

REPAIR REPORT FOR:

COUNTY DITCH NO. 92:

FARIBAULT COUNTY, MINNESOTA

November 2020

Project No. 18-21621

REPORT FOR:

Faribault County Drainage Authority
415 North Main PO Box 130
Blue Earth, MN 56013
507.526.6211

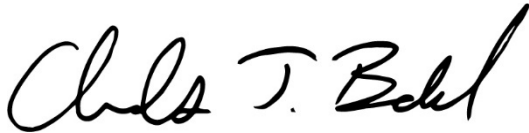
FROM:

Chuck Brandel PE
Principal + Senior Civil Engineer
ISG
115 East Hickory Street, Suite 300
Mankato, MN 56001
507.387.6651
Chuck.Brandel@ISGInc.com

ISG

Signature Sheet

I HEREBY CERTIFY THAT THESE CALCULATIONS WERE 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.



Charles J. Brandel, PE

Project Engineer

Reg. No. 43359

ISG

115 East Hickory Street, Suite 300

Mankato, Minnesota 56001

County Ditch No. 92 Repair
Faribault County, Minnesota

Engineer's Project Number: 21621

Dated this 30th day of November 2020



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OVERVIEW

Faribault County Ditch No. 92 (CD 92) lies within Elmore Township of Faribault County. The system currently drains 1,495 acres primarily in agricultural production. The existing watershed provides drainage to Sections 9, 10, 14, 15, 16, 21, 22, and 23 of Elmore Township. The system outlets into Faribault County Ditch No. 31. JD 92 consists of mainline open ditch and one lateral subsurface drainage tile with its branches.

PETITION GOALS

The goal of the Faribault County Ditch No. 92 (CD 92) petition is to repair a portion of Main open ditch in Section 22 of Elmore Township in Faribault County, Minnesota to subsurface drainage. The petition calls for approximately 810 linear feet of open ditch to be transitioned into subsurface drainage to reduce erosion. The repair will start at the beginning of the CD 92 open ditch in the South ½ of NW ¼ of Section 22 of Elmore Township and continue for approximately 810 feet north of there. The proposed subsurface tile drains approximately 259 acres of land from portions of Section 22; drainage areas were based off existing LiDAR contour lines. Upon completion of the repair, the project proposes to fill this portion of open ditch and install new tile to the recommended 0.50 in/day drainage coefficient.

EXISTING CONDITIONS

The current conditions of the system are a public open ditch. The ditch currently runs at a 0.06% slope with a 4-foot bottom and 2 to 1 side slopes. The legal grade of the ditch was found by using the original plan and profiles supplied by the county. The constructed slope was then based off of the existing culvert located on 40th Street to determine the elevation of the legal ditch bottom. The existing ditch bottom has over 2 feet of sediment in areas and is experiencing erosion on the southern portion of the existing open ditch. The land around this area is relatively steep which is adding to the erosion issues on the open ditch.

PROPOSED CONDITIONS

The capacity of agricultural tile is expressed as a drainage coefficient in inches per day (in/day). This is defined as the depth of water over the entire area of the upstream watershed that a tile can drain in a 24-hour period. For a system like CD 92, the engineer recommends a drainage coefficient of 0.50 to 0.75 in/day for subsurface drainage tile. This will be slightly less than the open ditch capacity but will meet today's standard for drainage.

The proposed repair will construct approximately 810 feet of public tile. The outlet of the new tile will be at the center of Northwest ¼ of Section 22 of Elmore Township. Upon completion of the repair, the petition proposes to fill this portion of open ditch and install a new tile to the recommended 0.50 in/day drainage coefficient. To achieve this recommendation, the install of 810 feet of 24-inch tile at a 0.06% grade is necessary to reach a 0.50 in/day drainage coefficient. This will be public tile. The open ditch should be cleaned downstream of the tile repair to ensure positive drainage. Table 1 below shows the proposed drainage coefficients for this repair.

Table 1. Proposed Drainage Coefficients

Area	Proposed Size (in)	Proposed Slope (%)	Drainage Area (Acres)	Proposed Drainage Coefficient (in/day)
Main	24	0.06%	259.0	0.51

COST ESTIMATE

The total estimated cost for the project is \$139,028. The current viewers report should be used to assess the landowners on the system for the cost of the repairs. The viewers should be contacted also to amend the viewers report as additional 1.65 acres of additional tillable land will now be tillable and the benefits for that area should be updated. See Appendix B for a detailed breakdown of the cost estimate for the repair.

CONCLUSIONS + RECOMMENDATIONS

It is recommended that the Ditch Authority call a Repair Hearing for this project and submit this report for Repair approval. The proposed repair of the portion of Main open ditch will affect six parcels of land; with five different landowners. We recommend approval of the repair, plans, and specifications be ordered and the project bid for construction

APPENDIX A: EXHIBITS



Overview
County Ditch No 92
Faribault County,
Minnesota
Tuesday, November 17, 2020

Legend

Existing

- Main Tile
- Open Ditch
- CD 92 Watershed
- Repair

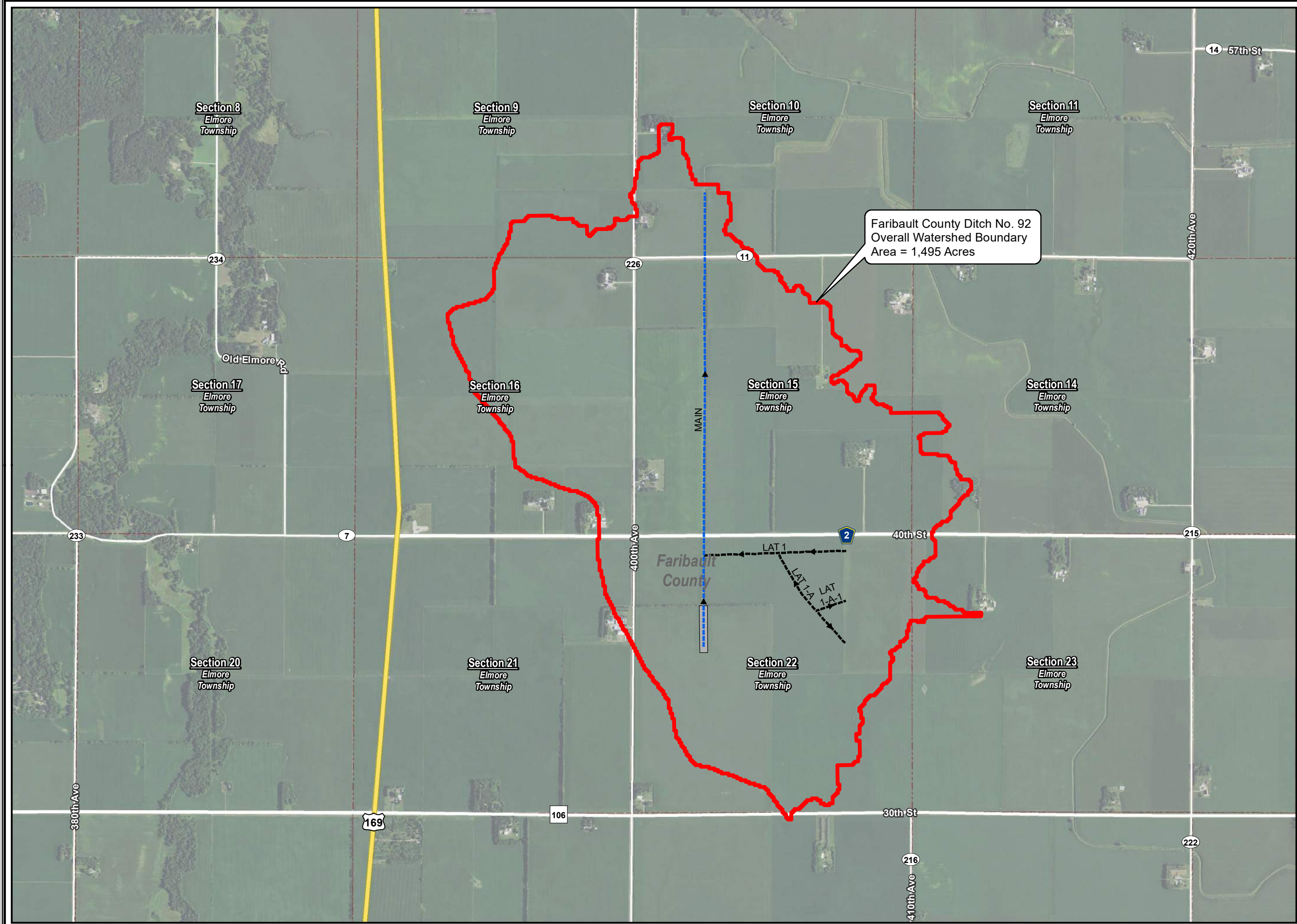
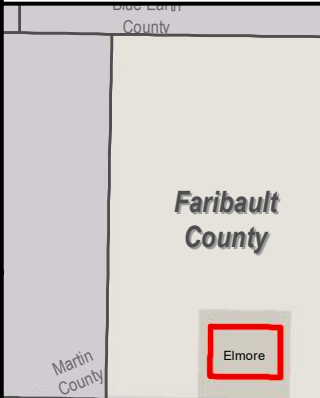
PN: 18-21621

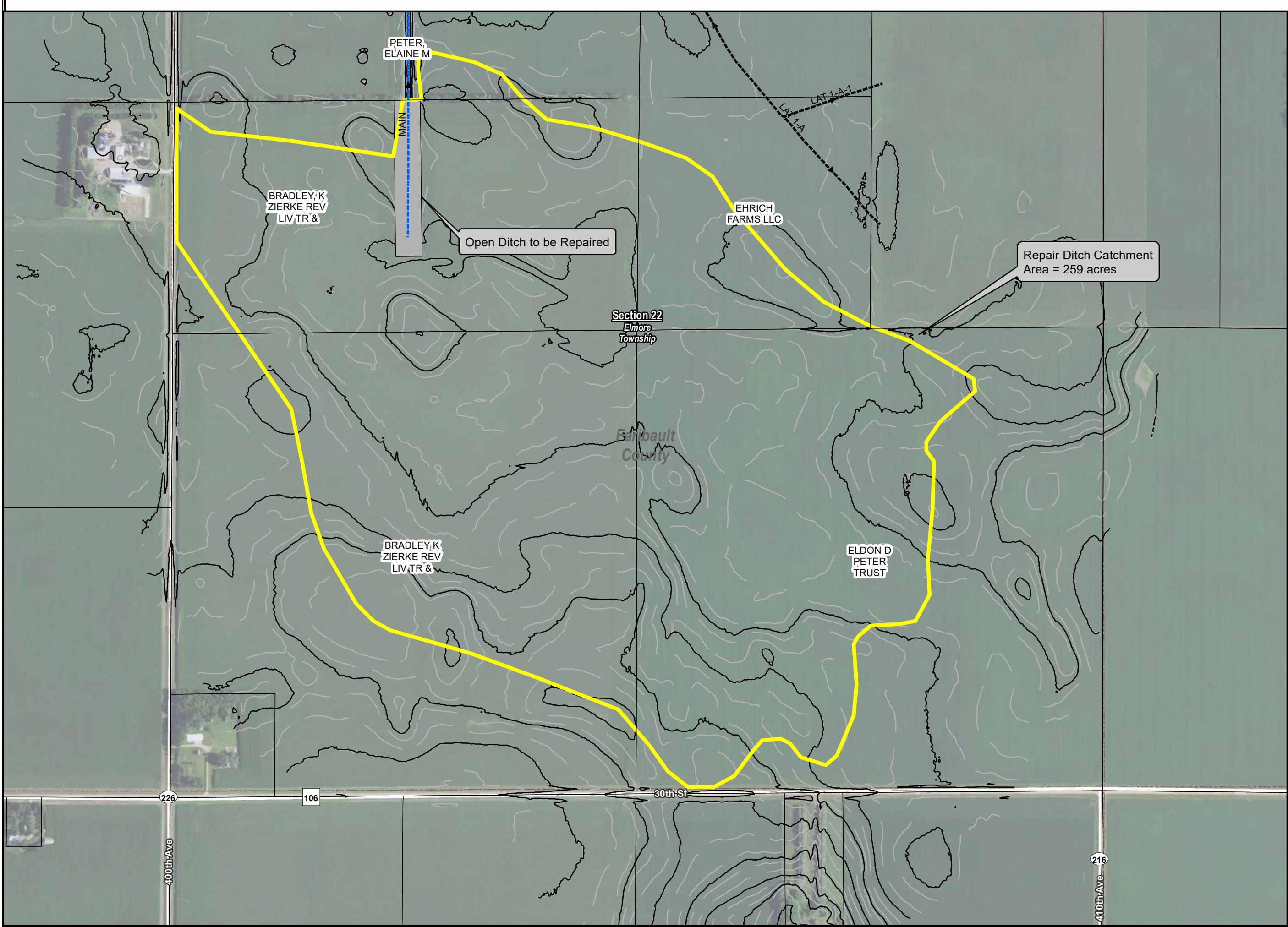
Source:

Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 395 790 1,580 Feet
1 inch = 1,667 feet





Project Site
County Ditch No 92
Faribault County,
Minnesota
Thursday, November 19, 2020

Legend

- Existing**
- Main Tile
 - Open Ditch
 - Catchment
 - Repair
 - Faribault Parcels
 - Countours

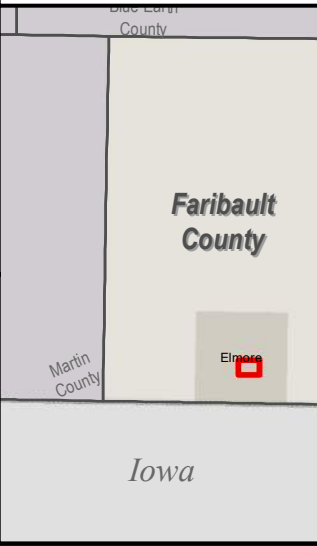
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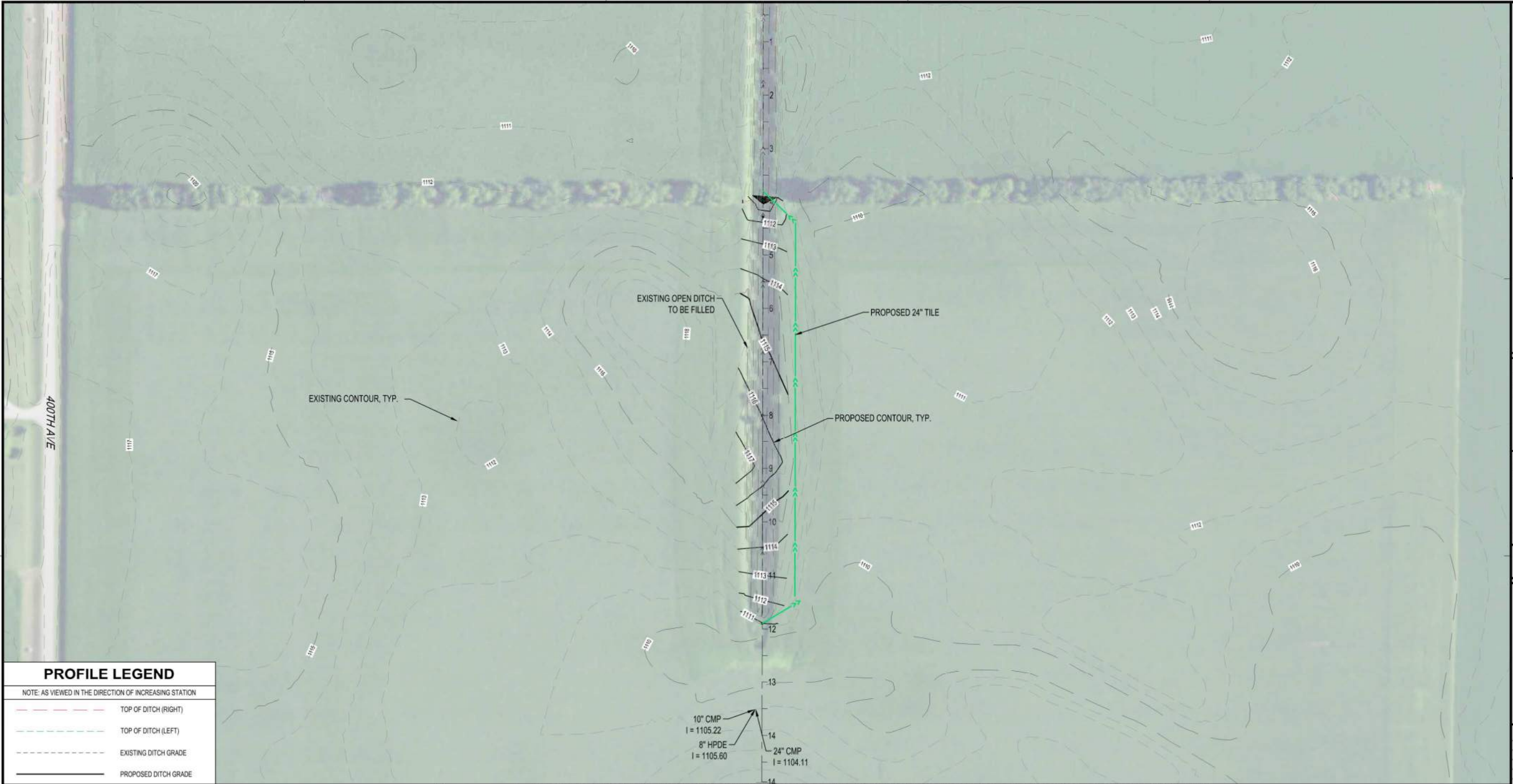
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Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 115 230 460 Feet
1 inch = 500 feet

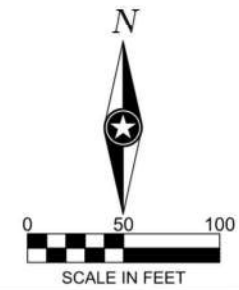
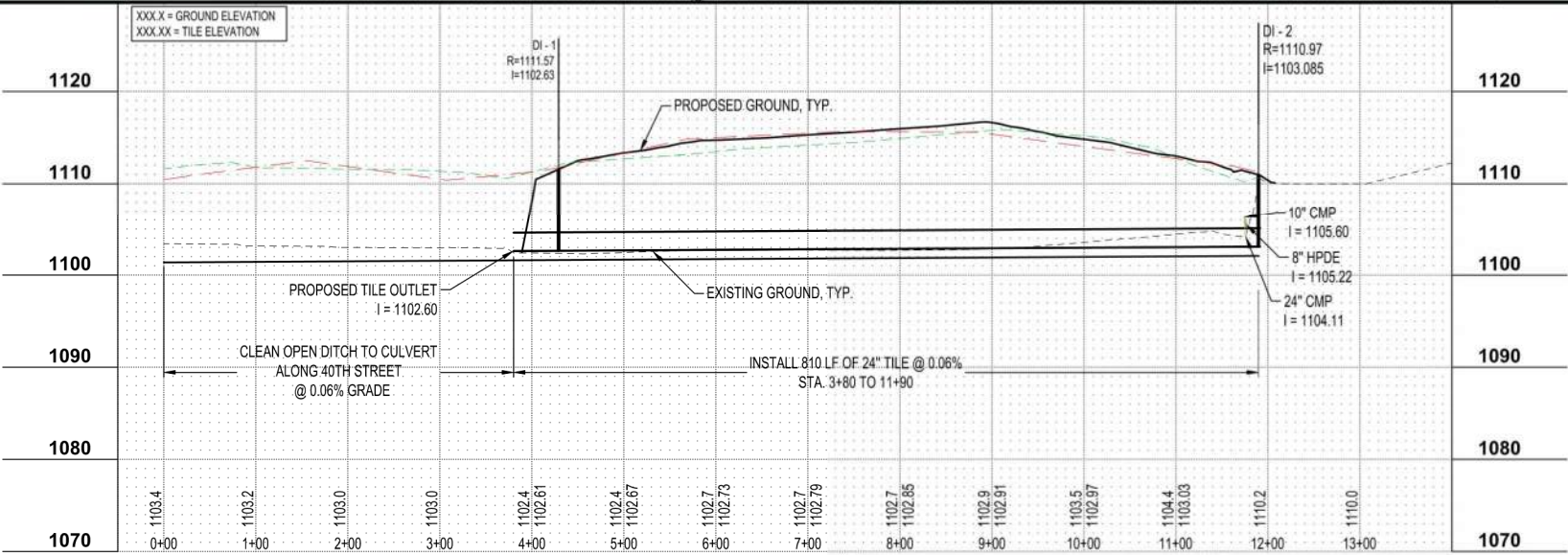




PROFILE LEGEND

NOTE: AS VIEWED IN THE DIRECTION OF INCREASING STATION

- TOP OF DITCH (RIGHT)
- TOP OF DITCH (LEFT)
- EXISTING DITCH GRADE
- PROPOSED DITCH GRADE



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.

CHARLES J BRANDEL

Charles J Brandel

DATE 11-19-20 LIC. NO. 43359

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DATE _____ LIC. NO. _____

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PROJECT

FARIBAULT COUNTY

COUNTY DITCH No. 92

ELMORE MINNESOTA

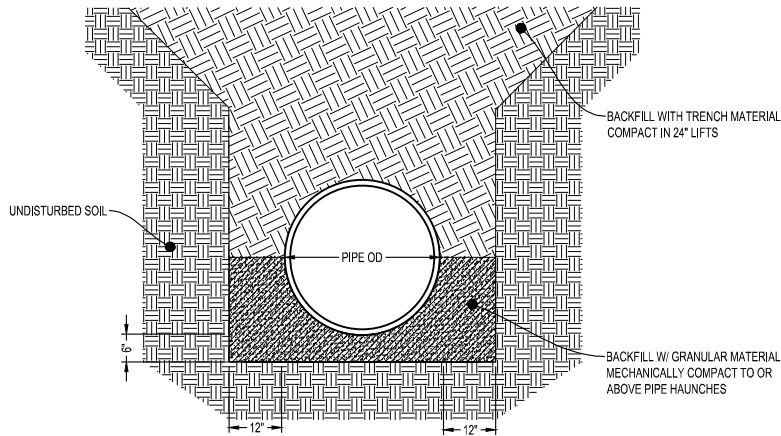
REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	21621
CAD FILE NAME	X-21621-PROFILES
DRAWN BY	BPG
DESIGNED BY	BPG
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	11-19-20
CLIENT PROJECT NO.	-

TITLE

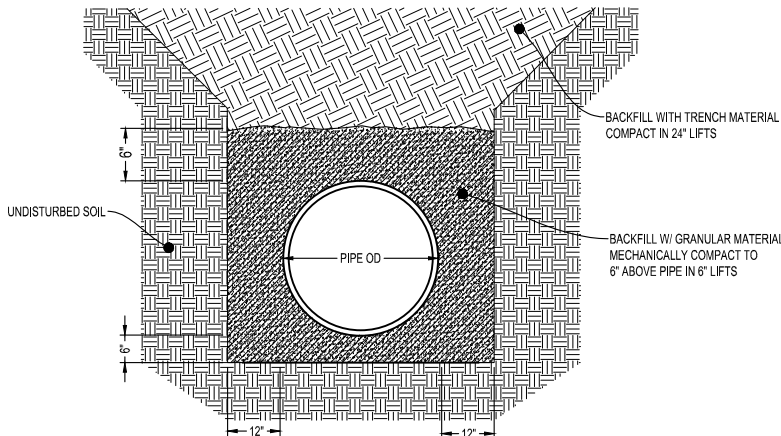
REPAIR OPEN DITCH

NOTE:
1.) GRANULAR BEDDING AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION



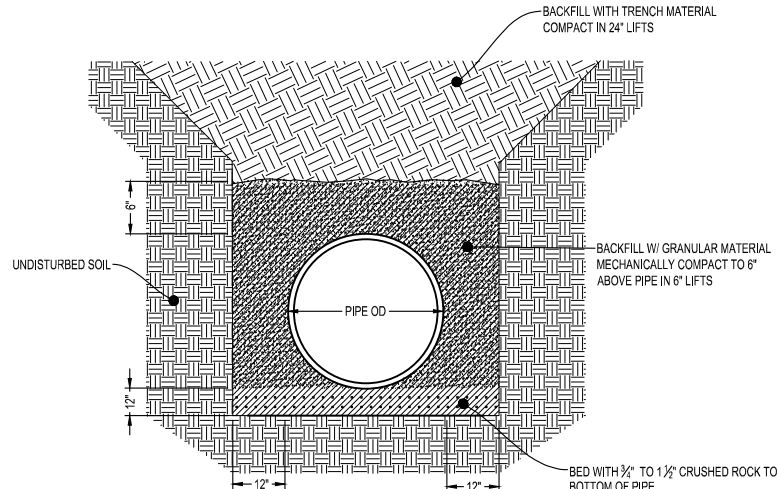
RCP FLAT BOTTOM
TRENCH BEDDING
NTS AG100

NOTE:
1.) GRANULAR BEDDING AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION



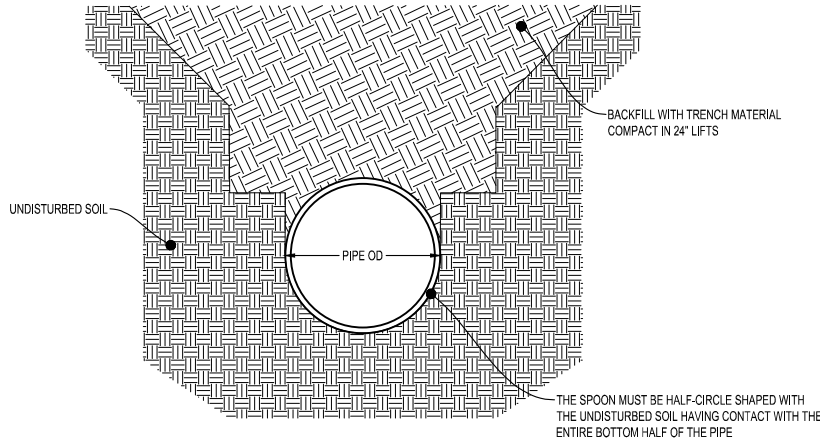
HDPE FLAT BOTTOM
TRENCH BEDDING
NTS AG105

NOTE:
1.) GRANULAR BEDDING AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION
2.) CRUSHED ROCK FOUNDATION BELOW THE PIPE PAID FOR BY CUBIC YARD ONLY
WHERE NEEDED AND APPROVED BY ENGINEER



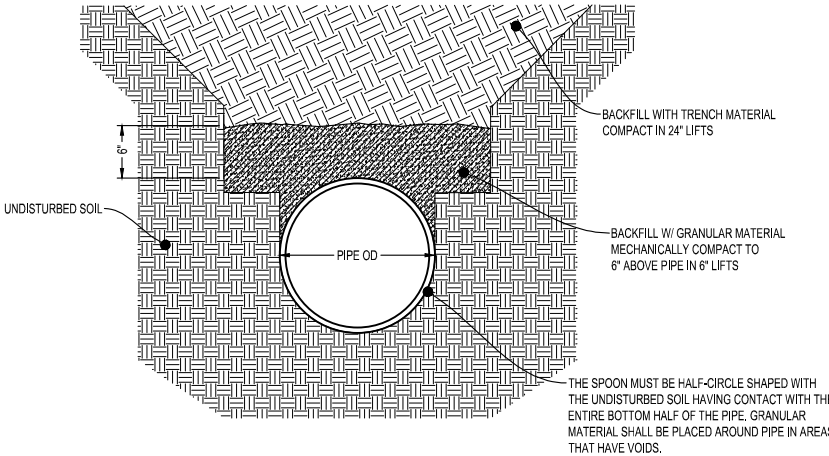
HDPE FLAT BOTTOM TRECH
WITH CRUSHED ROCK FOUNDATION
NTS AG115

NOTE:
1.) GRANULAR BEDDING AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION
2.) SPOON DIMENSIONS SHALL BE CONSTRUCTED TO PIPE MANUFACTURER
SPECIFICATIONS.



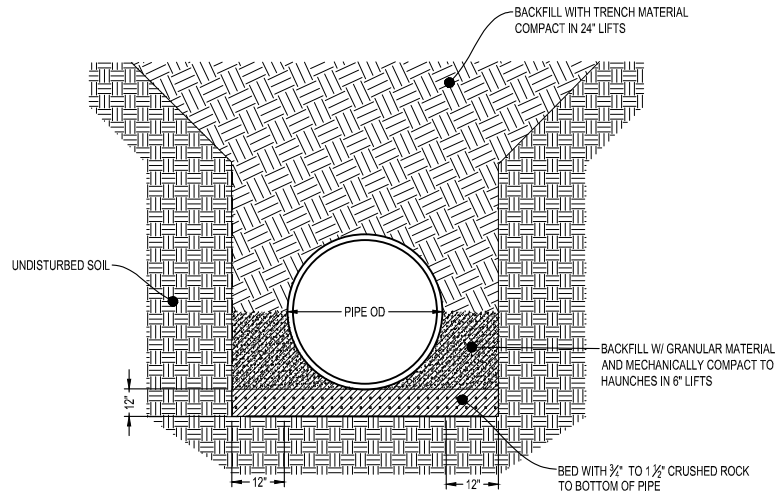
RCP SPOON
TRENCH BEDDING
NTS AG120

NOTE:
1.) GRANULAR BEDDING AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION
2.) SPOON DIMENSIONS SHALL BE CONSTRUCTED TO PIPE MANUFACTURER
SPECIFICATIONS.

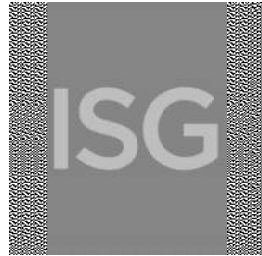


HDPE SPOON
TRENCH BEDDING
NTS AG125

NOTE:
1.) GRANULAR BEDDING AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION
2.) CRUSHED ROCK FOUNDATION BELOW THE PIPE PAID FOR BY CUBIC YARD ONLY
WHERE NEEDED AND APPROVED BY ENGINEER



RCP FLAT BOTTOM TRECH
WITH CRUSHED ROCK FOUNDATION
NTS AG110



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CHARLES J BRANDEL

DATE 11-19-20 LIC. NO. 43359

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DATE LIC. NO.

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PROJECT

FARIBAULT
COUNTY
COUNTY DITCH NO.
92

ELMORE MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	21621
CAD FILE NAME	X-21621-PROFILES
DRAWN BY	BPG
DESIGNED BY	BPG
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	

TITLE

DETAILS

SHEET



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PROJECT

FARIBAULT COUNTY
COUNTY DITCH NO. 92

ELMORE MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

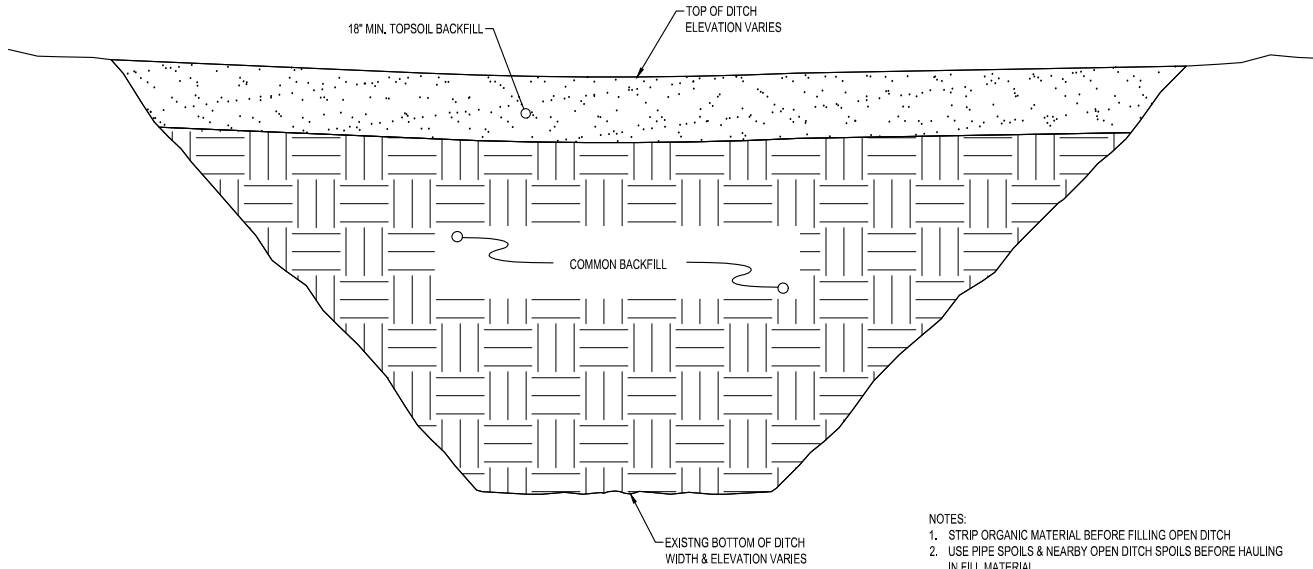
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CAD FILE NAME	X-21621-PROFILES
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DESIGNED BY	BPG
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	-/-/-
CLIENT PROJECT NO.	-

TITLE

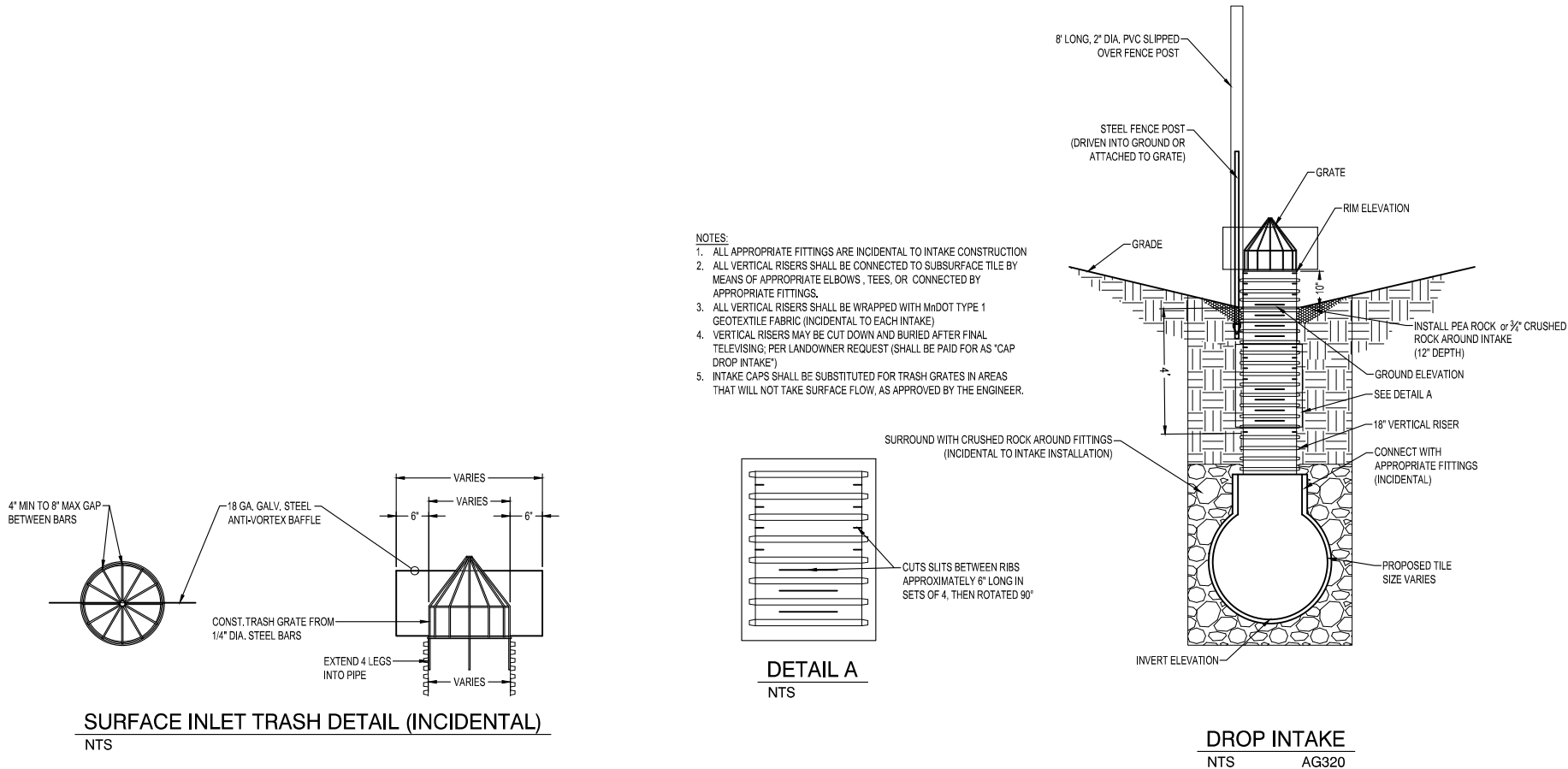
DETAILS

SHEET

3



TYPICAL OPEN DITCH FILL
NTS AG420



APPENDIX B: COST ESTIMATE



PROPOSED REPAIR

REPAIR

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,470.00	\$ 4,470
102	TILE INVESTIGATION	HR	4	\$ 149.40	\$ 598
103	24-INCH AGRICULTURAL TILE	LF	810	\$ 32.70	\$ 26,487
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	\$ 500.00	\$ 2,000
105	GRANULAR PIPE FOUNDATION	CY	65	\$ 27.60	\$ 1,794
106	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,075.00	\$ 2,150
107	COMMON BORROW (P) (CV)	CY	5300	\$ 6.50	\$ 34,450
108	TOP SOIL STRIP & PLACE SPOILS	AC	1.72	\$ 4,212.60	\$ 7,246
109	SEED MIX 32-241 WITH MULCH	SY	2770	\$ 5.00	\$ 13,850
TOTAL					\$ 93,044
10% UNFORSEEN					\$ 9,304
SUBTOTAL					\$ 102,349
	TEMPORARY DAMAGES	AC	1.86	\$ 650.00	\$ 1,209
	TELEVISIONING (POST CONSTRUCTION)	LF	810	\$ 1.00	\$ 810
COUNTY ADMINISTRATION COSTS					\$ 6,223
TOPOGRAPHIC SURVEY					\$ 1,013
REPORTS, PLANS AND SPECIFICATIONS					\$ 12,466
CONSTRUCTION STAKING & ADMINISTRATION					\$ 14,959
TOTAL REPAIR IMPROVEMENT COST					\$ 139,028

APPENDIX C: PETITION



PETITION FOR REPAIR OF DRAINAGE SYSTEM

Drainage System: CD92

Location of System:

Elmore
Township

22
Section

S1/2
NW1/4
¼ Section

BEFORE THE FARIBAULT COUNTY BOARD OF COMMISSIONERS ACTING AS
THE DRAINAGE AUTHORITY FOR FARIBAULT COUNTY DITCH # _____

WHEREAS, Petition(s) are individuals or an entity interested in or affected by Faribault County Ditch # 92; and

WHEREAS, Faribault County Ditch # 92 is in need of repair; and

WHEREAS, Petitioner(s) are requesting that the following locations on Faribault County Ditch # 92 are in need of repair; and

WHEREAS, Petitioners believe this drainage system needs Replace highlighted portion of the open
Ditch with a tile.

WHEREAS, Petitioner(s) requests that Repair Inspection be done by the selected option:

____ **Without** an Engineer being appointed by the Drainage Authority and allows for a full drainage inspection to be done and to the hiring of a contractor to do a preliminary investigation.

Or

____ **With** the Faribault County Board of Commissioners acting as Drainage Authority for the Faribault County Ditch identified and to proceed in the repair procedure under Minn. Stat. § 103E.715, Subd. 2. This requires appointing an Engineer and holding a public hearing to examine the drainage system.

MINNESOTA STATUTE 103E.701 DEFINES A REPAIR AS:

The term "repair," as used in this section, means to restore all or a part of a drainage system as nearly as practicable to the same condition as originally constructed and subsequently improved, including re-sloping of ditches and leveling of waste banks if necessary to prevent further deterioration, realignment to original construction if necessary to restore the effectiveness of the drainage system, and routine operations that may be required to remove obstructions and maintain the efficiency of the drainage system.

"Repair" also includes:

1. Incidental straightening of a tile system resulting from the tile-laying technology used to replace tiles; and
2. Replacement of tiles with the next larger size that is readily available, if the original size is not readily available.

As a petitioner of this project, I have read and understand the information that has been provided to me on the Petition for Repair of Drainage System.

Petitioner Signature: Bandy Peter Date: Dec 1, 17
Print Name: Bandy Peter Phone: 507 943 3796
Address: 3677 400 Ave Elmone MN 56027

Petitioner Signature: Brad Zierke Date: 12/1/17
Print Name: Brad Zierke Phone: 507-525-2310
Address: 3648 370th Ave. Elmone Mn.

Petitioner Signature: Anthony Zierke Date: 12-1-17
Print Name: Anthony Zierke Phone: 507 525 0695
Address: 37600 40th Elmone, MN 56027

Petitioner Signature: _____ Date: _____
Print Name: _____ Phone: _____
Address: _____

Petitioner Signature: _____ Date: _____
Print Name: _____ Phone: _____
Address: _____

Petitioner Signature: _____ Date: _____
Print Name: _____ Phone: _____
Address: _____

Received this 5th
day of December 20 17
[Signature]
Faribault County Auditor
By _____ Deputy

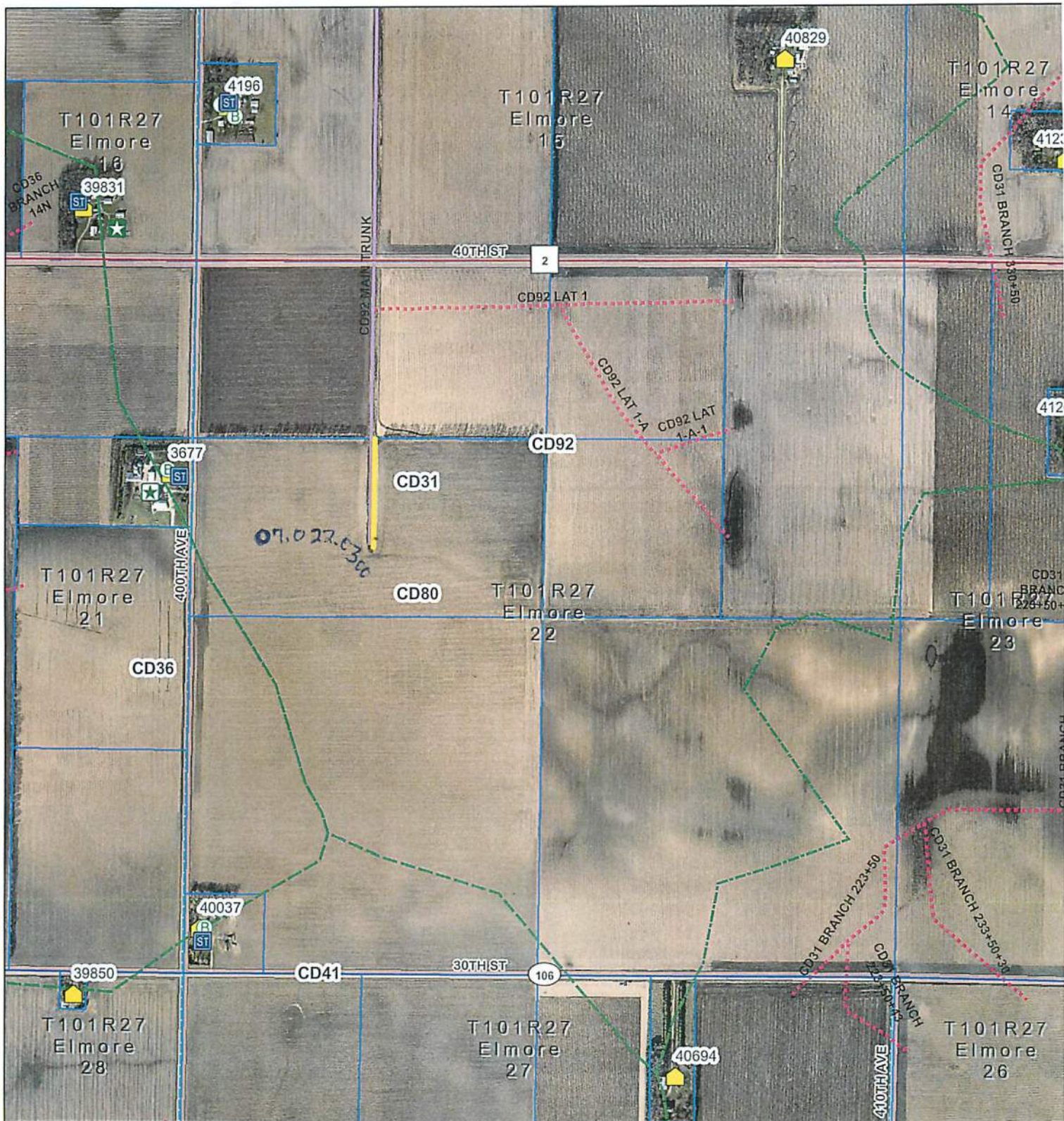
Please include the following:

Photo(s) of area(s) needing repair is/are attached? ☐ Y ☐ N

Records of Repairs? ☐ Y ☐ N

Drainage Maps? ☒ Y ☐ N

Any Other Pertinent Documentation ? ☐ Y ☐ N



www.faribaultcountyswcd.com
www.co.faribault.mn.us

FARIBAULT COUNTY SOIL & WATER CONSERVATION DISTRICT PLANNING & ZONING DRAINAGE DEPARTMENT

1 inch = 1,000 feet



Disclaimer: Faribault County and Faribault County SWCD do not warrant or guarantee accuracy of the GIS data. The data is meant for reference purposes only and should not be used for official decisions. The data contained in the maps were compiled from the best available records that could be found and may contain errors or omissions.