Memorandum

To:	Faribault CD 25A Landowners
From:	Chuck Brandel
Date:	April 9, 2020
Subject:	Repair Options for CD 25A
cc:	Merissa Lore, Dustin Anderson

The following memo provides information for the repair options on Faribault County Ditch No. 25A (CD25A). Following guidance for COVID-19, an in-person meeting is not able to take place, however, steps need to be taken to move forward with repair options as the basin continues to grow. A temporary overland flow channel has been constructed as a temporary fix to protect County Road 124 (CR 124). A repair option will take place in the near future, and landowner input is requested to assist in determining the direction of the repair.

A landowner meeting took place in the fall of 2019. Multiple repair options where presented at the meeting and those that were deemed feasible are included in this memo. The outcome of the meeting was to reconvene in the spring to determine a repair option.

Due to the know difficulties with the soils in the location of the repair, soil boring were completed by geotechnical engineering firm. Soil borings were in strategic locations to determine the best route and depth for a proposed pipe. A complete geotechnical analysis was done which determined the best location for pipe installation is shallow and to the west of the existing tiles.

Below is a summary of the repair options. Options 1, 2, and 5 are not included in this letter, as the options were deemed unfeasible. Attached with this memo are exhibits of each option with associated cost and expected annual maintenance cost.

Option 3: Repair with Smaller & Shallower Pipe with Lift Station

Repair option 3 would install a 12-inch dual wall HPDE pipe east of the previously installed pipe. The pipe would be installed by laying pipe within a trench, however, to avoid problematic soils would be installed shallower. Due to installing the pipe at a higher elevation gravity drainage is not feasible and would require a pump. The pump would help to make up for lost capacity in the use of a smaller pipe.

Option 4: Wetland Bank with Tile Pumps

Repair option 4 would create a wetland where the existing basin is located. The wetland can be completed as private bank or through BWSR RIM. Both wetland restoration routes have positive and negative aspects. This options needs approval from the landowner and direction would be determined from the landowner. The basin would be seeded and an outlet pipe would be installed.

The CD 25A public drainage tiles to the north of CR 124 and west of the basin are still apart of the system and needs to function. Due to elevations of the existing tiles and pumps would need to be installed to pump the water from the public tiles into the wetland.

Option 6: Repair to West with Rock Foundations

Repair option 6 would install a 24-inch dual wall HPDE pipe to the west of the existing tile with a rock foundation. This was the recommendation of the geotechnical engineer based on the findings of the soil borings. The soil borings found the soils to be better suited for pipe installation to the west. The rock foundation would be 6 feet deep and 4 feet wide and completely wrapped in geotextile fabric. This will allow for a sturdy foundation for the tile to be installed upon. Dewatering during construction is

suggested by the geotechnical engineer and a DNR water appropriation permit may be needed for pumping of groundwater during construction. The DNR review period for permit is 30 days.

Recommendations + Next Step:

With the current state of the CD25A is in, it is recommended to move forward with an option to avoid any further damage to the land, road, or system infrastructure. Due to the soil conditions found from the soil borings, a pipe installed via trenched installation with gravity drainage is high risk. There may be additional cost associated with installation of the pipe due to unknown soil characteristics in the areas that soil borings were not completed.

The wetland restoration with a shallower pipe outlet is the option recommended by the engineer. If a wetland restoration is not desired by the landowner, a shallow pipe with a pump would be the secondary recommendation. These options are the most feasible to construction with the known soil conditions of the site and are the most cost effective long-term solution.

Its encouraged that you reach out to Merissa Lore or Chuck Brandel with any comments of questions by May 15, 2020. Contact information is below. Notices will be sent to inform you of a public hearing will be held in the near future with date to be determined. The meeting may be in person or virtual depending on the ongoing health concerns associated with COVID-19.

Merissa Lore
Faribault County Drainage Manager
merissa.lore@co.faribault.mn.us
507-526-2388

Chuck Brandel, PE
Civil Engineer + Vice President
Chuck.Brandel@ISGInc.com
507-387-6651

FARIBAULT COUNTY
COUNTY DITCH No. 25
April 21, 2020

PROPOSED OPTIONS

Option 3
Repair with Smaller & Shallower Pipe w/ Lift Station

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 10,000.00	$ 10,000
102	TILE INVESTIGATION	HR	2	$ 200.00	$ 400
103	12-INCH AGRICULTURAL TILE	LF	825	$ 35.00	$ 28,875
104	CONNECT EXISTING 12-INCH TILE	EA	2	$ 602.40	$ 1,205
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	$ 500.00	$ 2,000
106	GRANULAR PIPE FOUNDATION	CY	200	$ 75.00	$ 15,000
107	ELECTRICAL SERVICE	LS	1	$ 10,000.00	$ 10,000
108	LIFT STATION	EA	1	$ 125,000.00	$ 125,000
109	DEWATERING	LS	1	$ 50,000.00	$ 50,000
111	GEOTECHNICAL SERVICES AND SOIL BORINGS	LS	1	$ 16,000.00	$ 16,000
				TOTAL	**$ 258,480**
				10% UNFORSEEN	$ 25,848
				SUBTOTAL	**$ 284,328**
	TEMPORARY DAMAGES	AC	1.84	$ 650.00	$ 1,194
				COUNTY ADMINISTRATION COSTS	$ 14,217
				TOPOGRAPHIC SURVEY	$ 3,000
				REPORTS, PLANS AND SPECIFICATIONS	$ 19,903
				CONSTRUCTION STAKING & ADMINISTRATION	$ 31,277
				TOTAL REPAIR WITH SMALLER & SHALLOWER PIPE W/ LIFT STATION IMPROVEMENT COST	**$ 353,919**

ANNUAL MAINTENANCE COSTS					
101	ELECTRICITY	Month	12	$ 300.00	$ 3,600.00
102	ANNUAL MAINENANCE COSTS	Year	1	$ 3,000.00	$ 3,000.00
				Annaul Maintenance Costs	**$ 6,600.00**

FARIBAULT COUNTY
COUNTY DITCH No. 25
April 21, 2020

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PROPOSED OPTIONS
Option 4
Wetland Bank with Tile Pumps

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 14,390.00	$ 14,390
102	TILE INVESTIGATION	HR	2	$ 200.00	$ 400
103	12-INCH AGRICULTURAL TILE	LF	825	$ 35.00	$ 28,875
104	CONNECT EXISTING 12-INCH TILE	EA	2	$ 602.40	$ 1,205
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	$ 500.00	$ 2,000
106	GRANULAR PIPE FOUNDATION	CY	200	$ 70.00	$ 14,000
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	35	$ 75.90	$ 2,657
108	CONSTRUCT CONCRETE LOW FLOW WEIR	EA	1	$ 20,000.00	$ 20,000
109	SHALLOW MARSH SEEDING (SEED MIX: 34-271)	AC	28.4	$ 1,500.00	$ 42,600
110	UPLAND BUFFER SEEDING (SEED MIX: 35-541)	AC	26.4	$ 1,500.00	$ 39,600
111	MOWING	AC	54.8	$ 25.00	$ 1,370
112	WEED SPRAYING	AC	54.8	$ 25.00	$ 1,370
113	WETLAND LIFT STATION	EA	2	$ 35,000.00	$ 70,000
114	DEWATERING	LS	1	$ 50,000.00	$ 50,000
115	GEOTECHNICAL SERVICES AND SOIL BORINGS	LS	1	$ 16,000.00	$ 16,000
116	ESTIMATED 3-YEAR MAINTENANCE	LS	1	$ 30,000.00	$ 30,000
				TOTAL	**$ 334,466**
				10% UNFORSEEN	$ 33,447
				SUBTOTAL	**$ 367,913**
	TEMPORARY DAMAGES	AC	1.84	$ 650.00	$ 1,194
	LAND ACQUISTION/ PERMANENT DAMAGES	AC	0.00	$ 6,500.00	$ -
				COUNTY ADMINISTRATION COSTS	$ 18,396
				TOPOGRAPHIC SURVEY	$ 3,000
				REPORTS, PLANS AND SPECIFICATIONS	$ 55,187
				CONSTRUCTION STAKING & ADMINISTRATION	$ 40,471
				TOTAL WETLAND BANK WITH TILE PUMPS IMPROVEMENT COST	**$ 486,161**
				TOTAL WETLAND CREDITS	**35 Acres**
				COST PER ACRE	**$ 25,000**
				POTENTIAL WETLAND CREDIT SALES	**$ 875,000**
	ANNUAL MAINTENANCE COSTS				
101	ELECTRICITY	Month	12	$ 250.00	$ 3,000.00
102	ANNUAL MAINENANCE COSTS	Year	1	$ 1,500.00	$ 1,500.00
				Annaul Maintenance Costs	**$ 4,500.00**

FARIBAULT COUNTY
COUNTY DITCH No. 25
April 21, 2020

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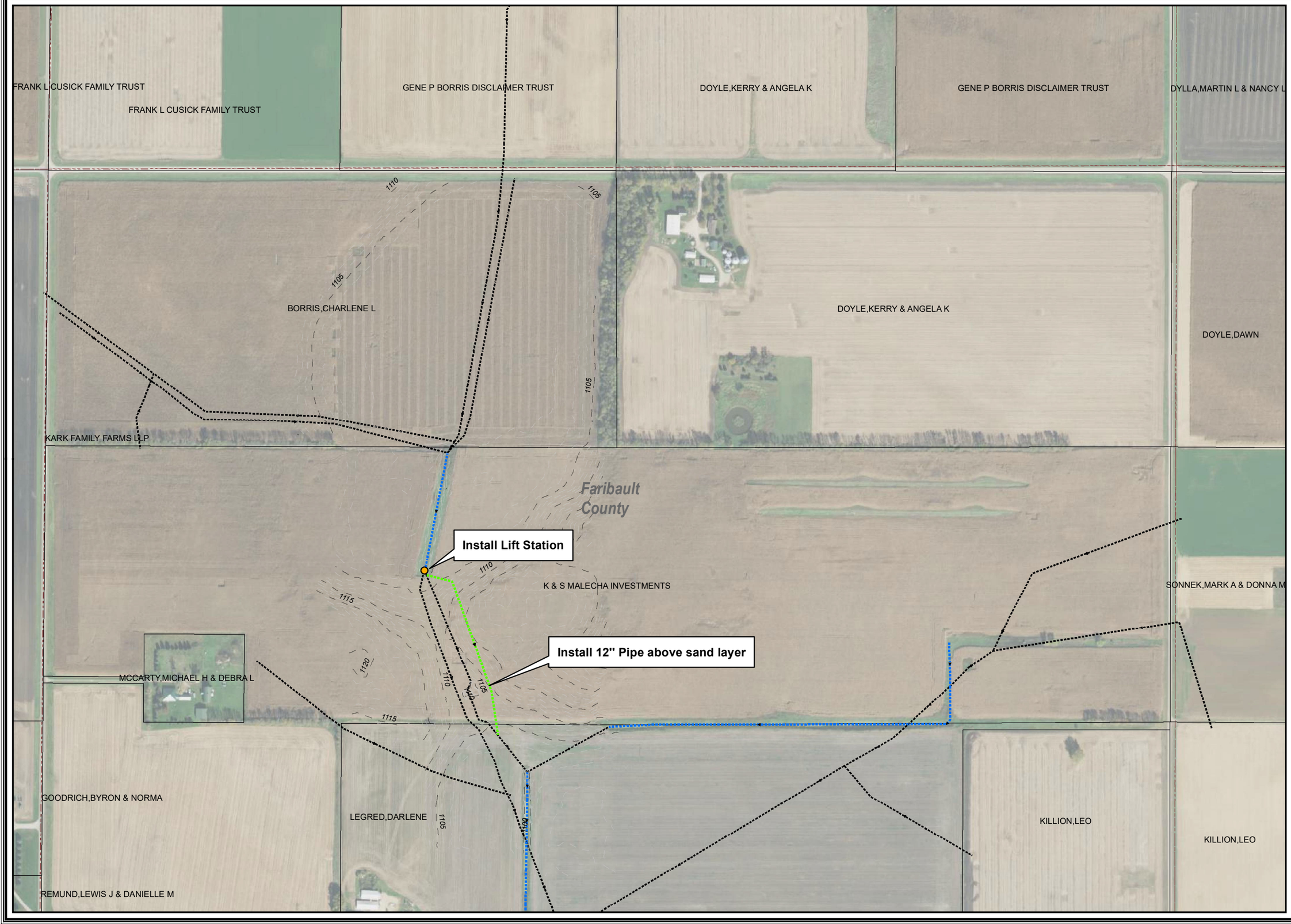
PROPOSED OPTIONS
Option 6
Repair to West with Rock Foundation

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 10,000.00	$ 10,000
102	TILE INVESTIGATION	HR	8	$ 200.00	$ 1,600
103	24-INCH AGRICULTURAL TILE	LF	1255	$ 50.00	$ 62,750
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	6	$ 500.00	$ 3,000
105	GRANULAR PIPE FOUNDATION	CY	1046	$ 75.00	$ 78,437
106	GEOTEXTILE FABRIC	SY	2510	$ 5.00	$ 12,550
107	DEWATERING WELL	EA	2	$ 40,000.00	$ 80,000
108	DEWATERING	LS	1	$ 50,000.00	$ 50,000
109	DNR WATER APPROPIATION PERMIT	LS	1	$ 2,500.00	$ 2,500
110	GEOTECHNICAL SERVICES AND SOIL BORINGS	LS	1	$ 16,000.00	$ 16,000
				TOTAL	**$ 316,837**
				10% UNFORSEEN	$ 31,684
				SUBTOTAL	**$ 348,521**
TEMPORARY DAMAGES		AC	2.88	$ 650.00	$ 1,873
				COUNTY ADMINISTRATION COSTS	$ 17,427
				TOPOGRAPHIC SURVEY	$ 3,000
				REPORTS, PLANS AND SPECIFICATIONS	$ 24,397
				CONSTRUCTION STAKING & ADMINISTRATION	$ 38,338
				TOTAL REPAIR TO WEST WITH ROCK FOUNDATION IMPROVEMENT COST	**$ 433,556**

Option Summary	Installation	Maintenance
Repair with Smaller & Shallower Pipe w/ Lift Station	**$ 353,919**	**$ 6,600**
Wetland Bank with Tile Pumps	**$ 486,161**	**$ 4,500**
Repair to West with Rock Foundation	**$ 433,556**	**$ -**



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Option 3

County Ditch No. 25

Faribault County, Minnesota

Friday, May 17, 2019

Legend

- Lift Stations
- Proposed Tile
- Minor Contour
- Major Contour
- Main Tile
- Open Ditch

PN: 08-11558

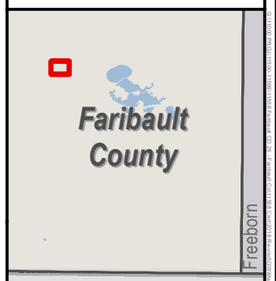
Source:

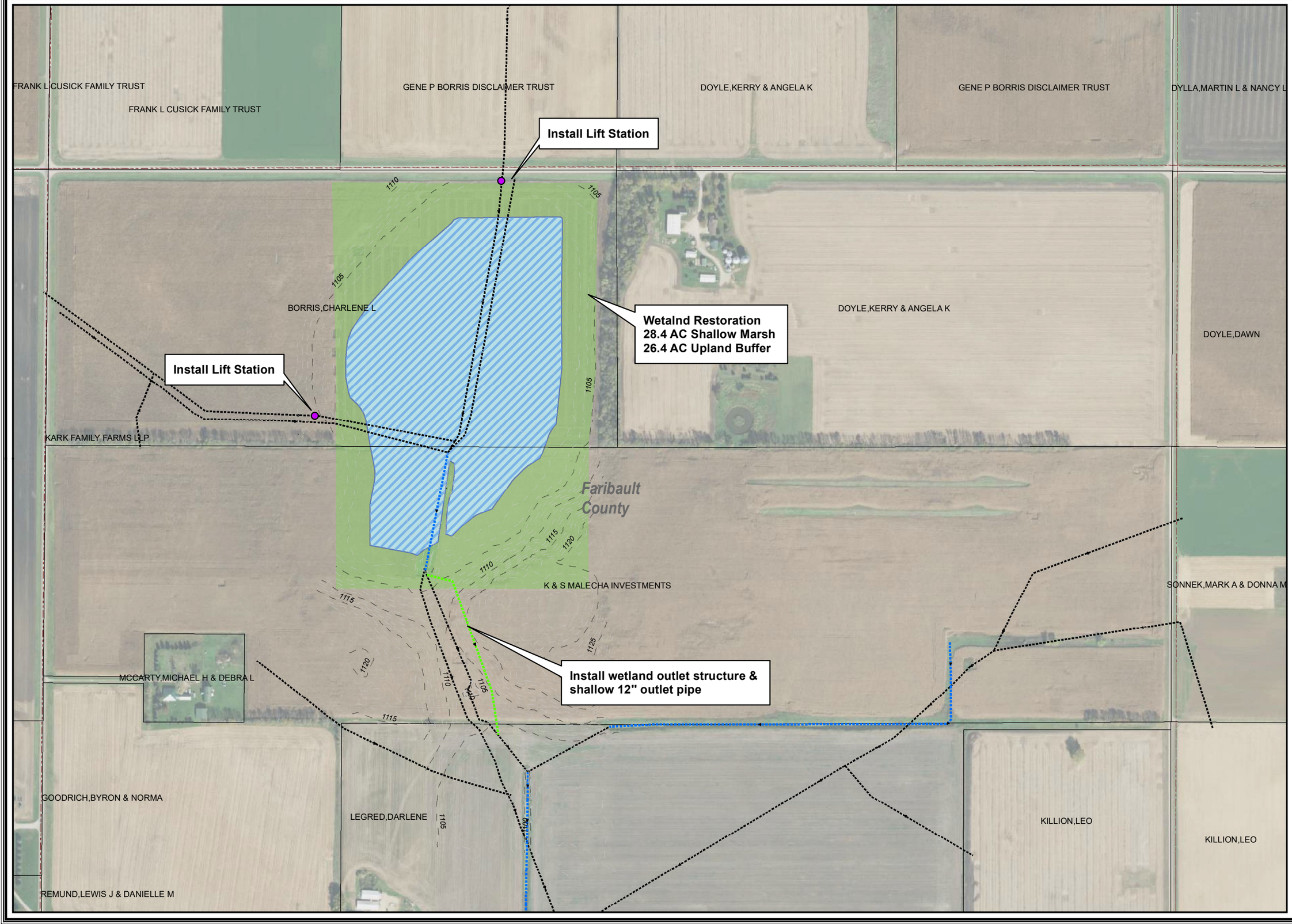
Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

N W E S

0 95 190 380 Feet

1 inch = 417 feet





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Option 4

County Ditch No. 25

Faribault County,
Minnesota

Wednesday, June 12, 2019

Legend

- Lift Stations
- Proposed Tile
- Minor Contour
- Major Contour
- Main Tile
- Open Ditch
- Maintain Water
- Wetland

PN: 08-11558

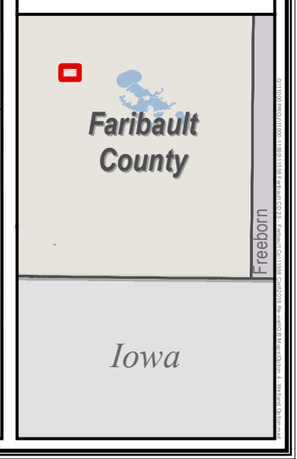
Source:

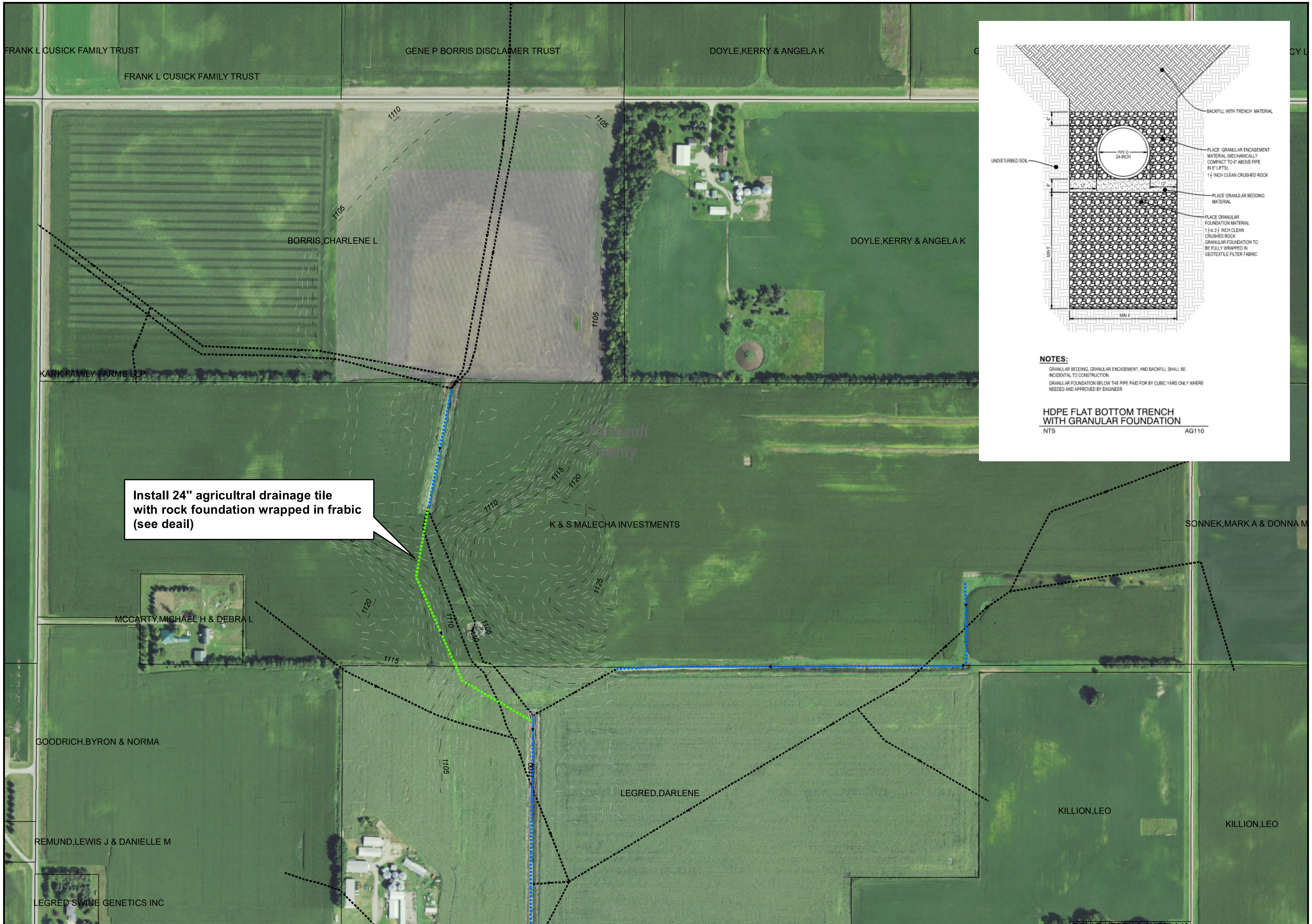
Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

N
W E
S

0 95 190 380 Feet

1 inch = 417 feet




FRANK L CUSICK FAMILY TRUST
FRANK L CUSICK FAMILY TRUST
GENE P BORRIS DISCLAIMER TRUST
DOYLE,KERRY & ANGELA K
BORRIS,CHARLENE L
DOYLE,KERRY & ANGELA K
KARK FAMILY FARMS LLP
K & S MALECHA INVESTMENTS
SONNEK,MARK A & DONNA M
MCCARTY,MICHAEL H & DEBRA L
GOODRICH,BYRON & NORMA
LEGRED,DARLENE
KILLION,LEO
KILLION,LEO
REMUND,LEWIS J & DANIELLE M
LEGRED SWINE GENETICS INC
DOYLE,KERRY & ANGELA K
Install 24" agricultural drainage tile with rock foundation wrapped in frabic (see deail)
1110
1105
1115
1120
1125
BACKFILL WITH TRENCH MATERIAL
PLACE GRANULAR ENCASEMENT MATERIAL (MECHANICALLY COMPACT TO 6" ABOVE PIPE IN 6" LIFTS)
1½ INCH CLEAN CRUSHED ROCK
UNDISTURBED SOIL
PIPE ID 24-INCH
12"
12"
PLACE GRANULAR BEDDING MATERIAL
PLACE GRANULAR FOUNDATION MATERIAL
1½ to 2½ INCH CLEAN CRUSHED ROCK
GRANULAR FOUNDATION TO BE FULLY WRAPPED IN GEOTEXTILE FILTER FABRIC
MIN 6'
MIN 4'
NOTES:
GRANULAR BEDDING, GRANULAR ENCASEMENT, AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION.
GRANULAR FOUNDATION BELOW THE PIPE PAID FOR BY CUBIC YARD ONLY WHERE NEEDED AND APPROVED BY ENGINEER.
HDPE FLAT BOTTOM TRENCH WITH GRANULAR FOUNDATION
NTS
AG110

ISG

Option 6

County Ditch No 25

Faribault County, Minnesota

Monday, March 30, 2020

Legend

- ProposedTile
- 2008MajorContours
- Minor Contour
- Major Contour
- Main Tile
- Open Ditch

PN: 08-11558

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)

N W E S

0 100 200 400 Feet

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