

Faribault County, Minnesota

Joint County Ditch #301FF

Staff Repair Report

February 2021

FARIBAULT COUNTY
Drainage Dept

Phone 507.526.2388
415 South Grove Street, Suite 8
Blue Earth, MN 56013
www.co.faribault.mn.us/drainage



JCD301FF Hueper Branch Repair

BACKGROUND

Re-establishment of Records (ROR) proceeding for the Hueper Branch was conducted in 2020. As part of this proceeding, the tile branch was televised and a report was generated by ISG. The ROR report established that the Hueper tile branch consists of 1,740 feet of 14" concrete tile and 1,967 feet of 18" concrete tile. At the final hearing for the ROR, landowners requested proposed repairs to the tile.

The existing capacity of the Hueper Branch tile was determined in the ROR report and ranged from 0.14 to 0.28 inches per day (Table 1). The actual capacities are likely less when considering the current condition of the tile. Televising showed soil intrusions from joints, cracking, small obstructions, offset joints, and off-grade sections that reduce the capacity of the system. Furthermore, measurements of the tile in prior excavations showed 16" tile rather than 18" tile, taking actual capacities even lower.

Table 1. Hueper Branch tile drainage capacities.

Area	Beginning Station	End Station	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Hueper	6+75	17+42	18	0.40%	398.0	0.28
Hueper	17+42	26+42	18	0.16%	341.7	0.21
Hueper	26+42	43+82	18	0.16%	313.8	0.22
Hueper	43+82	End of Pipe	14	0.16%	249.3	0.14

DATA COLLECTION

The Hueper Branch tile was televised by ISG in the fall 2020.

PROPOSED REPAIR DETAILS

Landowners requested proposed repairs to the Hueper Branch tile. Drainage Department staff have provided two repair options: 1) full tile replacement and 2) spot repairs.

Repair Option 1 – Replace the Hueper Branch

The cost of the replacement option gets expensive because a pipe will need to be bored under Minnesota State Highway 22. It's important to note that the tile under State Highway 22 is corrugated metal pipe that is currently in fair condition. There will also be an additional cost because the depth of cut surpasses 10 feet in some areas west of State Highway 22. Additionally, the drainage capacity of the replaced system would still be below the standard of 0.5 inches per day. The replacement would consist of 2,000 feet of 18" dual-wall plastic tile and 1,750 feet of 15" dual-wall plastic tile.

Repair Option 2 – Spot Repairs

The televising footage showed numerous areas of cracking, offset joints, debris in the flowline, and off-grade sections. However, the proposed spot repairs only include portions of the Hueper Branch that are severely inhibiting drainage capacity and/or are likely to fail in the near future. The main cost for this option are the two sump replacements of 15" tile, 235 feet and 275 feet, in the deepest cut of the system (see profiles).

TIMELINE

The repair should be completed to avoid crop damages.

ESTIMATED COST

Option 1 – Replace the Hueper Branch

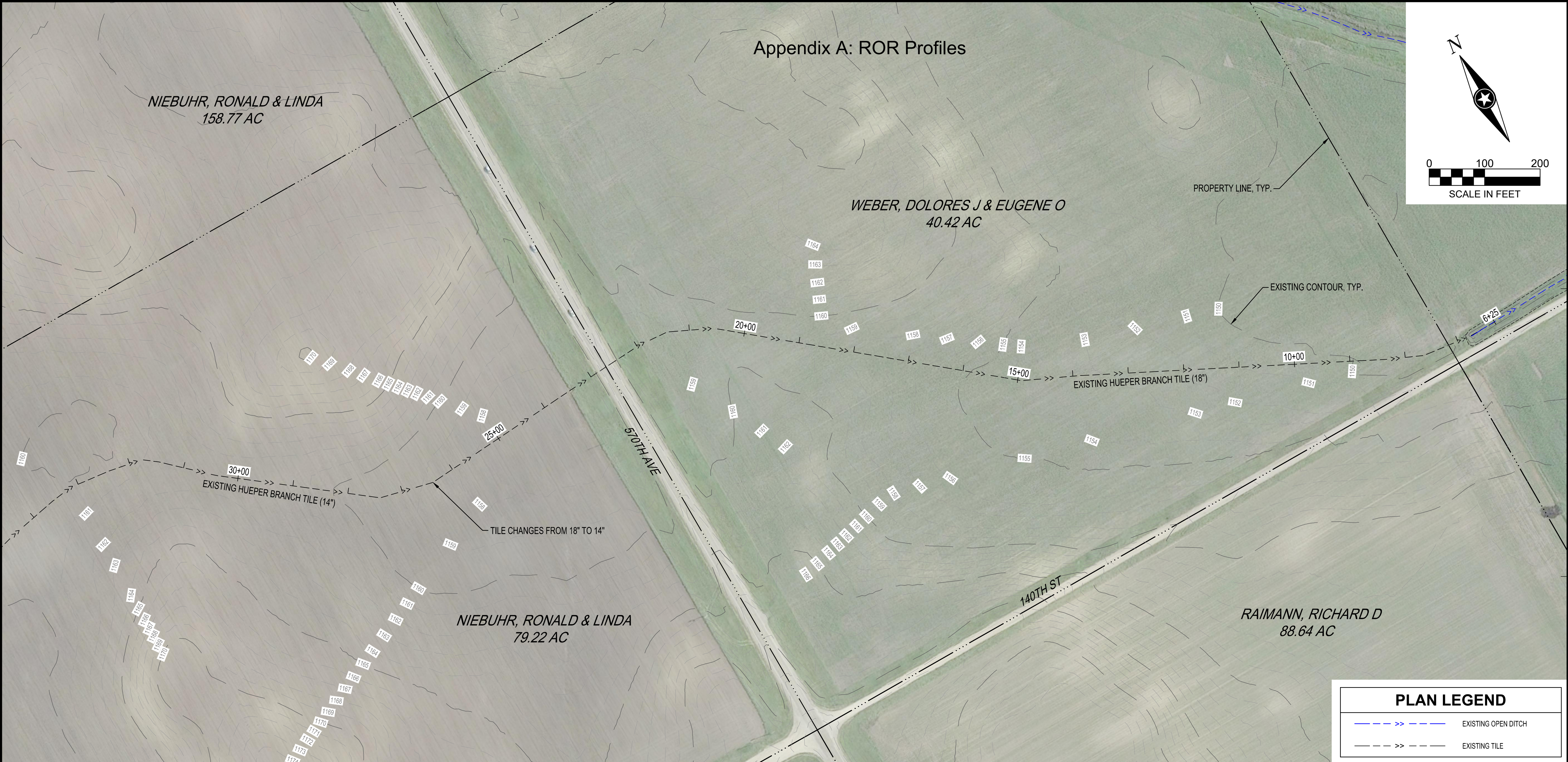
Item	Unit	Quant	County Est Unit Price	County Est Amount
Mobilization	LS	1	\$ 4,000.00	\$ 4,000.00
F&I 18" Gasketed HDPE Drain Tile	LF	2000	\$ 25.00	\$ 50,000.00
F&I 15" Gasketed HDPE Drain Tile	LF	1750	\$ 22.00	\$ 38,500.00
Granular Beddin for Drain Tile	TON	625	\$ 30.00	\$ 18,750.00
Bore 24" Steel Pipe under MN22	LF	150	\$ 250.00	\$ 37,500.00
18" Drop Intakes	EA	2	\$ 1,000.00	\$ 2,000.00
Crush Old County Tile	LS	1	\$ 3,000.00	\$ 3,000.00
Fill Old Tile Under MN22	LF	150	\$ 13.00	\$ 1,950.00
Class III Riprap w/ Type 4 Geotextile Fabric	TON	10	\$ 30.00	\$ 300.00
				\$ -
Contingency 10%				\$ 15,600.00
				\$ 171,600.00

Option 2 – Spot Repairs

Item	Unit	Quant	County Est Unit Price	County Est Amount
Mobilization	LS	1	\$ 2,000.00	\$ 2,000.00
F&I 15" Gasketed HDPE Drain Tile	LF	510	\$ 22.00	\$ 11,220.00
Granular Bedding for Drain Tile & Spot Repairs	TON	130	\$ 30.00	\$ 3,900.00
Spot Repair Replacements (10' of 18" or 15" Tile)	EA	3	\$ 750.00	\$ 2,250.00
Repair Outlet to Open Ditch	EA	1	\$ 1,200.00	\$ 1,200.00
Spot Repair	EA	4	\$ 500.00	\$ 2,000.00
				\$ -
				\$ -
				\$ -
Contingency 10%				\$ 2,257.00
				\$ 24,827.00

APPENDICES

Appendix A:	Re-Establishment of Records Profiles
Appendix B:	Repair Option 1 Overview Map
Appendix C:	Repair Option 2 Overview Map



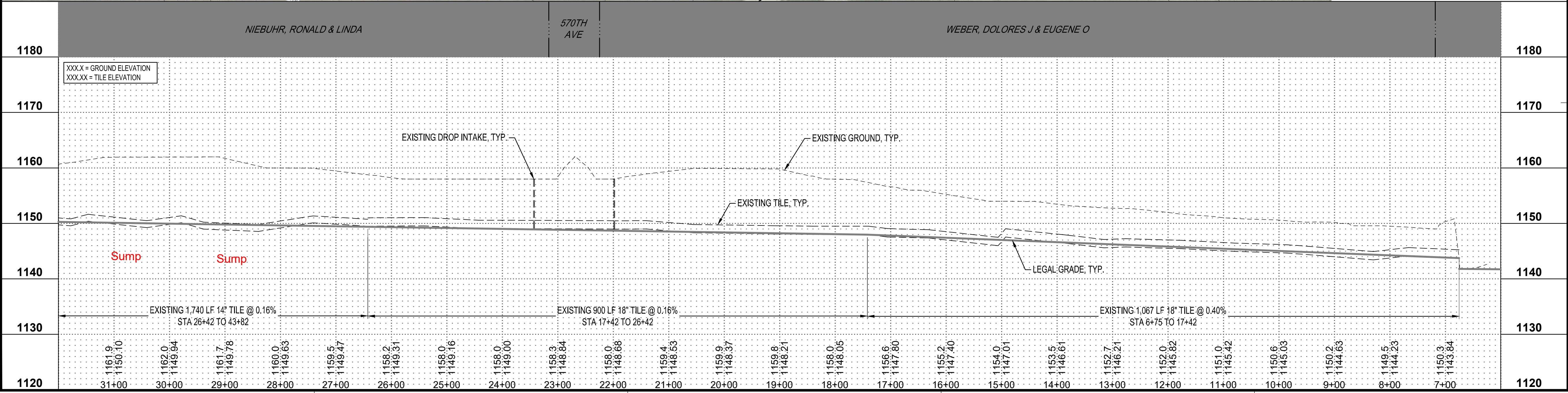
ISG

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 IN THE STATE OF MINNESOTA.

PRELIMINARY NOT FOR CONSTRUCTION

DATE: _____ LIC. NO. _____

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PROJECT

**JOINT COUNTY
DITCH No. 301
HUEPER BRANCH**

FARIBAULT COUNTY MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

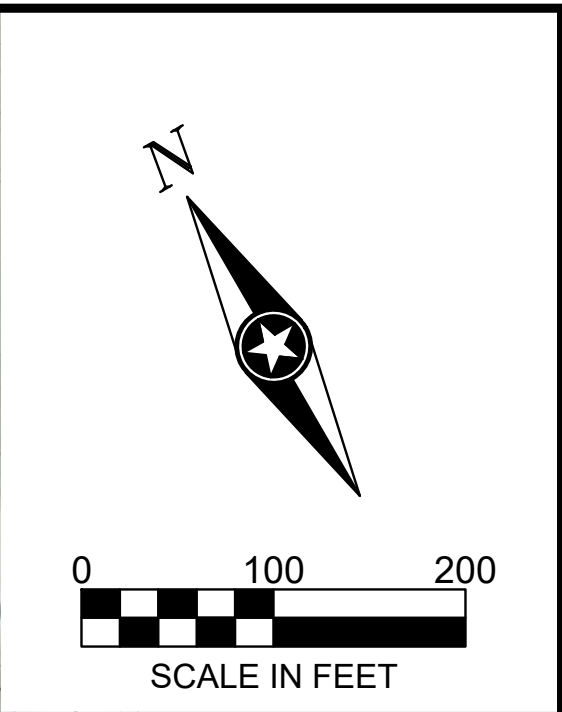
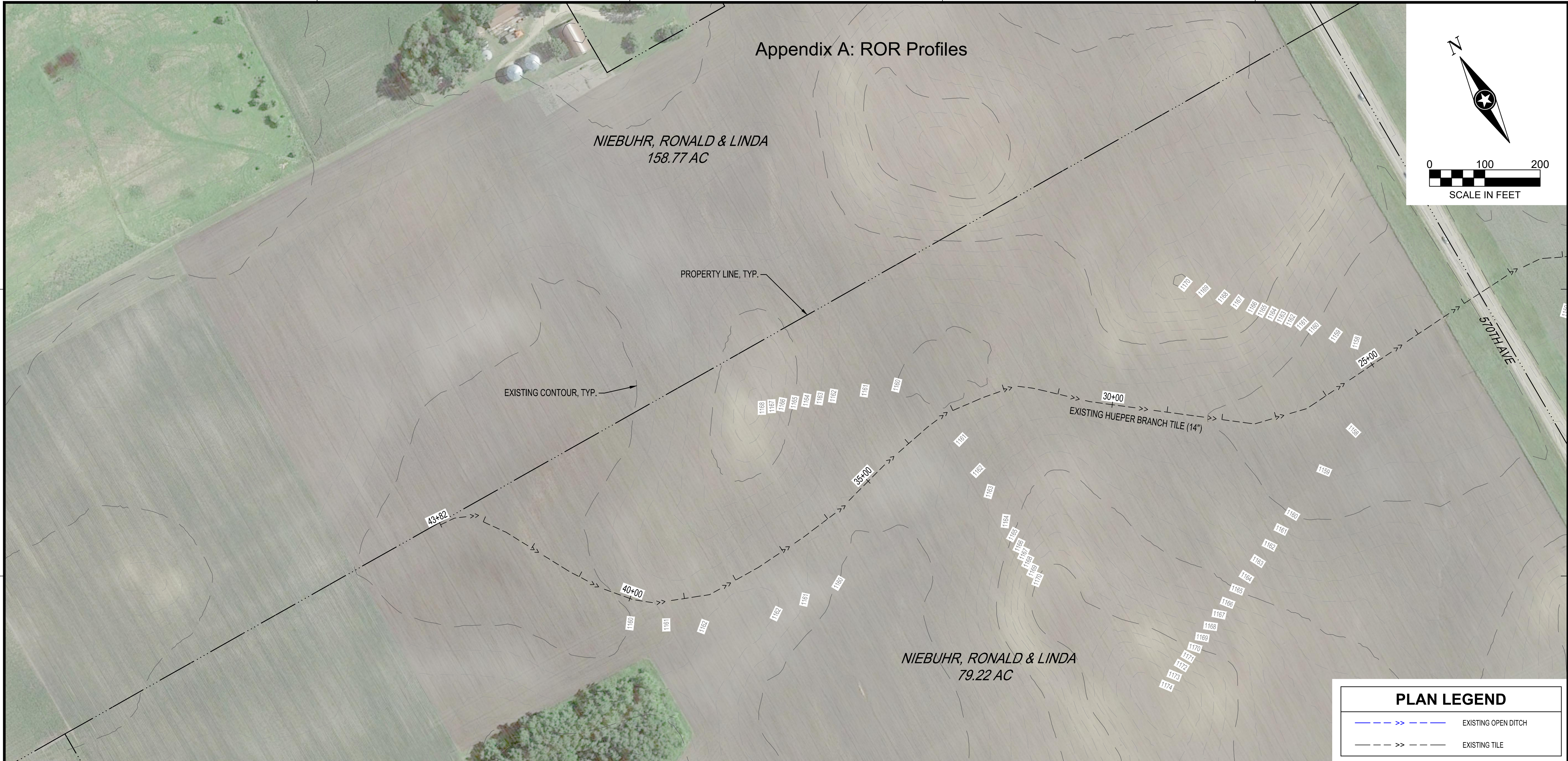
PROJECT NO.	20-20487
FILE NAME	20487-PROFILES TILE (HUEPER)
DRAWN BY	KJH
DESIGNED BY	MAO
REVIEWED BY	MAO
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	-

TITLE

**TILE PLAN AND
PROFILE**

SHEET

4 OF 6



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.

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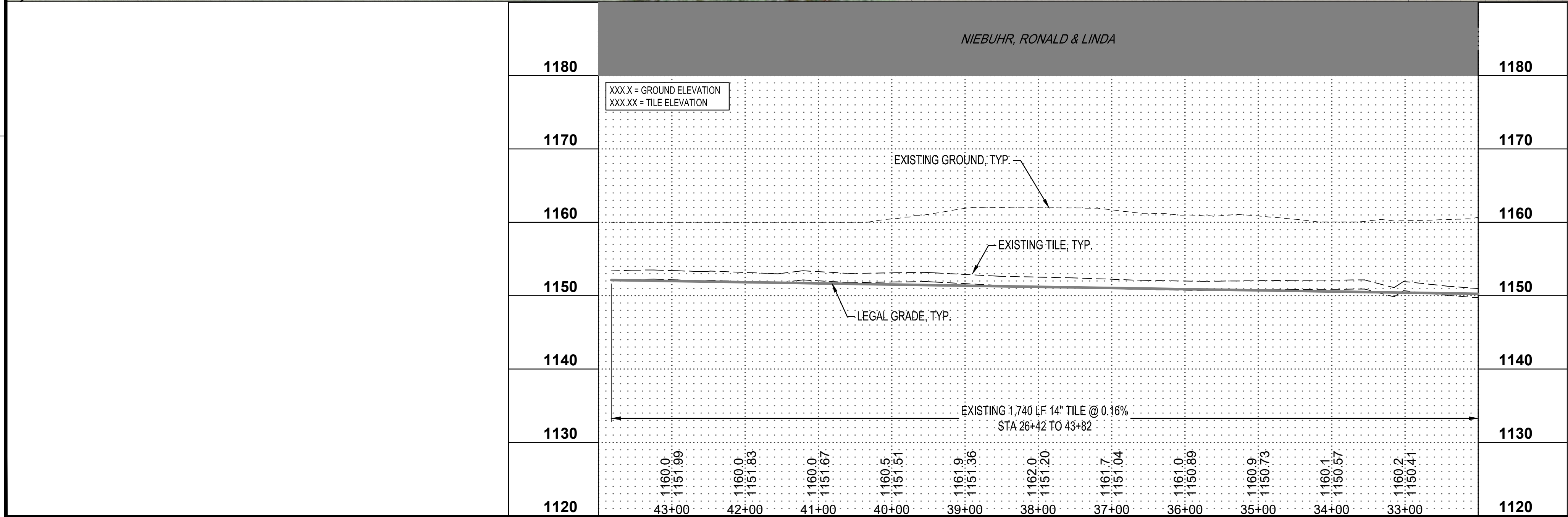
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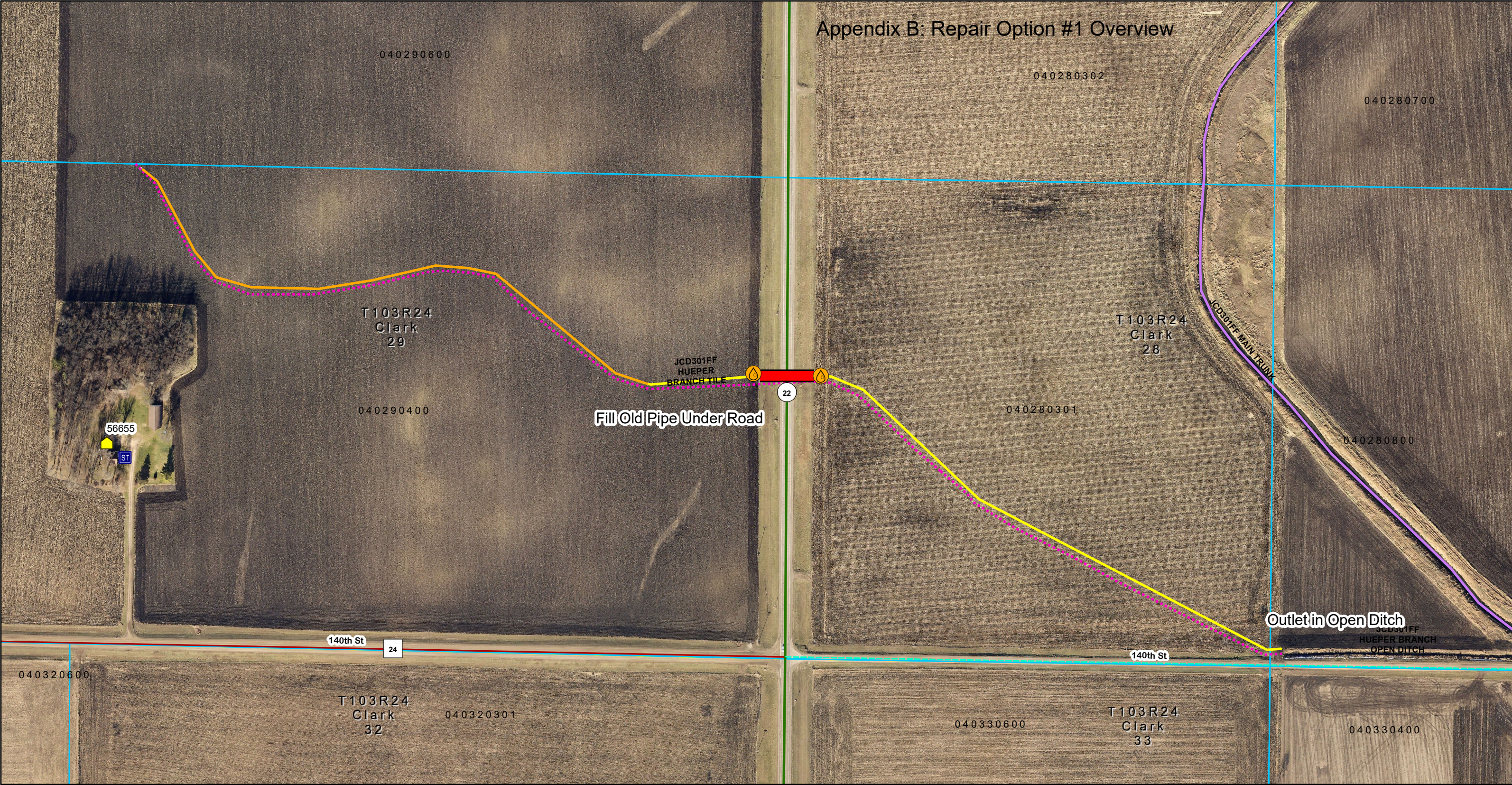
SHEET

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OF 6









Appendix B: Repair Option #1 Overview




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Faribault County
Drainage Department

-  Bore 24" Steel Pipe
-  15" Dual Wall Tile
-  18" Dual Wall Tile
-  15" Drop Intake

-  Public Open Ditch
-  Public Shallow Ditch
-  Public Tile


1 inch = 250 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.

