1	EACH _	\$1,500.00	\$1,500.00
11	15" Hickenbottom Intake	3	EACH _	\$2,000.00	\$6,000.00
12	96" Outlet Control Structure	1	LUMP SUM	\$20,000.00	\$20,000.00
13	6" Non-Perforated Drain Tile	2640	LIN FT	\$20.00	\$52,800.00
14	10" Non-Perforated Drain Tile	40	LIN FT	\$24.00	\$960.00
15	15" Non-Perforated Drain Tile	280	LIN FT	\$30.00	\$8,400.00
16	24" Non-Perforated Drain Tile	5540	LIN FT	\$32.00	\$177,280.00
17	30" CM Drain	20	LIN FT	\$75.00	\$1,500.00
18	36" Heavy Duty Drain Tile	40	LIN FT	\$70.00	\$2,800.00
19	42" Heavy Duty Drain Tile	760	LIN FT	\$110.00	\$83,600.00
20	48" Heavy Duty Drain Tile	580	LIN FT	\$130.00	\$75,400.00
21	Random Riprap, Class III	100	TON _	\$110.00	\$11,000.00
22	Inlet Protection	10	EACH _	\$100.00	\$1,000.00
23	Sediment Control Log, Type Straw	300	LIN FT	\$3.00	\$900.00
24	Type 1 Mulch	32	TON	\$250.00	\$8,000.00
25	Permanent Seeding 1, (32-231)	1.3	ACRES	\$2,500.00	\$3,250.00
26	Permanent Seeding 2, (33-261)	1	ACRES	\$2,500.00	\$2,500.00
27	Permanent Seeding 3, (34-272)	1.2	ACRES	\$2,500.00	\$3,000.00
28	Stabalized Construction Exit	1	LUMP SUM	\$4,000.00	\$4,000.00
		SUBTOTAL ESTIN	IATED CONSTRU	CTION BID ITEMS:	\$1,062,580.00
	Temporary Right-of-Way Damages (Tile)	17.5	ACRE	\$600.00	\$10,500.00
	Temporary Right-of-Way Damages (Open Ditch)	2.5	ACRE	\$600.00	\$1,500.00
	Temporary Right-of-Way Damages (WASCOB)	1.0	ACRE _	\$600.00	\$600.00
	Permanent Right-of-Way (Saturated Buffer)	1	ACRE	\$16,000.00	\$16,000.00
	Permanent Right-of-Way (Wetland)	3.5	ACRE	\$16,000.00	\$56,000.00
				SUBTOTAL:	\$1,147,180.00
			10	% CONTINGENCY:	\$106,260.00
			ENGINEERING, A	DMIN & TESTING:	\$212,520.00
			TOTAL ESTIMATE	D PROJECT COST:	\$1,465,960.00

### **REPAIR ESTIMATE**

CD 59 WATER QUALITY & STORAGE RENVILLE COUNTY, MN BMI PROJECT NO. S15.112473



Real People. Real Solutions.

					Date:	8/27/2024
Item No.	It	em	Estimated Quantity	Unit	Unit Price	Total Amount
BASE BID						
1	Mobilization & Traffic Control		1	LUMP SUM	\$40,000.00	\$40,000.00
2	Exploratory Excavation		30	HOUR	\$220.00	\$6,600.00
3	Tile Connections - 12" or Less		30	EACH	\$1,000.00	\$30,000.00
4	Granular Foundation Rock		5540	LIN FT	\$13.00	\$72,020.00
5	6" Hickenbottom Intake		3	EACH	\$1,500.00	\$4,500.00
6	24" Non-Perforated Drain Tile		5540	LIN FT	\$32.00	\$177,280.00
7	30" CM Drain		20	LIN FT	\$75.00	\$1,500.00
8	Random Riprap, Class III		25	TON	\$110.00	\$2,750.00
9	Inlet Protection		3	EACH	\$100.00	\$300.00
10	Sediment Control Log, Type Straw		100	LIN FT	\$3.00	\$300.00
11	Type 1 Mulch		32	TON	\$250.00	\$8,000.00
12	Stabalized Construction Exit		1	LUMP SUM	\$4,000.00	\$4,000.00

#### SUBTOTAL ESTIMATED CONSTRUCTION BID ITEMS: \$347,250.00

Temporary Right-of-Way Damages (Tile)	17.5	ACRE	\$600.00	\$10,500.00
			SUBTOTAL:	\$357,750.00
		:	10% CONTINGENCY:	\$34,730.00
		ENGINEERING,	ADMIN & TESTING:	\$69,450.00
		TOTAL ESTIMA	TED PROJECT COST:	\$461,930.00

Exhibit 6: 850<sup>th</sup> Ave. Crossing Hydraulic Reports



Real People. Real Solutions.

1243 Cedar Street NE Sleepy Eye, MN 56085

Phone: (507) 810-4184 Bolton-Menk.com

February 25, 2025

Jeff Marlowe Renville County Engineer County Office Building 105 South 5<sup>th</sup> Street, Room 319 Olivia, MN 56277

RE: Hydraulic Report – 850<sup>th</sup> Ave Crossing SW ¼ of SE ¼ of Section 27 of Winfield Township Renville County, MN Project No.: 24X.136722.000

Dear Jeff,

As requested, we analyzed hydraulic conditions for the 850<sup>th</sup> Avenue crossing in section 27 of Winfield Township, approximately 3.7 miles northwest of Olivia, Minnesota. The culvert crossing is located in Renville County, Minnesota as follows:

• Section 27 of Winfield Township (T116N, R35W)

The crossing watershed was analyzed using peak flow rates computed using the following:

• Rational method as described in MnDOT Drainage Manual. Using unadjusted NOAA Atlas 14 values from Olivia, Minnesota. With a drainage coefficient of 0.45 for rural agriculture land. The time of concentration was set at 30 minutes which was verified by using EFH-2 (NRCS).

#### **Culvert**

There was no known existing crossing at this location on 850<sup>th</sup> Avenue. If an existing crossing is discovered during construction, we recommend its removal. The existing roadway overtops at an elevation of 1076.3 at the crossing.

Culvert and waterway hydraulic conditions are presented below for the proposed structure. The proposed structure is as follows:

• Single 24" corrugated steel culvert.

The culvert is assumed to have standard straight end aprons. The inlet loss coefficient (Ke) used for computations was 0.5. The downstream invert of the proposed culvert is at an elevation of 1072.9', and the upstream invert is at an elevation of 1073.0'. We recommend a minimum of 0.1' of fall across the new culvert to aid in keeping the culvert clean. The roadway will be raised at the location to an elevation of 1079.0 feet.

The attached table displays calculated hydraulic conditions. A risk assessment was not completed for the culvert crossing because the proposed culvert diameter is less than 48-inches.

Jeff Marlowe, Renville County February 25, 2025 Page: 2

The Mn/DOT Traffic Data website has the existing average daily traffic (ADT), for the 850<sup>th</sup> Avenue crossing, at 40 vehicles per day (vpd). The overtopping flood frequency for risk assessment in the MnDOT Drainage Manual for a culvert less than 48-inches is a 25 Year Storm Event if existing conditions allow. With the average daily traffic being less than 50 vpd and no current culvert know at the location we recommend the use of a 25 Year Storm Event.

To our knowledge, this structure is not located on a designated trout stream. The immediate upstream floodplain is agricultural land with little apparent structural flood damage potential.

Navigational clearance is not required at this site.

This analysis may be subject to requirements of and review by appropriate regulatory agencies.

Please review enclosed information and if you have any questions please feel free to contact me.

Thank you.

Sincerely, Bolton & Menk, Inc.

Jordan G. Bengtson, P.E. MN. Licensed Professional Engineer No. 62897

Enclosure(s) 1. Hydraulic Flood Analysis (1 Page)

Cc: Seth Sparks, Renville County Shaun Luker, Bolton & Menk, Inc. Bill Helget, Bolton & Menk, Inc. Jeff Marlowe, Renville County February 25, 2025 Page: 3

#### HYDRAULIC FLOOD ANALYSIS Renville County Section 27, T116 N, R35 <u>Single 24" CS Culvert</u>

Stream	Unnamed
Drainage area	10.6 Acres
Flood of record (year and flow)	Unknown
Maximum observed high water elevation	Unknown
Road sag point elevation	1079.0 feet
Design Flood (25-year frequency)	18.7 cubic feet/ second
Design stage	1074.6
Total stage increase	2.0 feet
Headwater Elevation	1076.6
Stage increase in place condition	1.7 feet
Mean velocity through structure	6.8 fps
Main channel velocity	0.1 fps
Overtopping Flood (500-year frequency)	32.2 cubic feet/ second
Design stage	1075.1
Total stage increase	3.9 feet
Headwater Elevation	1079.0
Stage increase in place condition	1.2 feet
Mean velocity through structure	9.9 fps
Main channel velocity	0.1 fps
Regional Flood (100-year frequency)	24.6 cubic feet/ second
Design stage	1074.8
Total stage increase	3.3 feet
Headwater Elevation	1078.1
Stage increase in place condition	1.5 feet
Mean velocity through structure	7.8 fps
Approximate flow line elevation	1073.0 inlet
	1072.9 outlet
Skew from Roadway	0 Degrees
2-Year Velocity Through Culvert	5.4 fps



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1243 Cedar Street NE Sleepy Eye, MN 56085

Phone: (507) 810-4184 Bolton-Menk.com

February 25, 2025

Jeff Marlowe Renville County Engineer County Office Building 105 South 5<sup>th</sup> Street, Room 319 Olivia, MN 56277

RE: Hydraulic Report– 850<sup>th</sup> Ave Crossing SW ¼ of SE ¼ of Section 28 of Winfield Township Renville County, MN Project No.: 24X.136722.000

Dear Jeff,

As requested, we analyzed hydraulic conditions for the 850<sup>th</sup> Avenue crossing in section 28 of Winfield Township, approximately 4.4 miles northwest of Olivia, Minnesota. The culvert crossing is located in Renville County, Minnesota as follows:

• Section 28 of Winfield Township (T116N, R35W)

The crossing watershed was analyzed using peak flow rates computed using the following:

• Rational method as described in MnDOT Drainage Manual. Using unadjusted NOAA Atlas 14 values from Olivia, Minnesota. With a drainage coefficient of 0.45 for rural agriculture land. The time of concentration was set at 30 minutes which was verified by using EFH-2 (NRCS).

#### **Culvert**

There was no known existing crossing at this location on 850<sup>th</sup> Avenue. If an existing crossing is discovered during construction, we recommend its removal. The existing roadway overtops at an elevation of 1076.9 at the crossing.

Culvert and waterway hydraulic conditions are presented below for the proposed structure. The proposed structure is as follows:

• Single 24" corrugated steel culvert.

The culvert is assumed to have standard straight end aprons. The inlet loss coefficient (Ke) used for computations was 0.5. The downstream invert of the proposed culvert is at an elevation of 1074.8', and the upstream invert is at an elevation of 1074.9'. We recommend a minimum of 0.1' of fall across the new culvert to aid in keeping the culvert clean. The roadway will be raised at the location to an elevation of 1080.0 feet.

The attached table displays calculated hydraulic conditions. A risk assessment was not completed for the culvert crossing because the proposed culvert diameter is less than 48-inches.

Jeff Marlowe, Renville County February 25, 2025 Page: 2

The Mn/DOT Traffic Data website has the existing average daily traffic (ADT), for the 850<sup>th</sup> Avenue crossing, at 40 vehicles per day (vpd). The overtopping flood frequency for risk assessment in the MnDOT Drainage Manual for a culvert less than 48-inches is a 25 Year Storm Event if existing conditions allow. With the average daily traffic being less than 50 vpd and no current culvert know at the location we recommend the use of a 25 Year Storm Event.

To our knowledge, this structure is not located on a designated trout stream. The immediate upstream floodplain is agricultural land with little apparent structural flood damage potential.

Navigational clearance is not required at this site.

This analysis may be subject to requirements of and review by appropriate regulatory agencies.

Please review enclosed information and if you have any questions please feel free to contact me.

Thank you.

Sincerely, Bolton & Menk, Inc.

Jordan G. Bengtson, P.E. MN. Licensed Professional Engineer No. 62897

Enclosure(s) 1. Hydraulic Flood Analysis (1 Page)

Cc: Seth Sparks, Renville County Shaun Luker, Bolton & Menk, Inc. Bill Helget, Bolton & Menk, Inc. Jeff Marlowe, Renville County February 25, 2025 Page: 3

#### HYDRAULIC FLOOD ANALYSIS Renville County Section 28, T116 N, R35 <u>Single 24" CS Culvert</u>

Stream	Unnamed
Drainage area	14.1 Acres
Flood of record (year and flow)	Unknown
Maximum observed high water elevation	Unknown
Road sag point elevation	1080.0 feet
Design Flood (25-year frequency)	24.9 cubic feet/ second
Design stage	1076.1
Total stage increase	3.8 feet
Headwater Elevation	1079.9
Stage increase in place condition	0.8 feet
Mean velocity through structure	6.6 fps
Main channel velocity	0.1 fps
Overtopping Flood (50-year frequency)	28.7 cubic feet/ second
Design stage	1076.2
Total stage increase	3.8 feet
Headwater Elevation	1080.0
Stage increase in place condition	0.7 feet
Mean velocity through structure	8.2 fps
Main channel velocity	0.1 fps
Regional Flood (100-year frequency)	32.7 cubic feet/ second
Design stage	1076.2
Total stage increase	3.8 feet
Headwater Elevation	1080.0
Stage increase in place condition	0.7 feet
Mean velocity through structure	8.2 fps
Approximate flow line elevation	1074.9 inlet
	1074.8 outlet
Skew from Roadway	0 Degrees
2-Year Velocity Through Culvert	5.9 fps