



**LE SUEUR COUNTY BOARD OF COMMISSIONERS  
MEETING AGENDA  
December 7, 2017**

1. **9:00 a.m. Informational Meeting for Le Sueur - Scott Joint Ditch 4**



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# **Le Sueur County, MN**

**Thursday, December 7, 2017**

**Board Meeting**

## **Item 1**

**9:00 a.m. Informational Meeting for Le Sueur - Scott Joint Ditch 4**

Staff Contact:

STATE OF MINNESOTA  
 LE SUEUR AND SCOTT COUNTIES, JOINT BOARD OF COMMISSIONERS  
 JOINT DRAINAGE AUTHORITY FOR LE SUEUR/SCOTT JOINT DITCH 4

The matter of Le Sueur/Scott Joint Ditch 4	Agenda Informational Meeting
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- |   |               |
|---|---------------|
| 1. Election of Joint Drainage Authority Chairperson:                      | Maury Noonan  |
| 2. Welcome and Introductions:   | Board Chair   |
| 3. Purpose of Informational Meeting:                                      | Maury Noonan  |
| a. Review Engineer’s Inspection Report and Feasibility Study              |               |
| b. Receive staff report on benefits roll and accuracy of current benefits |               |
| c. Consider need for Repair of Drainage System                            |               |
| d. Consider need for Redetermination of Benefits                          |               |
| 4. Presentation of Engineer’s Inspection Report and Feasibility Study     | Chuck Brandel |
| 5. Presentation of staff report on benefits roll                          | Pam Simonette |
| 6. Public Discussion  | Board Chair   |
| 7. Board Action (if any)  | Board Chair   |

a. Consideration of Repair:

“Repair” means to restore all or a part of a drainage system to the same hydraulic capacity as originally constructed and subsequently improved. Repair may include the following:

- resloping of ditches and leveling of spoil banks if necessary to prevent further deterioration
- realignment to original construction if necessary to restore the effectiveness of the drainage system
- routine operations that may be required to remove obstructions and maintain the efficiency of the drainage system
- incidental straightening of a tile system resulting from the tile-laying technology used to replace tiles
- replacement of tiles with the next larger size that is readily available, if the original size is not readily available
- preservation, restoration, or enhancement of wetlands; wetland replacement; and the realignment of a drainage system to prevent drainage of a wetland
- incorporation of measures to reduce channel erosion and otherwise protect or improve water quality.

[27539-0001/2852859/1]

The drainage authority shall maintain the drainage system that is located in its jurisdiction, including the permanent strips of perennial vegetation, and provide the repairs necessary to make the drainage system efficient.

b. Consideration of Redetermination of Benefits:

If the drainage authority determines that the original benefits or damages determined in a drainage proceeding do not reflect reasonable present day land values or that the benefited or damaged areas have changed, the drainage authority may appoint three viewers to redetermine and report the benefits and damages and the benefited and damaged areas.

c. Consideration of other Actions:

The Board may not take or consider other actions (i.e. improvement, partial abandonment, etc. without a landowner petition requesting such action).

[27539-0001/2852859/1]



**Auditor's Tabular Assessment Statement \*(1) For the Creation of a Fund to be used for the Repair of \*(2) For the Repair of Le Sueur-Scott Joint County  
Ditch No.4 in the County of Le Sueur Minnesota**

**\*If the lien is for the Creation of a fund to be used for repairs in the future strike out (2). If the lien is for repairs already made strike out (1).**

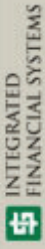
Names of the Owners of all Lands and the Names of all Public Roads, Corporate Roads and Railroads that are Assessed for the Repair of said Ditch.	Description of each Parcel of Land to be Assessed for the Repair of said Ditch as it Appears from Original Lien Statement for Construction of said Ditch.	Section	Township	Range	Number of acres in each tract according to assessment rolls and tax list.	Estimated number of acres benefited.	Amount that each tract of land and each public road, corp-orate road and rail-road was benefitted by the construction of said ditch.	Amount that each tract of land and each public road, corp-orate road and rail-road is liable for and must pay for the repair of such ditch.	Parcel Number
					Acres	Acres	Dollars	Dollars	
Albertus & Elizabeth Niesen	W 25 ac of NW 1/4 of NW 1/4	5	112	24	25.00	17.00	1190.00		03.005.0100
Thomas W Adamek Trust & Mary Adamek Trust	E 15 ac of NW 1/4 of NW 1/4 & NE 1/4 of NW 1/4	5	112	24	55.00	46.00	3361.00		03.005.0200
Fogarty Farm LLC % Kevin Fogarty	E 1/2 of SW 1/4 less 8.75 ac & SE 1/4 of NW 1/4	5	112	24	111.25	78.80	2625.62		03.005.7500
Kevin & Mary Jo Fogarty	8.75 ac of E 1/2 of SW 1/4	5	112	24	8.75	6.20	206.38		03.005.7600
Fogarty Farm LLC % Kevin Fogarty	SW 1/4 of NW 1/4 & W 1/2 of SW 1/4 less 6.25 ac	5	112	24	113.75	82.47	3984.95		03.005.0400
Christian & Michelle Stay	5 ac of W 1/2 of SW 1/4	5	112	24	5.00	3.63	175.40		03.005.0300
Kevin & Mary Jo Fogarty	1.25 ac of W 1/2 of SW 1/4	5	112	24	1.25	0.90	43.65		03.005.7600
Joseph P & Jean Murphy	W 1/2 of W 1/2 of NW 1/4	6	112	24	40.00	36.00	2450.00		03.006.0100
LeRoy J & Patricia Schwartz Living Trust	E 1/2 of W 1/2 of NW 1/4	6	112	24	40.00	32.00	2256.00		03.006.0200
LeRoy & Patricia Schwartz Living Trust	E 1/2 of NW 1/4	6	112	24	80.00	71.00	4103.00		03.006.0200
Terry & Melissa Schwartz Trust	Beg 672.25 ft E of N 1/4 cor, th S 701.24 ft, th E 542.32 ft to centerline of 243rd Ave, th SW'ly along said line 2148 ft +/- to S line of NE 1/4, th W 334.55 ft, th N 2616.12 ft to beg	6	112	24	40.28	40.28	2574.08		03.006.2510
Woestehoff Family Farm LLC	Comm at N 1/4 cor, th E 672.25 ft, th S 701.24 ft, th E 542.32 ft to centerline of 243rd Ave, said point being the point of beg, th SW'ly along said centerline 2148 +/- to S line of NE 1/4, th E 2312.72 ft, th N1891.82 ft, th W 1443.47 ft to beg	6	112	24	86.45	43.72	2793.92		03.006.2520
Charles J & Marie T Retka	N 1/2 of SE 1/4	6	112	24	80.00	32.00	2602.00		03.006.5000
Charles J & Marie T Retka	N 1/2 of S 1/2 of SE 1/4 less 2.76 ac & S 20 ac of E 30 ac of N 120 ac of SW 1/4	6	112	24	57.24	30.08	1713.59		03.006.5500
Daniel J Sullivan	1.76 ac of N 1/2 of S 1/2 of SE 1/4	6	112	24	1.76	0.92	52.41		03.006.5100
Charles J & Marie T Retka	W 3/4 of N 120 ac of SW 1/4 & NE 1/4 of NE 1/4 of SW 1/4	6	112	24	100.00	52.00	2984.00		03.006.7500
Amelia Fogarty Trust	S 1/2 of S 1/2 of SE 1/4 less 3.21 ac & S 40 ac of SW 1/4	6	112	24	76.79	31.68	1895.04		03.006.5300
Dennis C & Jeanne Baumann	3.21 ac of S 1/2 of S 1/2 of SE 1/4	6	112	24	3.21	1.32	78.96		03.006.5400
Curtis & Barbara Koepp	W 1/2 of NW 1/4 less 4 ac	7	112	24	76.00	34.20	725.80		03.007.8000
Wade M & Mandy Lsimonette	4 ac of W 1/2 of NW 1/4	7	112	24	4.00	1.80	38.20		03.007.7500

Names of the Owners of all Lands and the Names of all Public Roads, Corporate Roads and Railroads that are Assessed for the Repair of said Ditch.	Description of each Parcel of Land to be Assessed for the Repair of said Ditch as it Appears from Original Lien Statement for Construction of said Ditch.	Section	Township	Range	Number of acres in each tract according to assessment rolls and tax list.	Estimated number of acres benefited.	Amount that each tract of land and each public road, corp-orate road and rail-road was benefitted by the construction of said ditch.	Amount that each tract of land and each public road, corp-orate road and rail-road is liable for and must pay for the repair of such ditch.	Parcel Number
					Acres	Acres	Dollars	Dollars	
Curtis & Barbara Koepp	E 1/2 of NW 1/4 less 11.5 ac in SW cor	7	112	24	68.50	41.00	2046.00		03.007.0100
Curtis & Barbara Koepp	SW 1/4 of NE 1/4	7	112	24	40.00	18.00	684.00		03.007.2800
Amelia Fogarty Trust	N 1/2 of NE 1/4 less .87 ac	7	112	24	79.13	51.13	3984.21		03.007.2500
Dennis C & Jeanne Baumann	That part of NW 1/4 of NE 1/4 beg 724.15 ft E of N 1/4 cor Sec 7, th S 75 ft, E 516.78 ft, NW to N line of NE 1/4, th W to beg	7	112	24	0.87	0.87	67.79		03.007.2600
Luke Retka	SE 1/4 of NE 1/4	7	112	24	40.00	22.00	1494.00		03.007.2700
Eugene & Emil Meger Jr	W 1/2 of NW 1/4 less 630 x 210 ft in SW cor & NE 1/4 of NW 1/4	8	112	24	117.00	29.00	2026.00		03.008.0100
Joseph P & Jean Murphy	E 117.75 ac of NE 1/4 less 1.50 ac	1	112	25	116.25	116.25	1599.36		12.001.3500
Joseph P & Jean Murphy	That part of SE 1/4 of NE 1/4 beg at E 1/4 cor of sec 1, th W 326 ft, N 200 ft, E 326 ft, S 200 ft to beg	1	112	25	1.50	1.50	20.64		12.001.3600
Lyle F & Harriet Wagner Trust	That part of SE 1/4 lying S of N R/W of LS-Scott Joint Ditch #4	1	112	25	88.42	88.42	1829.19		12.001.6000
Lyle F & Harriet Wagner	That part of SE 1/4 lying N of LS-Scott Joint Ditch #4	1	112	25	71.58	71.58	1480.81		12.001.6100
Larry Krentz et al	E 1/2 of NW 1/4 less 7.17 ac & W 1/4 of NE 1/4 & N 1/2 of SE 1/4 of SW 1/4	1	112	25	132.83	132.83	3683.19		12.001.1100
Cory R & Jessica J Hafemann	That part of E 1/2 of NW 1/4 beg 1801.38 ft E of NW cor of Sec 1, th E 40.10 ft, SE 1582.95 ft, E 201.88 ft, S 482 ft, W 517.52 ft, N 482 ft, E 275.54 ft, NW 1582.95 ft to beg	1	112	25	7.17	7.17	198.81		12.001.1000
Charles J & Marie T Retka	S 1/2 of SE 1/4 of SW 1/4	1	112	25	20.00	20.00	1158.00		12.001.8500
Harley & Connie Loewe Trusts & Robert & Judith Loewe Trusts	W 1/2 of SW 1/4 & SW 1/4 of NW 1/4	1	112	25	120.00	39.00	760.00		12.001.1500
Alden E & Mary Hardwick	E 1/2 of SE 1/4	2	112	25	80.00	36.00	2565.00		12.002.5000
Randy Oldenberg & Jane Breggeman Trust	SW 1/4 of NE 1/4 & W 1/2 of SE 1/4 less 1.91ac	2	112	25	118.09	50.09	2616.24		12.002.2700
William & Pamela Frasher	That part of NW 1/4 of SE 1/4 beg 1708.81 ft N & 1817.72 ft W of SE cor of Sec 2, th W 253 ft N 328 ft, E 253 ft, S 328 ft to beg	2	112	25	1.91	1.91	99.76		12.002.3000
William D & Tammie Kessler	SE 1/4 of NW 1/4 less 5.4 ac & E 1/2 of SW 1/4	2	112	25	114.60	42.00	2772.00		12.002.0300
Lillian Tieg	NW 1/4 of SW 1/4	2	112	25	40.00	12.00	186.00		12.002.0200
Joseph & Mary Scanlan	SW 1/4 of SW 1/4 less 5 ac in NW cor	2	112	25	35.00	35.00	864.50		12.002.7500
Keith E & Amanda J Goetze	W 389 ft of N 560 ft of SW 1/4 of SW 1/4	2	112	25	5.00	5.00	123.50		12.002.7600

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					Acres	Acres	Dollars	Dollars	
Richard G & Patricia Laabs	N 100 ac of NE 1/4	11	112	25	100.00	31.00	1124.00		12.011.2500
Lyle & Stephanie Laabs	S 60 ac of NE 1/4	11	112	25	60.00	20.00	384.00		12.011.2600
Lyle & Stephanie Laabs	W 50 ac of N 1/2 of SE 1/4	11	112	25	50.00	10.00	242.00		12.011.2600
Myra A Nagel & Gloria J Brandt	E 100 ac of NW 1/4	11	112	25	100.00	48.00	2442.00		12.011.0200
Lois A Hafemann	That part of SW 1/4 Beg 465 ft N of S 1/4 cor of Sec 11, th N 2159.71 ft, W 1495.72 ft, S 2625.95 ft, E 1283.48 ft, N 465.28 ft, E 237.08 ft to beg	11	112	25	87.99	87.65	3972.49		12.011.8900
James J Legg & Mary Dvorak	That part of SE 1/4 of SW 1/4 beg at S 1/4 cor of sec, th W to C.L. of JD #4, th N'ly along C.L. to pt, th E to pt on N & S C.L. of sec, th S 465 ft to beg	11	112	25	2.35	2.35	106.51		12.011.8550
Charles J & Marie T Retka	E 1/2 of NW 1/4 less 5.45 ac	12	112	25	74.75	30.00	1417.00		12.012.0100
Louis A Geronime	Beg at SW cor of E 1/2 of NW 1/4, th E 719 ft, N 330 ft, W 719 ft, S 330 ft to beg	12	112	25	5.45	2.00	4.00		12.012.0200
Charles J & Marie T Retka	W 1/2 of NW 1/4	12	112	25	80.00	33.00	1128.00		12.012.0100
Valerian P & Barbara Miller	E 1/2 of NE 1/4	12	112	25	80.00	41.00	1334.00		12.012.2500
Valerian P & Barbara Miller	W 1/2 of NE 1/4	12	112	25	80.00	11.00	728.00		12.012.2600
Charles J & Marie T Retka	NE 1/4 of SE 1/4	12	112	25	40.00	2.00	80.00		12.012.7500
Le Sueur County Hwy Dept	CR #118	11	112	25			2100.00		12.999.7777
Le Sueur County Hwy Dept	CR #119	2	112	25			1320.00		12.999.7777
Le Sueur County Hwy Dept	CSAH #11	1	112	25			1280.00		12.999.7777
Town of Derrynane	Road Benefits in NE 1/4	6	112	24			430.00		03.999.8888
Town of Derrynane	Road Benefits in S 1/2 of NE 1/4	7	112	24			60.00		03.999.8888
Totals							84265.00	0.00	

PID	SHNAME	PCS	PCTV	PCRA	PSDEED	LEGAL1	DitchF	BenAc	Parcel	Benefit
19310060	MURPHY TIMOTHY J & LISA L	31	113	024	40.00	NW1/4 SW1/4	1	19.0		\$ 672.00
10290110	MURPHY JOHN E & MARY A	31	113	024	200.00	MURPHYS ESTATES Lot O-L Block 00E SubdivisionCd 0102	2	22.0		\$ 1,076.00
10290110	MURPHY JOHN E & MARY A	31	113	024	200.00	MURPHYS ESTATES Lot O-L Block 00E SubdivisionCd 0102	3	18.0		\$ 1,242.00
10290110	MURPHY JOHN E & MARY A	31	113	024	200.00	MURPHYS ESTATES Lot O-L Block 00E SubdivisionCd 0102	4	32.0		\$ 2,614.00
19310040	O'BRIEN KENNETH F & JUDY C	31	113	024	172.50	W 115 RDS OF S1/2 NE1/4 & W 115A OF SE1/4	5	5.0		\$ 368.00
19310040	O'BRIEN KENNETH F & JUDY C	31	113	024	172.50	W 115 RDS OF S1/2 NE1/4 & W 115A OF SE1/4	6	3.0		\$ 64.00
19310070	NEISEN ALBERTUS & ELIZABETH	31	113	024	67.50	E 45 RDS OF S1/2 NE1/4 & E 45 RDS OF SE1/4	7	8.0		\$ 172.00
19320010	NEISEN ALBERTUS & ELIZABETH	32	113	024	76.98	S1/2 SW1/4 EX COM SE COR, N 438', W 300', S 438', E 300'	8	24.0		\$ 654.00
19320010	NEISEN ALBERTUS & ELIZABETH	32	113	024	76.98	S1/2 SW1/4 EX COM SE COR, N 438', W 300', S 438', E 300'	9	29.0		\$ 1,866.00
19320020	SCHOKNECHT GERALD L & MARY & S	32	113	024	3.02	P/O SE1/4 SW1/4 COM SE COR, N 438', W 300', S 438', E 300'	10	1.0		\$ 207.40
19320030	ALLISON HOFFMAN FAMILY LIMITED	32	113	024	80.00	N1/2 SW1/4	11	4.0		\$ 164.00
19320030	ALLISON HOFFMAN FAMILY LIMITED	32	113	024	80.00	N1/2 SW1/4	12	4.0		\$ 296.00
19360180	MURPHY PATRICK M	36	113	025	40.00	SE1/4 SE1/4	13	8.0		\$ 80.00
NA	Mndot				0.00	Road 1/2 of \$1000 benefit (Scott Co) did not include \$400	14	0.0	Road	\$ 500.00
										\$ 9,975.40

ACCOUNT ACTIVITY REPORT



Page Break Option: 2 1 - Page Break by FUND Print Service Dates: No

2 - Page Break by DEPT

Sort: 1st: 2nd 3rd 4th 5th 6th F - G/L Object Within Fund Number  
 G T N M W G - G/L Account Number  
 P - G/L Object Within Dept Number  
 D - Transaction Date  
 M - G/L Month & Year  
 N - Vendor/Payer Name  
 T - Type Of Transaction  
 W - Receipt/Warrant Number

Range Subtotals: 1 1 - No Subtotals  
 2 - Detail and Subtotals by OBJECT Range  
 3 - Subtotals only by OBJECT Range  
 4 - Account Totals and Subtotals by OBJECT Range  
 5 - Account Totals and Subtotals by DIVISION Range

Report Basis: 1 Cash Only This Basis?: Yes

Print YTD Totals: Yes Type of Report: 1 1 - DETAIL  
2 - ABBREVIATED

G/L Months: From: 01/2002 Thru: 11/2017

Comment: FUND Range From 35 Thru 35

DEPT Range From 893 Thru 893

OBJECT Range From 6000 Thru 6999

ACCOUNT ACTIVITY REPORT

Fund 35 - Ditch  
DEPT 893 - Le Sueur-Scott Joint #4

SC Typ	Vendor	G/L Month	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	Basis
<b>DIVISION 0000</b>										
<b>35- 893- 0000- 0000- 6230 - Printing, Publishing &amp; Advertising</b>										
DI	11906- Huckle Media, LLC	11/2011	21412	11/18/2011	333	46.16	Mtg- Ditch LS/Scott	52217 Acct		1
						46.16	<b>YTD:</b>			
<b>35- 893- 0000- 0000- 6230 - Printing, Publishing &amp; Advertising</b>										
<b>35- 893- 0000- 0000- 6260 - Professional Consulting</b>										
DI	20780- Houston Engineering Inc.	11/2015	38532	11/25/2015	333	65.60	Annual- Date Base Fee	0026847		1
DI	20780- Houston Engineering Inc.	09/2016	42314	09/23/2016	333	65.60	Software Maint. 9/1/16- 8/31/17	31387		1
DI	20780- Houston Engineering Inc.	09/2017	46851	09/22/2017	333	123.64	Software Maint. 9/1/17- 8/31/18	35976		1
DI	18819- I & S Group, Inc.	11/2016	42909	11/04/2016	333	538.00	Prof.Serv.	38252		1
DI	10457- Le Sueur County Soil & Water	11/2016	42917	11/04/2016	333	0.41	Work on Ditch Database			1
DI	10457- Le Sueur County Soil & Water	11/2016	42917	11/04/2016	333	11.29	Purchase- Seed Slinger			1
DI	10457- Le Sueur County Soil & Water	02/2017	44102	02/10/2017	333	12.21	Waders		DTG	1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333	6.18	Work on Drainage Database			1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333	51.95	Regist,Meetings,Etc			1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333	13.63	Cell Phones			1
DI	10457- Le Sueur County Soil & Water	07/2017	46119	07/21/2017	333	231.83	2nd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	07/2017	46119	07/21/2017	333	75.00	2nd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	07/2017	46119	07/21/2017	333	14.96	Phone Bill			1
DI	10457- Le Sueur County Soil & Water	10/2017	47225	10/20/2017	333	231.83	3rd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	10/2017	47225	10/20/2017	333	18.43	Cell Phones,Oats,Regist.			1
DI	10126- Mn State Auditor	04/2002	61233	04/12/2002	333	8.48	DITCH AUDIT	47442		1
DI	10126- Mn State Auditor	05/2002	61706	05/17/2002	333	4.59	DITCH AUDIT			1
DI	10126- Mn State Auditor	07/2003	67785	07/18/2003	333	12.13	DITCH AUDIT			1
DI	10126- Mn State Auditor	07/2003	67785	07/18/2003	333	0.92	DITCH AUDIT	50108		1
DI	10126- Mn State Auditor	11/2004	74057	11/19/2004	333	8.08	DITCH AUDIT			1
DI	10126- Mn State Auditor	10/2005	78295	10/21/2005	333	6.99	DITCH AUDIT	53643		1
DI	10126- Mn State Auditor	05/2006	81067	05/19/2006	333	0.93	DITCH AUDIT	54539		1
DI	20543- Renville County Administratio	10/2013	29110	10/11/2013	333	16.40	Cost Share- Ditch Viewer Prog.			1
DI	15069- Rinke- Noonan Law Firm	10/2011	20962	10/07/2011	333	3.23	Drainage Retainer	188561		1
DI	15069- Rinke- Noonan Law Firm	11/2011	21312	11/04/2011	333	3.23	Drainage Retainer	189787		1
DI	15069- Rinke- Noonan Law Firm	11/2011	21475	11/18/2011	333	71.66	Joint- Board Mtg	189788		1
DI	15069- Rinke- Noonan Law Firm	12/2011	21650	12/09/2011	333	3.23	Drainage Retainer	191081		1
DI	15069- Rinke- Noonan Law Firm	01/2012	22067	01/06/2012	333	3.23	Drainage Retainer	192276	AP	1
DI	15069- Rinke- Noonan Law Firm	01/2012	22243	01/20/2012	333	430.00	Jt. Board Mtg @ Scott: County	192277	AP	1
DI	15069- Rinke- Noonan Law Firm	02/2012	22385	02/10/2012	333	3.23	Drainage Retainer	193521		1
DI	15069- Rinke- Noonan Law Firm	03/2012	22712	03/09/2012	333	3.23	Drainage Retainer	194814		1
DI	15069- Rinke- Noonan Law Firm	04/2012	23024	04/13/2012	333	3.23	Drainage Retainer	196239		1
DI	15069- Rinke- Noonan Law Firm	05/2012	23339	05/11/2012	333	3.23	Drainage Retainer	197346		1
DI	15069- Rinke- Noonan Law Firm	06/2012	23701	06/08/2012	333	3.23	Drainage Retainer	198682		1

SC Typ	Vendor	G/L Month	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	R1R2 Basis
<b>35- 893- 0000- 0000- 6260 - Professional Consulting</b>										
DI	15069- Rinke- Noonan Law Firm	07/2012	24023	07/13/2012	333	3.23	Drainage Retainer	199945		1
DI	15069- Rinke- Noonan Law Firm	08/2012	24346	08/10/2012	333	3.23	Drainage Retainer	201193		1
DI	15069- Rinke- Noonan Law Firm	09/2012	24688	09/14/2012	333	3.23	Drainage Retainer	202405		1
DI	15069- Rinke- Noonan Law Firm	10/2012	24983	10/05/2012	333	3.23	Drainage Retainer	203560		1
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DI	15069- Rinke- Noonan Law Firm	03/2013	26746	03/08/2013	333	3.23	Drainage Retainer	209397		1
DI	15069- Rinke- Noonan Law Firm	04/2013	27042	04/05/2013	333	3.23	Drainage Retainer	210568		1
DI	15069- Rinke- Noonan Law Firm	05/2013	27380	05/10/2013	333	3.23	Drainage Retainer	211728		1
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DI	15069- Rinke- Noonan Law Firm	06/2015	36377	06/12/2015	333	3.28	Drainage Retainer	241468		1
DI	15069- Rinke- Noonan Law Firm	07/2015	36713	07/10/2015	333	4.84	General Drainage Issues	242222		1
DI	15069- Rinke- Noonan Law Firm	07/2015	36772	07/10/2015	333	3.28	Drainage Retainer	242357		1

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DI	15069- Rinke- Noonan Law Firm	02/2016	39531 02/12/2016	333	3.28	Drainage Retainer	250638		1	
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DI	15069- Rinke- Noonan Law Firm	05/2016	40564 05/06/2016	333	3.28	Drainage Retainer	254151		1	
DI	15069- Rinke- Noonan Law Firm	06/2016	41060 06/10/2016	333	3.28	Drainage Retainer	255697		1	
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DI	15069- Rinke- Noonan Law Firm	09/2016	42251 09/16/2016	333	3.28	Drainage Retainer	259410		1	
DI	15069- Rinke- Noonan Law Firm	10/2016	42622 10/14/2016	333	3.28	Drainage Retainer	260599		1	
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DI	15069- Rinke- Noonan Law Firm	01/2017	43833 01/13/2017	333	3.28	Drainage Retainer	264156	AP	1	
DI	15069- Rinke- Noonan Law Firm	02/2017	44202 02/10/2017	333	3.28	Drainage Retainer	265439		1	
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DI	15069- Rinke- Noonan Law Firm	03/2017	44643 03/24/2017	333	3.10	Prof.Services	266925		1	
DI	15069- Rinke- Noonan Law Firm	04/2017	44889 04/14/2017	333	6.18	Drainage Retainer	267772		1	
DI	15069- Rinke- Noonan Law Firm	05/2017	45411 05/19/2017	333	6.18	Drainage Retainer	269210		1	
DI	15069- Rinke- Noonan Law Firm	06/2017	45637 06/09/2017	333	6.18	Drainage Retainer	270199		1	
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DI	15069- Rinke- Noonan Law Firm	11/2017	47766 11/24/2017	333	27.26	Prof.Services	276339		1	
DI	10457- Soil & Water Conservation Dist	07/2003	67846 07/18/2003	333	6.04	DITCH INSPECTOR			1	
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DI	10947- Aufderhar Construction Inc	12/2011	21708 12/23/2011	333	3,135.00	Clean,Level Soil,Etc			1	
DI	10947- Aufderhar Construction Inc	12/2011	21708 12/23/2011	333	3,220.00	Clean,Level Soil,Etc			1	



SC Typ	Vendor	G/L Month	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	RTR Basis
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**35- 893- 0000- 0000- 6300 - Repairs & Maintenance**

DI	20922- Empire Pipe Services	06/2017	45520	06/09/2017	333	2,920.00	Televising Existing Ag Tile	2257		1
DI	999999902- Goldstar Ag, LLC	06/2015	36432	06/19/2015	333	1,622.00	Culvert	7		1
DI	20654- Le Sueur County Hwy Dept	03/2015	35313	03/20/2015	333	2,437.08	Culvert,Band (FEMA)	2015003		1
DI	20654- Le Sueur County Hwy Dept	04/2015	35515	04/10/2015	333	2,029.88	Culvert	IN00139498		1
DI	10457- Le Sueur County Soil & Water	08/2014	32595	08/08/2014	333	90.68	1st & 2nd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	12/2014	34037	12/05/2014	333	156.36	3rd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	02/2015	34796	02/06/2015	333	65.68	4th Qtr Ditch Inspector		DTG	1
DI	10457- Le Sueur County Soil & Water	05/2015	35871	05/08/2015	333	25.00	1st Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	08/2015	37067	08/07/2015	333	132.20	2nd Qtr Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	08/2016	41717	08/05/2016	333	92.28	2nd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	11/2016	42917	11/04/2016	333	268.20	3rd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	02/2017	44102	02/10/2017	333	316.46	4th Qtr- Ditch Inspector		DTG	1
DI	19706- Oak Farms	05/2006	81078	05/19/2006	333	1,200.00	REIMBURSE- DITCH CLEAN OUT	1333		1
DI	18528- Retka Tiling Inc	11/2006	83431	11/22/2006	333	270.00	REMOVE BRUSH	5020		1
DI	18528- Retka Tiling Inc	12/2012	25904	12/21/2012	333	320.00	Repair- Washouts/Outlet	1086		1
DI	18528- Retka Tiling Inc	12/2014	34047	12/05/2014	333	3,728.42	Tile Install,Cut,Etc (FEMA)	1138		1
DI	18528- Retka Tiling Inc	12/2014	34047	12/05/2014	333	521.13	18" Dualwall, Tee,Etc (FEMA)	1140		1
DI	18018- Scott's Helicopter Service	09/2002	63606	09/20/2002	333	558.78	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	10/2003	69022	10/24/2003	333	398.72	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	11/2004	74098	11/19/2004	333	498.40	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	08/2005	77598	08/19/2005	333	439.79	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	08/2006	82269	08/18/2006	333	256.80	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	08/2007	2936	08/24/2007	333	410.88	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	08/2008	7659	08/22/2008	333	426.88	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	07/2009	11572	07/02/2009	333	106.72	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	10/2010	17145	10/22/2010	333	560.28	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	10/2010	17145	10/22/2010	333	533.60	DITCH SPRAYING			1
DI	18018- Scott's Helicopter Service	08/2011	20505	08/19/2011	333	281.80	Ditch Spraying	6824		1
DI	18018- Scott's Helicopter Service	08/2012	24550	08/24/2012	333	929.40	Ditch Spraying	7947		1
DI	18018- Scott's Helicopter Service	08/2013	28403	08/09/2013	333	309.80	Ditch Spraying	9105		1
DI	18018- Scott's Helicopter Service	08/2015	37091	08/07/2015	333	480.00	15'- Ditch Spraying			1
DI	10877- Selly Excavating Inc.	08/2014	32632	08/08/2014	333	13,319.00	Clean Out Ditch	14060		1
DI	10877- Selly Excavating Inc.	08/2014	32632	08/08/2014	333	6,855.00	Repair Structure	14059		1
DI	10877- Selly Excavating Inc.	12/2014	34052	12/05/2014	333	9,577.50	Labor- Clean Ditch,Etc	14122 (FEM/		1
DI	10877- Selly Excavating Inc.	06/2017	45584	06/09/2017	333	2,983.00	Expose Tile,Repair	17030		1
DI	10877- Selly Excavating Inc.	08/2017	46295	08/04/2017	333	13,425.00	15" DualWall Pipe Encased	17058		1
DI	20885- SK Trucking & Excavating	01/2017	43946	01/20/2017	333	4,330.00	Clean,Dozer,Etc	0342	AP	1
DI	10457- Soil & Water Conservation Dist	11/2002	64377	11/15/2002	333	50.00	DITCH INSPECTOR			1



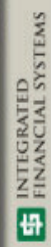
35- 893- 0000- 0000- 6300 - Repairs & Maintenance

DI	DI	10457- Soil & Water Conservation Disi	01/2003	65378	01/17/2003	333	55.48	DITCH INSPECTOR			1	4		
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DI	DI	10457- Soil & Water Conservation Disi	02/2012	22602	02/24/2012	333	15.95	Ditch Inspector		DTG	1			
DI	DI	10457- Soil & Water Conservation Disi	08/2012	24558	08/24/2012	333	90.54	Ditch Inspector		DTG	1			
DI	DI	10457- Soil & Water Conservation Disi	02/2013	26639	02/22/2013	333	131.08	Ditch Inspector		DTG	1			
							<b>Total</b>	79,766.79					<b>YTD:</b>	23,974.46

35- 893- 0000- 0000- 6300 - Repairs & Maintenance

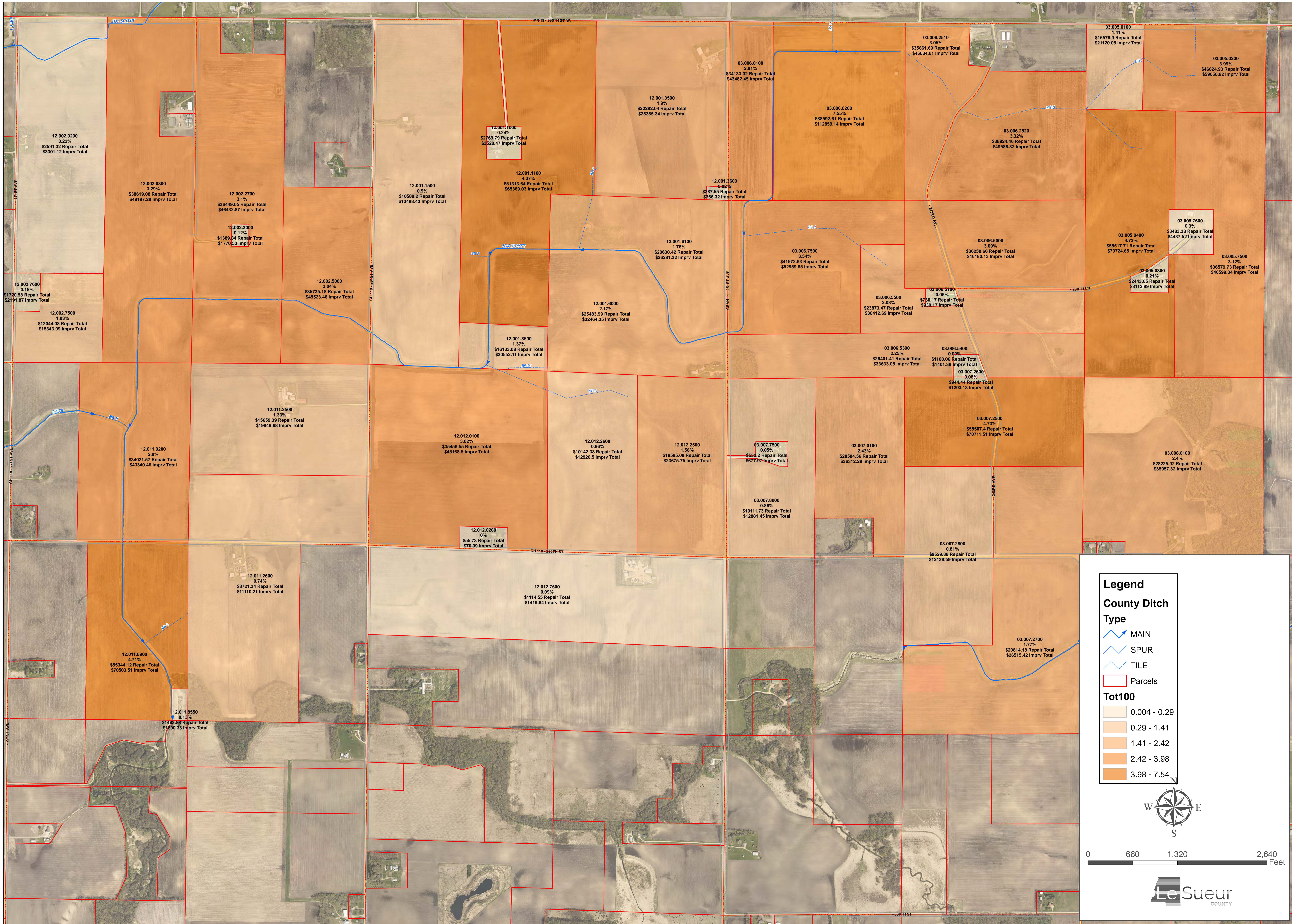
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 DEPT 893 - Le Sueur- Scott Joint #4 Total 82,899.06  
 Fund 35 - Ditch Total 82,899.06  
 Final Total 82,899.06

154 Transactions 3 Accounts





# Judical Ditch #4 Le Sueur/Scott County





# FEASIBILITY STUDY FOR:

## JOINT COUNTY DITCH 4:

## LE SUEUR & SCOTT COUNTIES, MINNESOTA

REPORT FOR:  
Le Sueur County Drainage Authority  
181 W. Minnesota St.  
Le Center, MN 56057  
507.357.4879

FROM:  
Chuck Brandel, PE  
Principal + Senior Civil Engineer  
ISG  
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ISG

ARCHITECTURE + ENGINEERING + ENVIRONMENTAL + PLANNING



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## Project Scope

At your request, I+S Group (ISG) completed a preliminary review of Le Sueur and Scott County Joint County Ditch No. 4 (JCD 4). The scope included an examination of the existing JCD 4, as well as recommendations for repairing and improving the existing open ditch and tile system. Maps of the JCD 4 watershed and existing public open ditch and tile system is shown on the attached exhibits and is referenced herein.

It should be noted that some general assumptions were made during this analysis and minimal survey information was gathered. ISG received the original watershed maps, showing the tile locations and sizes from Le Sueur County for the JCD 4 system. Additional information may or may not modify our findings, but it is not anticipated that a significant change to our recommendation would result. If you or any land owners have tile maps or any other information that can aid us in future work, please feel free to share this information with us. A future survey will be necessary to verify these assumptions.

## Watershed

Le Sueur and Scott County Joint County Ditch No. 4 open ditch lies in Tyrone and Derrynane Township of Le Sueur County, Minnesota. The mainline open ditch drains from the NE  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 6 of Derrynane Township and flows southwest where it outlets into Forest Prairie Creek in the SE  $\frac{1}{4}$  of the SW  $\frac{1}{4}$  of Section 11 of Tyrone Township.

The JCD 4 watershed consists primarily of gently rolling agricultural land which provides drainage to approximately 3,467 total acres. The watershed includes land from Sections 31 and 32 of Belle Plaine Township and Section 36 of Blakeley Township of Scott County as well as Sections 5, 6, 7 and 8 of Derrynane Township and Sections 1, 2, 11 and 12 of Tyrone Township of Le Sueur County. County Ditch No. 70 of Le Sueur County provides drainage to approximately 1,657 acres which drains into the JCD 4 system through Branch H open ditch in the NE  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 11 of Tyrone Township. Elevations within the entire watershed range from approximately 905 to 1027 Mean Sea Level (MSL) according to county LIDAR data.

The hydrologic soil classification for the land in the JCD 4 watershed is predominantly type "C/D," which is considered as a dual hydrological soil group. This means that this soil has the potential to be adequately drained. The "D" in this group corresponds to the soil having over 40 percent clay and restricted water movement. The "C" is named the drained condition. That means if adequately drained, the soil would have moderately high runoff potential when thoroughly wet.

## History

Le Sueur and Scott County Joint County Ditch No. 4 was originally constructed in 1958 with minor repairs completed throughout the years and no known improvements. The original construction consisted of approximately 24,620 linear feet of open ditch as well as approximately 30,105 linear feet of buried tile. There are approximately nine culvert crossings throughout the entire length of the mainline open ditch.

## Existing Conditions

The open ditch channel contains a typical trapezoidal channel designed to convey both surface and subsurface tile water throughout the watershed. Based on the original profiles, the open ditch slopes range from 0.04% to 0.49%. In most areas, existing tile outlets from both public branches and private tiles outlet near the bottom of the ditch. During rain events, the open ditch fills with water, covering the tile outlets and creates forced outlets. In some cases during larger rain events, the water depth in the channel is high enough to restrict the flow of the tiles and cause water to back up into the adjacent fields.

## Drainage Capacity

The information in this document has been prepared with the original JCD 4 alignment map. A close representation of the JCD 4 watershed was created using this information in conjunction with LiDAR contours, Minnesota DNR Watershed lines, aerial photographs and USGS Stream-Stats.

The capacity of agricultural tile is expressed as a drainage coefficient, in inches per day (in/day), and 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 JCD 4, the Natural Resources Conservation Service (NRCS) recommends a drainage coefficient of 0.50 to 0.75 in/day for buried tile and 1.0 in/day for open ditches. See Table 1 below for open ditch summary and Table 2 below for the existing tile inventory breakdown.

Table 1: Existing Open Ditch Drainage Capacities

Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Rise x Span (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	Main - Field Crossing	ARCH CULVERT	CMP	-	63 x 87	1.25%	5123	1.34
2	Main - CR 118	ARCH CULVERT	CMP	-	108 x 169	2.06%	4947	7.50
3	Main - Field Crossing	ROUND CULVERT	CMP	60	-	1.00%	3051	1.06
4	Main - Field Crossing	ROUND CULVERT	CMP	60	-	1.83%	2754	1.59
5	Main - TWP 119	ROUND CULVERT	RCP	54	-	0.30%	2454	1.05
6	Main - Field Crossing	ROUND CULVERT	CMP	54	-	0.42%	2407	0.65
7	Main - Field Crossing	ROUND CULVERT	CMP	54	-	0.83%	1929	1.16
8	Main - Field Crossing	ROUND CULVERT	CMP	54	-	0.56%	1528	1.19
9	Main - CSAH 11	ROUND CULVERT	RCP	54	-	0.31%	1486	1.77
10	Main - Field Crossing	ROUND CULVERT	CMP	42	-	2.50%	482	4.10



Table 2: Existing Tile Drainage Capacity

Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Main	18	0.22%	646.3	0.18
	18	0.20%	627.4	0.18
	18	0.17%	595.9	0.17
	10	0.20%	103.1	0.23
Branch A	8	0.30%	13.9	1.14
	6	0.90%	9.5	1.34
Branch B	10	0.40%	229.4	0.14
	10	0.20%	228.6	0.10
Branch C	8	0.10%	75.6	0.12
	6	0.40%	65.4	0.13
Branch D	18	0.12%	402.8	0.22
	18	0.08%	286.7	0.25
	12	0.50%	275.4	0.22
Branch D-1	8	0.10%	27.5	0.33
Branch E	8	0.10%	44.7	0.20
	6	0.10%	43.9	0.10
Branch F	10	0.10%	202.1	0.08
Branch L	16	0.06%	396.0	0.11
	14	0.08%	393.6	0.09
	14	0.06%	373.5	0.08
	12	0.06%	181.5	0.11
	8	0.06%	100.9	0.07
	6	0.06%	96.1	0.03
Branch J	18	0.30%	468.3	0.29
	16	0.30%	468.2	0.21
	14	0.30%	289.5	0.24
	10	0.10%	75.2	0.22
	6	0.40%	25.2	0.34
Branch J-1	12	0.30%	138.1	0.34
	10	1.10%	130.7	0.42
	14	0.10%	129.3	0.31
	12	0.15%	114.5	0.29
	8	0.10%	96.4	0.09
Branch J-2	6	0.20%	10.7	0.56
Branch J-3	6	0.75%	18.2	0.64
Branch J-4	10	0.10%	3.3	5.04
Branch J-5	10	0.10%	130.8	0.13
Branch K	14	0.10%	254.7	0.16
	12	0.10%	226.8	0.12
	10	0.10%	201.8	0.08
	8	0.10%	200.1	0.05



The majority of the existing crossings of JCD 4 are above the NRCS recommended drainage coefficient values while majority of the existing tiles are below the recommended drainage coefficient.

## Proposed Conditions

It is recommended that eventually the entire system should be repaired or improved. The repaired tile would be installed following the existing tile alignments matching the existing tile slopes and elevations. Options to improve the existing system were considered along with the costs for repairing the system. All improvement options are sized to achieve at least a drainage coefficient of 0.50 in/day for underground tiles and 1.0 in/day for open ditch crossings.

### Repair Option 1

It is proposed in repair option 1 to clean the entire mainline open ditch, repair any of the culvert crossings within the open ditch that are below the NRCS recommended drainage coefficient and repair the mainline buried tile. The repair will consist of cleansing approximately 2,025 feet of 18-foot bottom open ditch, 1,300 feet of 8-foot bottom open ditch, 2,700 feet of 6-foot bottom open ditch and 20,375 feet of 4-foot bottom open ditch as well as 3,156 feet of 18-inch tile and 1,624 feet of 10-inch tile. The repair will also consist of replacing culvert crossing #6 with a 54-inch RCP culvert.

### Repair Option 2

It is proposed in repair option 2 to clean the entire mainline open ditch, repair any of the culvert crossings within the open ditch that are below the NRCS recommended drainage coefficient and repair the mainline buried tile. The repair will consist of cleansing approximately 2,025 feet of 18-foot bottom open ditch, 1,300 feet of 8-foot bottom open ditch, 2,700 feet of 6-foot bottom open ditch and 20,875 feet of 4-foot bottom open ditch as well as 8,156 feet of 18-inch tile, 5,550 feet of 15-inch tile, 3,550 feet of 12-inch tile, 5,699 feet of 10-inch tile, 2,625 feet of 8-inch tile and 2,146 feet of 6-inch tile. The repair will also consist of replacing culvert crossing #6 with a 54-inch RCP culvert.

### Improvement Option 1

It is proposed in improvement option 1 clean the entire mainline open ditch, repair any of the culvert crossings within the open ditch that are below the NRCS recommended drainage coefficient and repair the mainline buried tile. The repair will consist of cleansing approximately 2,025 feet of 18-foot bottom open ditch, 1,300 feet of 8-foot bottom open ditch, 2,700 feet of 6-foot bottom open ditch and 20,375 feet of 4-foot bottom open ditch as well as 2,256 feet of 30-inch tile, 900 feet of 24-inch tile and 1,624 feet of 18-inch tile. The improvement will also consist of replacing culvert crossing #6 with a 54-inch RCP culvert.

### Improvement Option 2

It is proposed in improvement option 2 to clean the entire mainline open ditch, repair any of the culvert crossings within the open ditch that are below the NRCS recommended drainage coefficient and repair the mainline buried tile. The repair will consist of cleansing approximately 2,025 feet of 18-foot bottom open ditch, 1,300 feet of 8-foot bottom open ditch, 2,700 feet of 6-foot bottom open ditch and 20,875 feet of 4-foot bottom open ditch as well as 2,256 feet of 30-inch tile, 13,700 feet of 24-inch tile, 3,527 feet of 18-inch tile, 4,874 feet of 15-inch tile, 2,175 feet of 12-inch tile and 1,490 feet of 10-inch tile. The improvement will also consist of replacing culvert crossing #6 with a 54-inch RCP culvert.

These options are summarized on *the Improvement Maps* attached with this report. The repair option and improvement option described above are a sample size of what can be done to repair or improve this system. Any and all branches can be added or removed as another option to best suit the landowners involved.

## Multi-Purpose Drainage Management

Multi-purpose drainage management incorporates Best Management Practices (BMPs) which utilize effective measures aimed at reducing sediment and nutrient loading, and improving water quality. These BMPs are divided into three areas: preventative measures, control measures, and treatment measures. Preventative measures that can be applied throughout the watershed include crop rotation, cover crops, residue management, and nutrient management. These measures are aimed at controlling sediment, minimizing erosion and nutrient loss, and sustaining the soils health, all without dramatically changing the current land use of the landscape.

Control measures are practices aimed at improving water quality directly associated with the flow of water by reducing peak flows, providing in stream storage, sedimentation, and nutrient uptake. Examples of control measures include alternative intake structures, grassed waterways, two stage ditches, water control structures, and controlled subsurface drainage. These practices are directly linked to the conveyance of subsurface tile water or open channel ditch flow.

The function of treatment measures is to improve water quality by directly removing sediment and nutrients from the subsurface or surface water flow throughout a watershed. Examples of treatment measures include surge basins (storage ponds), filter/buffer strips, wetland restorations, woodchip bioreactors, and water and sediment control basins (WASCOBs). These practices may be incorporated to either the public or private drainage systems.

Conservative drainage practices, such as controlled drainage systems, provide an option for improving the water quality and reduce peak flow rates within a drainage system. Through utilization of control structures, these systems are designed to allow agricultural producers to regulate water levels in their fields. The water level in the ground can be lowered during planting and harvest seasons and allowed to rise during the growing season. Water and nutrients stored in the soil during the growing season can then be used by the crops during drier periods, potentially increasing yields.

## Cost/Separable Maintenance

When a separable portion of a larger system is in need of repair, the drainage statute, M.S.103E.215, subd. 6, allows the separation of the cost of repair from the cost of improvement of the project. The condition of the existing system should be investigated further to discern the eligibility for separable maintenance costs. If it is determined that the system is in disrepair, separable maintenance costs can be applied to the project including the difference in costs associated between pipe/ditch replacement and pipe/ditch improvement. Separable maintenance for this system includes standard open ditch cleaning, rip rap outlet protection on all tile outlets, seeding (buffer and sideslopes), and standard tile installation.

A cost estimate was prepared for the above outline options for improvement to the system, as summarized in Table 3. The cost estimate summary includes the separable maintenance, improvement cost, and net benefit for each option.

Table 3: Cost Estimate Summary

**PROPOSED OPTION #1 IMPROVEMENT COST SUMMARY**

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch	\$ 215,435	\$ 217,145	\$ 1,710
Main Tile	\$ 175,725	\$ 235,335	\$ 59,610
<b>Subtotal without Road Crossings</b>	<b>\$ 391,160</b>	<b>\$ 452,480</b>	<b>\$ 61,320</b>
<b>Road Authority Cost</b>	\$ 17,127	\$ 17,127	\$ -
<b>Damages Paid To Road Authority</b>	\$ 3,065	\$ 7,835	\$ 4,770
<b>Total</b>	<b>\$ 411,352</b>	<b>\$ 477,442</b>	<b>\$ 66,090</b>
Subtotal Landowner Costs			\$ 460,315
Net Costs			\$ 48,963
Redetermination of Benefits Costs			\$ 20,799
Permanent Damages (Buffer Strip Acquisition)			\$ 121,946
<b>Total Project Costs for Landowners</b>			<b>\$ 603,060</b>

**PROPOSED OPTION #2 IMPROVEMENT COST SUMMARY**

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch	\$ 215,435	\$ 217,145	\$ 1,710
Main Tile	\$ 175,725	\$ 237,053	\$ 61,328
Branch B Tile	\$ 16,415	\$ 22,621	\$ 6,206
Branch C Tile	\$ 23,533	\$ 31,055	\$ 7,522
Branch D Tile	\$ 69,299	\$ 87,515	\$ 18,216
Branch E Tile	\$ 24,325	\$ 26,041	\$ 1,716
Branch F Tile	\$ 11,273	\$ 13,649	\$ 2,376
Branch H Open Ditch	\$ 38,565	\$ 62,325	\$ 23,760
Branch L Tile	\$ 137,266	\$ 214,958	\$ 77,692
Branch J Tile	\$ 295,526	\$ 353,870	\$ 58,344
Branch J-1 Tile	\$ 82,410	\$ 91,520	\$ 9,110
Branch J-5 Tile	\$ 10,089	\$ 13,653	\$ 3,564
Branch K Tile	\$ 74,106	\$ 88,175	\$ 14,069
Potential Storage - 4.25 AC	\$ -	\$ 75,578	\$ 75,578
<b>Subtotal without Road Crossings</b>	<b>\$ 1,173,967</b>	<b>\$ 1,535,158</b>	<b>\$ 361,191</b>
<b>Road Authority Cost</b>	\$ 60,664	\$ 60,664	\$ -
<b>Damages Paid To Road Authority</b>	\$ 11,049	\$ 27,199	\$ 16,150
<b>Total</b>	<b>\$ 1,245,680</b>	<b>\$ 1,623,021</b>	<b>\$ 377,341</b>
Subtotal Landowner Costs			\$ 1,562,357
Net Costs			\$ 316,677
Redetermination of Benefits Costs			\$ 20,799
Permanent Damages (Buffer Strip Acquisition)			\$ 121,946
<b>Total Project Costs for Landowners</b>			<b>\$ 1,705,102</b>

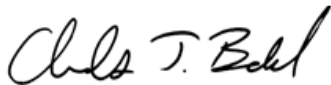
## Recommendation

Currently, the existing tile system has a lower capacity than what is recommended by the NRCS. Upgrading the tile system would increase the capacity of the system to a drainage coefficient over 0.50 in/day for buried tile and 1.0 in/day for open ditch crossings. The system is approximately 60-years old, which is half the life expectancy for ditch systems like JCD 4. These improvements would be a public benefit and contribute to the public welfare of this area.

This scenario assumes that the project is completed publically through Le Sueur County and utilizing Minnesota Statute 103E. If the project was completed privately, some of the administration costs could be saved, but would require 100% agreement with everyone in the watershed that is affected.

At this point we would recommend keeping the project as a public project as only 26% of the affected landowners would need to sign the petition to move forward. We would appreciate the opportunity to discuss this in greater detail and to potentially meet with a group of landowners to discuss. Please contact us with questions or comments.

Sincerely,



Chuck Brandel, PE

Civil Engineer/Principal

Enclosures

**LE SUEUR & SCOTT COUNTY  
JOINT COUNTY DITCH No. 4**



**PROPOSED OPTION #1 IMPROVEMENT COST SUMMARY**

<b>Area</b>	<b>Separable Maintenance</b>	<b>Improvement Cost</b>	<b>Net Cost</b>
Main Open Ditch	\$ 215,435	\$ 217,145	\$ 1,710
Main Tile	\$ 175,725	\$ 235,335	\$ 59,610
<b>Subtotal without Road Crossings</b>	<b>\$ 391,160</b>	<b>\$ 452,480</b>	<b>\$ 61,320</b>
<b>Road Authority Cost</b>	\$ 17,127	\$ 17,127	\$ -
<b>Damages Paid To Road Authority</b>	\$ 3,065	\$ 7,835	\$ 4,770
<b>Total</b>	<b>\$ 411,352</b>	<b>\$ 477,442</b>	<b>\$ 66,090</b>
Subtotal Landowner Costs			\$ 460,315
Net Costs			\$ 48,963
Redetermination of Benefits Costs			\$ 20,799
Permanent Damages (Buffer Strip Acquisition)			\$ 121,946
<b>Total Project Costs for Landowners</b>			<b>\$ 603,060</b>

**LE SUEUR & SCOTT COUNTY  
JOINT COUNTY DITCH No. 4**



**PROPOSED OPTION #2 IMPROVEMENT COST SUMMARY**

<b>Area</b>	<b>Separable Maintenance</b>	<b>Improvement Cost</b>	<b>Net Cost</b>
Main Open Ditch	\$ 215,435	\$ 217,145	\$ 1,710
Main Tile	\$ 175,725	\$ 237,053	\$ 61,328
Branch B Tile	\$ 16,415	\$ 22,621	\$ 6,206
Branch C Tile	\$ 23,533	\$ 31,055	\$ 7,522
Branch D Tile	\$ 69,299	\$ 87,515	\$ 18,216
Branch E Tile	\$ 24,325	\$ 26,041	\$ 1,716
Branch F Tile	\$ 11,273	\$ 13,649	\$ 2,376
Branch H Open Ditch	\$ 38,565	\$ 62,325	\$ 23,760
Branch L Tile	\$ 137,266	\$ 214,958	\$ 77,692
Branch J Tile	\$ 295,526	\$ 353,870	\$ 58,344
Branch J-1 Tile	\$ 82,410	\$ 91,520	\$ 9,110
Branch J-5 Tile	\$ 10,089	\$ 13,653	\$ 3,564
Branch K Tile	\$ 74,106	\$ 88,175	\$ 14,069
Potential Storage - 4.25 AC	\$ -	\$ 75,578	\$ 75,578
<b>Subtotal without Road Crossings</b>	<b>\$ 1,173,967</b>	<b>\$ 1,535,158</b>	<b>\$ 361,191</b>
<b>Road Authority Cost</b>	<b>\$ 60,664</b>	<b>\$ 60,664</b>	<b>\$ -</b>
<b>Damages Paid To Road Authority</b>	<b>\$ 11,049</b>	<b>\$ 27,199</b>	<b>\$ 16,150</b>
<b>Total</b>	<b>\$ 1,245,680</b>	<b>\$ 1,623,021</b>	<b>\$ 377,341</b>
		Subtotal Landowner Costs	\$ 1,562,357
		Net Costs	\$ 316,677
		Redetermination of Benefits Costs	\$ 20,799
		Permanent Damages (Buffer Strip Acquisition)	\$ 121,946
		<b>Total Project Costs for Landowners</b>	<b>\$ 1,705,102</b>



**SEPARABLE MAINTANENCE (REPAIR)**

**Main Open Ditch**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 6,830.00	\$ 6,830
102	DITCH CLEANING (18' WIDE DITCH BOTTOM)	LF	2,025	\$ 4.50	\$ 9,113
103	DITCH CLEANING (8' WIDE DITCH BOTTOM)	LF	1,300	\$ 2.75	\$ 3,575
104	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	2,700	\$ 2.25	\$ 6,075
105	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	20,375	\$ 2.00	\$ 40,750
106	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 860.00	\$ 2,580
107	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 752.00	\$ 752
108	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 680.00	\$ 1,360
109	8-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 635.00	\$ 1,905
110	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	20.00	\$ 1,165	\$ 23,300
111	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	12.12	\$ 3,353	\$ 40,642
112	BUFFER STRIP MOWING	AC	20.00	\$ 85	\$ 1,700
113	WEED SPRAYING	AC	32.12	\$ 150	\$ 4,818
<b>Total</b>					<b>\$ 143,400</b>
10% Unforeseen					\$ 14,340
<b>Subtotal</b>					<b>\$ 157,740</b>
TEMPORARY DAMAGES		AC	20.0	\$ 650	\$ 13,000
County Administration Costs					\$ 3,155
Topographic Survey					\$ 19,455
Reports, Plans and Specifications					\$ 9,465
Construction Staking & Administration					\$ 12,620
<b>Total Main Open Ditch Repair Cost</b>					<b>\$ 215,435</b>

**Main Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 5,950.00	\$ 5,950
102	TILE INVESTIGATION	HR	10	\$ 106.50	\$ 1,065
103	18-INCH AGRICULTURAL TILE	LF	3156	\$ 24.60	\$ 77,638
104	10-INCH AGRICULTURAL TILE	LF	1624	\$ 16.00	\$ 25,984
105	CONNECT EXISTING 18-INCH TILE	EA	1	\$ 871.50	\$ 872
106	INSTALL DROP INTAKE (18-INCH)	EA	5	\$ 1,085	\$ 5,425
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	20	\$ 400	\$ 8,000
<b>Total</b>					<b>\$ 125,000</b>
10% Unforeseen					\$ 12,500
<b>Subtotal</b>					<b>\$ 137,500</b>
TEMPORARY DAMAGES		AC	16.5	\$ 650	\$ 10,725
County Administration Costs					\$ 2,750
Topographic Survey					\$ 5,500
Reports, Plans and Specifications					\$ 8,250
Construction Staking & Administration					\$ 11,000
<b>Total Main Tile Repair Cost</b>					<b>\$ 175,725</b>



**SEPARABLE MAINTANENCE (REPAIR)**

**Branch B Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 550.00	\$ 550
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	10-INCH AGRICULTURAL TILE	LF	525	\$ 16.00	\$ 8,400
105	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	3	\$ 400	\$ 1,200
<b>Total</b>					<b>\$ 11,500</b>
10% Unforeseen					\$ 1,150
<b>Subtotal</b>					<b>\$ 12,650</b>
TEMPORARY DAMAGES		AC	1.9	\$ 650	\$ 1,235
County Administration Costs					\$ 253
Topographic Survey					\$ 506
Reports, Plans and Specifications					\$ 759
Construction Staking & Administration					\$ 1,012
<b>Total Branch B Tile Repair Cost</b>					<b>\$ 16,415</b>

**Branch C Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 780.00	\$ 780
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	8-INCH AGRICULTURAL TILE	LF	700	\$ 14.60	\$ 10,220
104	6-INCH AGRICULTURAL TILE	LF	200	\$ 12.00	\$ 2,400
105	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	\$ 400	\$ 1,600
<b>Total</b>					<b>\$ 16,300</b>
10% Unforeseen					\$ 1,630
<b>Subtotal</b>					<b>\$ 17,930</b>
TEMPORARY DAMAGES		AC	3.1	\$ 650	\$ 2,015
County Administration Costs					\$ 359
Topographic Survey					\$ 718
Reports, Plans and Specifications					\$ 1,076
Construction Staking & Administration					\$ 1,435
<b>Total Branch C Tile Repair Cost</b>					<b>\$ 23,533</b>





**SEPARABLE MAINTANENCE (REPAIR)**

**Branch D Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,340.00	\$ 2,340
102	TILE INVESTIGATION	HR	4	\$ 106.50	\$ 426
103	18-INCH AGRICULTURAL TILE	LF	900	\$ 24.60	\$ 22,140
104	12-INCH AGRICULTURAL TILE	LF	1100	\$ 16.75	\$ 18,425
105	CONNECT EXISTING 8-INCH TILE	EA	1	\$ 315.50	\$ 316
106	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	8	\$ 400	\$ 3,200
<b>Total</b>					<b>\$ 49,100</b>
10% Unforeseen					\$ 4,910
<b>Subtotal</b>					<b>\$ 54,010</b>
TEMPORARY DAMAGES		AC	6.9	\$ 650	\$ 4,485
County Administration Costs					\$ 1,081
Topographic Survey					\$ 2,161
Reports, Plans and Specifications					\$ 3,241
Construction Staking & Administration					\$ 4,321
<b>Total Branch D Tile Repair Cost</b>					<b>\$ 69,299</b>

**Branch D-1 Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 810.00	\$ 810
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	8-INCH AGRICULTURAL TILE	LF	900	\$ 14.60	\$ 13,140
104	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	\$ 400	\$ 1,600
<b>Total</b>					<b>\$ 16,900</b>
10% Unforeseen					\$ 1,690
<b>Subtotal</b>					<b>\$ 18,590</b>
TEMPORARY DAMAGES		AC	3.1	\$ 650	\$ 2,015
County Administration Costs					\$ 372
Topographic Survey					\$ 744
Reports, Plans and Specifications					\$ 1,116
Construction Staking & Administration					\$ 1,488
<b>Total Branch D-1 Tile Repair Cost</b>					<b>\$ 24,325</b>

**Branch E Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 370.00	\$ 370
102	TILE INVESTIGATION	HR	1	\$ 106.50	\$ 107
103	8-INCH AGRICULTURAL TILE	LF	100	\$ 14.60	\$ 1,460
104	6-INCH AGRICULTURAL TILE	LF	325	\$ 12.00	\$ 3,900
105	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400	\$ 800
<b>Total</b>					<b>\$ 7,800</b>
10% Unforeseen					\$ 780
<b>Subtotal</b>					<b>\$ 8,580</b>
TEMPORARY DAMAGES		AC	1.5	\$ 650	\$ 975
County Administration Costs					\$ 172
Topographic Survey					\$ 344
Reports, Plans and Specifications					\$ 515
Construction Staking & Administration					\$ 687
<b>Total Branch E Tile Repair Cost</b>					<b>\$ 11,273</b>



**SEPARABLE MAINTANENCE (REPAIR)**

**Branch F Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,290.00	\$ 1,290
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	10-INCH AGRICULTURAL TILE	LF	1300	\$ 16.00	\$ 20,800
105	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	6	\$ 400	\$ 2,400
<b>Total</b>					<b>\$ 27,000</b>
10% Unforeseen					\$ 2,700
<b>Subtotal</b>					<b>\$ 29,700</b>
TEMPORARY DAMAGES		AC	4.5	\$ 650	\$ 2,925
County Administration Costs					\$ 594
Topographic Survey					\$ 1,188
Reports, Plans and Specifications					\$ 1,782
Construction Staking & Administration					\$ 2,376
<b>Total Branch F Tile Repair Cost</b>					<b>\$ 38,565</b>

**Branch H Open Ditch**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 120.00	\$ 120
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	500	\$ 2.00	\$ 1,000
103	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.38	\$ 1,165	\$ 441
104	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	0.23	\$ 3,353	\$ 770
105	BUFFER STRIP MOWING	AC	0.38	\$ 85	\$ 32
106	WEED SPRAYING	AC	0.61	\$ 150	\$ 91
<b>Total</b>					<b>\$ 2,454</b>
10% Unforeseen					\$ 245
<b>Subtotal</b>					<b>\$ 2,700</b>
TEMPORARY DAMAGES		AC	0.4	\$ 650	\$ 260
County Administration Costs					\$ 54
Topographic Survey					\$ 27
Reports, Plans and Specifications					\$ 162
Construction Staking & Administration					\$ 216
<b>Total Branch H Open Ditch Repair Cost</b>					<b>\$ 3,419</b>

**Branch L Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,610.00	\$ 4,610
102	TILE INVESTIGATION	HR	7	\$ 106.50	\$ 746
103	18-INCH AGRICULTURAL TILE	LF	500	\$ 24.60	\$ 12,300
104	15-INCH AGRICULTURAL TILE	LF	1700	\$ 21.00	\$ 35,700
105	12-INCH AGRICULTURAL TILE	LF	1100	\$ 16.75	\$ 18,425
106	8-INCH AGRICULTURAL TILE	LF	200	\$ 14.60	\$ 2,920
107	6-INCH AGRICULTURAL TILE	LF	781	\$ 12.00	\$ 9,372
108	INSTALL DROP INTAKE (18-INCH)	EA	5	\$ 1,085	\$ 5,425
109	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	18	\$ 400	\$ 7,200
<b>Total</b>					<b>\$ 96,700</b>
10% Unforeseen					\$ 9,670
<b>Subtotal</b>					<b>\$ 106,370</b>
TEMPORARY DAMAGES		AC	14.8	\$ 650	\$ 9,620
County Administration Costs					\$ 2,128
Topographic Survey					\$ 4,255
Reports, Plans and Specifications					\$ 6,383
Construction Staking & Administration					\$ 8,510
<b>Total Branch L Tile Repair Cost</b>					<b>\$ 137,266</b>



**SEPARABLE MAINTANENCE (REPAIR)  
 Branch J Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 9,990.00	\$ 9,990
102	TILE INVESTIGATION	HR	15	\$ 106.50	\$ 1,598
103	18-INCH AGRICULTURAL TILE	LF	3600	\$ 24.60	\$ 88,560
104	15-INCH AGRICULTURAL TILE	LF	2350	\$ 21.00	\$ 49,350
105	10-INCH AGRICULTURAL TILE	LF	1550	\$ 16.00	\$ 24,800
106	6-INCH AGRICULTURAL TILE	LF	840	\$ 12.00	\$ 10,080
107	CONNECT EXISTING 12-INCH TILE	EA	1	\$ 494.50	\$ 495
108	CONNECT EXISTING 10-INCH TILE	EA	2	\$ 447.50	\$ 895
109	CONNECT EXISTING 6-INCH TILE	EA	2	\$ 281.00	\$ 562
110	INSTALL DROP INTAKE (18-INCH)	EA	9	\$ 1,085	\$ 9,765
111	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	34	\$ 400	\$ 13,600
<b>Total</b>					<b>\$ 209,700</b>
10% Unforeseen					\$ 20,970
<b>Subtotal</b>					<b>\$ 230,670</b>
TEMPORARY DAMAGES		AC	28.8	\$ 650	\$ 18,720
County Administration Costs					\$ 4,614
Topographic Survey					\$ 9,227
Reports, Plans and Specifications					\$ 13,841
Construction Staking & Administration					\$ 18,454
<b>Total Branch J Tile Repair Cost</b>					<b>\$ 295,526</b>

**Branch J-1 Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,760.00	\$ 2,760
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
102	15-INCH AGRICULTURAL TILE	LF	900	\$ 21.00	\$ 18,900
103	12-INCH AGRICULTURAL TILE	LF	1000	\$ 16.75	\$ 16,750
104	10-INCH AGRICULTURAL TILE	LF	400	\$ 16.00	\$ 6,400
105	8-INCH AGRICULTURAL TILE	LF	350	\$ 14.60	\$ 5,110
106	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 400	\$ 4,400
<b>Total</b>					<b>\$ 57,900</b>
10% Unforeseen					\$ 5,790
<b>Subtotal</b>					<b>\$ 63,690</b>
TEMPORARY DAMAGES		AC	9.2	\$ 650	\$ 5,980
County Administration Costs					\$ 1,274
Topographic Survey					\$ 2,548
Reports, Plans and Specifications					\$ 3,822
Construction Staking & Administration					\$ 5,096
<b>Total Branch J-1 Tile Repair Cost</b>					<b>\$ 82,410</b>



**SEPARABLE MAINTANENCE (REPAIR)  
 Branch J-5 Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 340.00	\$ 340
102	TILE INVESTIGATION	HR	1	\$ 106.50	\$ 107
103	10-INCH AGRICULTURAL TILE	LF	296	\$ 16.00	\$ 4,736
104	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400	\$ 800
<b>Total</b>					<b>\$ 7,100</b>
10% Unforeseen					\$ 710
<b>Subtotal</b>					<b>\$ 7,810</b>
TEMPORARY DAMAGES		AC	1.1	\$ 650	\$ 715
County Administration Costs					\$ 157
Topographic Survey					\$ 313
Reports, Plans and Specifications					\$ 469
Construction Staking & Administration					\$ 625
<b>Total Branch J-5 Tile Repair Cost</b>					<b>\$ 10,089</b>

**Branch K Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,490.00	\$ 2,490
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	15-INCH AGRICULTURAL TILE	LF	900	\$ 21.00	\$ 18,900
104	12-INCH AGRICULTURAL TILE	LF	1000	\$ 16.75	\$ 16,750
105	10-INCH AGRICULTURAL TILE	LF	400	\$ 16.00	\$ 6,400
106	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	10	\$ 400	\$ 4,000
<b>Total</b>					<b>\$ 52,200</b>
10% Unforeseen					\$ 5,220
<b>Subtotal</b>					<b>\$ 57,420</b>
TEMPORARY DAMAGES		AC	8.0	\$ 650	\$ 5,200
County Administration Costs					\$ 1,149
Topographic Survey					\$ 2,297
Reports, Plans and Specifications					\$ 3,446
Construction Staking & Administration					\$ 4,594
<b>Total Branch K Tile Repair Cost</b>					<b>\$ 74,106</b>

**TOTAL REPAIR COST**

	<b>Main Open Ditch</b>	<b>\$ 215,435</b>
	<b>Main Tile</b>	<b>\$ 175,725</b>
	<b>Branch B Tile</b>	<b>\$ 16,415</b>
	<b>Branch C Tile</b>	<b>\$ 23,533</b>
	<b>Branch D Tile</b>	<b>\$ 69,299</b>
	<b>Branch E Tile</b>	<b>\$ 24,325</b>
	<b>Branch F Tile</b>	<b>\$ 11,273</b>
	<b>Branch H Open Ditch</b>	<b>\$ 38,565</b>
	<b>Branch L Tile</b>	<b>\$ 137,266</b>
	<b>Branch J Tile</b>	<b>\$ 295,526</b>
	<b>Branch J-1 Tile</b>	<b>\$ 82,410</b>
	<b>Branch J-5 Tile</b>	<b>\$ 10,089</b>
	<b>Branch K Tile</b>	<b>\$ 74,106</b>
<b>COMPLETE REPAIR COST</b>		<b>\$ 1,173,967</b>



**PROPOSED OPTION #1 IMPROVEMENT**

**Main Open Ditch**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 6,900.00	\$ 6,900
102	DITCH CLEANING (18' WIDE DITCH BOTTOM)	LF	2,025	\$ 4.50	\$ 9,113
103	DITCH CLEANING (8' WIDE DITCH BOTTOM)	LF	1,300	\$ 2.75	\$ 3,575
104	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	2,700	\$ 2.25	\$ 6,075
105	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	20,375	\$ 2.00	\$ 40,750
106	30-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,270.00	\$ 1,270
107	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 860.00	\$ 2,580
108	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 752.00	\$ 752
109	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 680.00	\$ 1,360
110	8-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 635.00	\$ 1,905
111	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	20.00	\$ 1,165	\$ 23,300
112	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	12.12	\$ 3,353	\$ 40,642
113	BUFFER STRIP MOWING	AC	20.00	\$ 85	\$ 1,700
114	WEED SPRAYING	AC	32.12	\$ 150	\$ 4,818
<b>Total</b>					<b>\$ 144,740</b>
10% Unforeseen					\$ 14,474
<b>Subtotal</b>					<b>\$ 159,214</b>
TEMPORARY DAMAGES		AC	20.0	\$ 650	\$ 13,000
County Administration Costs					\$ 3,185
Topographic Survey					\$ 19,455
Reports, Plans and Specifications					\$ 9,553
Construction Staking & Administration					\$ 12,738
<b>Total Main Open Ditch Improvement Cost</b>					<b>\$ 217,145</b>

**Main Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 8,290.00	\$ 8,290
102	TILE INVESTIGATION	HR	6	\$ 106.50	\$ 639
103	30-INCH AGRICULTURAL TILE	LF	2256	\$ 40.00	\$ 90,240
104	24-INCH AGRICULTURAL TILE	LF	900	\$ 29.20	\$ 26,280
105	18-INCH AGRICULTURAL TILE	LF	1624	\$ 24.60	\$ 39,950
106	CONNECT EXISTING 18-INCH TILE	EA	1	\$ 871.50	\$ 872
107	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
108	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 400	\$ 4,400
<b>Total</b>					<b>\$ 174,000</b>
10% Unforeseen					\$ 17,400
<b>Subtotal</b>					<b>\$ 191,400</b>
TEMPORARY DAMAGES		AC	8.7	\$ 650	\$ 5,655
County Administration Costs					\$ 3,828
Topographic Survey					\$ 7,656
Reports, Plans and Specifications					\$ 11,484
Construction Staking & Administration					\$ 15,312
<b>Total Main Tile Improvement Cost</b>					<b>\$ 235,335</b>

**TOTAL IMPROVEMENT COST**

				<b>Main Open Ditch</b>	<b>\$ 217,145</b>
				<b>Main Tile</b>	<b>\$ 235,335</b>
<b>COMPLETE IMPROVEMENT COST</b>					<b>\$ 452,480</b>



**PROPOSED OPTION #2 IMPROVEMENT**

**Main Open Ditch**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 6,900.00	\$ 6,900
102	DITCH CLEANING (18' WIDE DITCH BOTTOM)	LF	2,025	\$ 4.50	\$ 9,113
103	DITCH CLEANING (8' WIDE DITCH BOTTOM)	LF	1,300	\$ 2.75	\$ 3,575
104	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	2,700	\$ 2.25	\$ 6,075
105	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	20,375	\$ 2.00	\$ 40,750
106	30-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,270.00	\$ 1,270
107	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 860.00	\$ 2,580
108	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 752.00	\$ 752
109	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 680.00	\$ 1,360
110	8-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 635.00	\$ 1,905
111	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	20.00	\$ 1,165	\$ 23,300
112	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	12.12	\$ 3,353	\$ 40,642
113	BUFFER STRIP MOWING	AC	20.00	\$ 85	\$ 1,700
114	WEED SPRAYING	AC	32.12	\$ 150	\$ 4,818
<b>Total</b>					<b>\$ 144,740</b>
10% Unforeseen					\$ 14,474
<b>Subtotal</b>					<b>\$ 159,214</b>
TEMPORARY DAMAGES		AC	20.0	\$ 650	\$ 13,000
County Administration Costs					\$ 3,185
Topographic Survey					\$ 19,455
Reports, Plans and Specifications					\$ 9,553
Construction Staking & Administration					\$ 12,738
<b>Total Main Open Ditch Improvement Cost</b>					<b>\$ 217,145</b>

**Main Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 8,350.00	\$ 8,350
102	TILE INVESTIGATION	HR	6	\$ 106.50	\$ 639
103	30-INCH AGRICULTURAL TILE	LF	2256	\$ 40.00	\$ 90,240
104	24-INCH AGRICULTURAL TILE	LF	900	\$ 29.20	\$ 26,280
105	18-INCH AGRICULTURAL TILE	LF	1624	\$ 24.60	\$ 39,950
106	CONNECT EXISTING 24-INCH TILE	EA	1	\$ 1,232.50	\$ 1,233
107	CONNECT EXISTING 18-INCH TILE	EA	1	\$ 871.50	\$ 872
108	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
109	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 400	\$ 4,400
<b>Total</b>					<b>\$ 175,300</b>
10% Unforeseen					\$ 17,530
<b>Subtotal</b>					<b>\$ 192,830</b>
TEMPORARY DAMAGES		AC	8.7	\$ 650	\$ 5,655
County Administration Costs					\$ 3,857
Topographic Survey					\$ 7,714
Reports, Plans and Specifications					\$ 11,570
Construction Staking & Administration					\$ 15,427
<b>Total Main Tile Improvement Cost</b>					<b>\$ 237,053</b>



**PROPOSED OPTION #2 IMPROVEMENT**

**Branch B Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 780.00	\$ 780
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	18-INCH AGRICULTURAL TILE	LF	525	\$ 24.60	\$ 12,915
105	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	3	\$ 400	\$ 1,200
<b>Total</b>					<b>\$ 16,200</b>
10% Unforeseen					\$ 1,620
<b>Subtotal</b>					<b>\$ 17,820</b>
TEMPORARY DAMAGES		AC	1.9	\$ 650	\$ 1,235
County Administration Costs					\$ 357
Topographic Survey					\$ 713
Reports, Plans and Specifications					\$ 1,070
Construction Staking & Administration					\$ 1,426
<b>Total Branch B Tile Improvement Cost</b>					<b>\$ 22,621</b>

**Branch C Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,050.00	\$ 1,050
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	15-INCH AGRICULTURAL TILE	LF	700	\$ 21.00	\$ 14,700
104	12-INCH AGRICULTURAL TILE	LF	200	\$ 16.75	\$ 3,350
105	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	\$ 400	\$ 1,600
<b>Total</b>					<b>\$ 22,000</b>
10% Unforeseen					\$ 2,200
<b>Subtotal</b>					<b>\$ 24,200</b>
TEMPORARY DAMAGES		AC	3.1	\$ 650	\$ 2,015
County Administration Costs					\$ 484
Topographic Survey					\$ 968
Reports, Plans and Specifications					\$ 1,452
Construction Staking & Administration					\$ 1,936
<b>Total Branch C Tile Improvement Cost</b>					<b>\$ 31,055</b>

**Branch D Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,000.00	\$ 3,000
102	TILE INVESTIGATION	HR	4	\$ 106.50	\$ 426
103	24-INCH AGRICULTURAL TILE	LF	900	\$ 29.20	\$ 26,280
104	18-INCH AGRICULTURAL TILE	LF	1100	\$ 24.60	\$ 27,060
105	CONNECT EXISTING 10-INCH TILE	EA	1	\$ 447.50	\$ 448
106	CONNECT EXISTING 8-INCH TILE	EA	1	\$ 315.50	\$ 316
107	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
108	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	8	\$ 400	\$ 3,200
<b>Total</b>					<b>\$ 62,900</b>
10% Unforeseen					\$ 6,290
<b>Subtotal</b>					<b>\$ 69,190</b>
TEMPORARY DAMAGES		AC	6.9	\$ 650	\$ 4,485
County Administration Costs					\$ 1,384
Topographic Survey					\$ 2,768
Reports, Plans and Specifications					\$ 4,152
Construction Staking & Administration					\$ 5,536
<b>Total Branch D Tile Improvement Cost</b>					<b>\$ 87,515</b>



**PROPOSED OPTION #2 IMPROVEMENT**

**Branch D-1 Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 870.00	\$ 870
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	10-INCH AGRICULTURAL TILE	LF	900	\$ 16.00	\$ 14,400
104	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	\$ 400	\$ 1,600
<b>Total</b>					<b>\$ 18,200</b>
10% Unforeseen					\$ 1,820
<b>Subtotal</b>					<b>\$ 20,020</b>
TEMPORARY DAMAGES		AC	3.1	\$ 650	\$ 2,015
County Administration Costs					\$ 401
Topographic Survey					\$ 801
Reports, Plans and Specifications					\$ 1,202
Construction Staking & Administration					\$ 1,602
<b>Total Branch D-1 Tile Improvement Cost</b>					<b>\$ 26,041</b>

**Branch E Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 460.00	\$ 460
102	TILE INVESTIGATION	HR	1	\$ 106.50	\$ 107
103	12-INCH AGRICULTURAL TILE	LF	425	\$ 16.75	\$ 7,119
105	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400	\$ 800
<b>Total</b>					<b>\$ 9,600</b>
10% Unforeseen					\$ 960
<b>Subtotal</b>					<b>\$ 10,560</b>
TEMPORARY DAMAGES		AC	1.5	\$ 650	\$ 975
County Administration Costs					\$ 212
Topographic Survey					\$ 423
Reports, Plans and Specifications					\$ 634
Construction Staking & Administration					\$ 845
<b>Total Branch E Tile Improvement Cost</b>					<b>\$ 13,649</b>

**Branch F Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,150.00	\$ 2,150
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	24-INCH AGRICULTURAL TILE	LF	1300	\$ 29.20	\$ 37,960
105	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	6	\$ 400	\$ 2,400
<b>Total</b>					<b>\$ 45,000</b>
10% Unforeseen					\$ 4,500
<b>Subtotal</b>					<b>\$ 49,500</b>
TEMPORARY DAMAGES		AC	4.5	\$ 650	\$ 2,925
County Administration Costs					\$ 990
Topographic Survey					\$ 1,980
Reports, Plans and Specifications					\$ 2,970
Construction Staking & Administration					\$ 3,960
<b>Total Branch F Tile Improvement Cost</b>					<b>\$ 62,325</b>





**PROPOSED OPTION #2 IMPROVEMENT**

**Branch H Open Ditch**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 120.00	\$ 120
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	500	\$ 2.00	\$ 1,000
103	16.5' BUFFER STRIP SEEDING	AC	0.38	\$ 1,165	\$ 441
104	SIDESLOPE SEEDING	AC	0.23	\$ 3,353	\$ 770
105	BUFFER STRIP MOWING	AC	0.38	\$ 85	\$ 32
106	WEED SPRAYING	AC	0.61	\$ 150	\$ 91
<b>Total</b>					<b>\$ 2,454</b>
10% Unforeseen					\$ 245
<b>Subtotal</b>					<b>\$ 2,700</b>
TEMPORARY DAMAGES		AC	0.4	\$ 650	\$ 260
County Administration Costs					\$ 54
Topographic Survey					\$ 27
Reports, Plans and Specifications					\$ 162
Construction Staking & Administration					\$ 216
<b>Total Branch H Open Ditch Improvement Cost</b>					<b>\$ 3,419</b>

**Branch L Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 7,590.00	\$ 7,590
102	TILE INVESTIGATION	HR	5	\$ 106.50	\$ 533
103	30-INCH AGRICULTURAL TILE	LF	2200	\$ 40.00	\$ 88,000
104	24-INCH AGRICULTURAL TILE	LF	1100	\$ 29.20	\$ 32,120
105	18-INCH AGRICULTURAL TILE	LF	981	\$ 24.60	\$ 24,133
106	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	9	\$ 400	\$ 3,600
<b>Total</b>					<b>\$ 159,300</b>
10% Unforeseen					\$ 15,930
<b>Subtotal</b>					<b>\$ 175,230</b>
TEMPORARY DAMAGES		AC	7.2	\$ 650	\$ 4,680
County Administration Costs					\$ 3,505
Topographic Survey					\$ 7,010
Reports, Plans and Specifications					\$ 10,514
Construction Staking & Administration					\$ 14,019
<b>Total Branch L Tile Improvement Cost</b>					<b>\$ 214,958</b>

**Branch J Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 12,090.00	\$ 12,090
102	TILE INVESTIGATION	HR	17	\$ 106.50	\$ 1,811
103	24-INCH AGRICULTURAL TILE	LF	5950	\$ 29.20	\$ 173,740
104	12-INCH AGRICULTURAL TILE	LF	1550	\$ 16.75	\$ 25,963
105	10-INCH AGRICULTURAL TILE	LF	840	\$ 16.00	\$ 13,440
106	CONNECT EXISTING 18-INCH TILE	EA	1	\$ 871.50	\$ 872
107	CONNECT EXISTING 15-INCH TILE	EA	1	\$ 644.50	\$ 645
108	CONNECT EXISTING 12-INCH TILE	EA	1	\$ 494.50	\$ 495
109	CONNECT EXISTING 10-INCH TILE	EA	2	\$ 447.50	\$ 895
110	CONNECT EXISTING 6-INCH TILE	EA	2	\$ 281.00	\$ 562
111	INSTALL DROP INTAKE (18-INCH)	EA	9	\$ 1,085	\$ 9,765
112	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	34	\$ 400	\$ 13,600
<b>Total</b>					<b>\$ 253,900</b>
10% Unforeseen					\$ 25,390
<b>Subtotal</b>					<b>\$ 279,290</b>
TEMPORARY DAMAGES		AC	28.8	\$ 650	\$ 18,720
County Administration Costs					\$ 5,586
Topographic Survey					\$ 11,172
Reports, Plans and Specifications					\$ 16,758
Construction Staking & Administration					\$ 22,344
<b>Total Branch J Tile Improvement Cost</b>					<b>\$ 353,870</b>



**PROPOSED OPTION #2 IMPROVEMENT**

**Branch J-1 Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,100.00	\$ 3,100
102	TILE INVESTIGATION	HR	6	\$ 106.50	\$ 639
102	15-INCH AGRICULTURAL TILE	LF	2550	\$ 21.00	\$ 53,550
106	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 400	\$ 4,400
<b>Total</b>					<b>\$ 65,000</b>
10% Unforeseen					\$ 6,500
<b>Subtotal</b>					<b>\$ 71,500</b>
TEMPORARY DAMAGES		AC	8.8	\$ 650	\$ 5,720
County Administration Costs					\$ 1,430
Topographic Survey					\$ 2,860
Reports, Plans and Specifications					\$ 4,290
Construction Staking & Administration					\$ 5,720
<b>Total Branch J-1 Tile Improvement Cost</b>					<b>\$ 91,520</b>

**Branch J-5 Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 470.00	\$ 470
102	TILE INVESTIGATION	HR	1	\$ 106.50	\$ 107
103	18-INCH AGRICULTURAL TILE	LF	296	\$ 24.60	\$ 7,282
104	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400	\$ 800
<b>Total</b>					<b>\$ 9,800</b>
10% Unforeseen					\$ 980
<b>Subtotal</b>					<b>\$ 10,780</b>
TEMPORARY DAMAGES		AC	1.1	\$ 650	\$ 715
County Administration Costs					\$ 216
Topographic Survey					\$ 432
Reports, Plans and Specifications					\$ 647
Construction Staking & Administration					\$ 863
<b>Total Branch J-5 Tile Improvement Cost</b>					<b>\$ 13,653</b>

**Branch K Tile**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,020.00	\$ 3,020
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	24-INCH AGRICULTURAL TILE	LF	1350	\$ 29.20	\$ 39,420
104	18-INCH AGRICULTURAL TILE	LF	625	\$ 24.60	\$ 15,375
106	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	8	\$ 400	\$ 3,200
<b>Total</b>					<b>\$ 63,400</b>
10% Unforeseen					\$ 6,340
<b>Subtotal</b>					<b>\$ 69,740</b>
TEMPORARY DAMAGES		AC	6.9	\$ 650	\$ 4,485
County Administration Costs					\$ 1,395
Topographic Survey					\$ 2,790
Reports, Plans and Specifications					\$ 4,185
Construction Staking & Administration					\$ 5,580
<b>Total Branch K Tile Improvement Cost</b>					<b>\$ 88,175</b>



**PROPOSED OPTION #2 IMPROVEMENT**

**Potential Storage - 4.25 AC**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,590.00	\$ 2,590
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	COMMON EXCAVATION	CY	13,769.85	\$ 3.00	\$ 41,310
104	INSTALL STRUCTURE S-1 WITH GALVINIZED GRATE	LS	1	\$ 3,850.00	\$ 3,850
106	RIPRAP WITH GEOTEXTILE FABRIC	CY	100	\$ 62	\$ 6,200
<b>Total</b>					<b>\$ 54,300</b>
10% Unforeseen					\$ 5,430
<b>Subtotal</b>					<b>\$ 59,730</b>
TEMPORARY DAMAGES		AC	6.0	\$ 650	\$ 3,900
County Administration Costs					\$ 1,195
Topographic Survey					\$ 2,390
Reports, Plans and Specifications					\$ 3,584
Construction Staking & Administration					\$ 4,779
<b>Total Potential Storage - 4.25 AC Improvement Cost</b>					<b>\$ 75,578</b>

**TOTAL IMPROVEMENT COST**

	Main Open Ditch	\$ 217,145
	Main Tile	\$ 237,053
	Branch B Tile	\$ 22,621
	Branch C Tile	\$ 31,055
	Branch D Tile	\$ 87,515
	Branch E Tile	\$ 26,041
	Branch F Tile	\$ 13,649
	Branch H Open Ditch	\$ 62,325
	Branch L Tile	\$ 214,958
	Branch J Tile	\$ 353,870
	Branch J-1 Tile	\$ 91,520
	Branch J-5 Tile	\$ 13,653
	Branch K Tile	\$ 88,175
	Potential Storage - 4.25 AC	\$ 75,578
<b>COMPLETE IMPROVEMENT COST</b>		<b>\$ 1,535,158</b>



ROAD CROSSING SUMMARY - OPTION #1

Crossing	Road Authority	Repair Cost With Road	Repair Cost Without Road	Improvement Cost	Road Authority Cost (Difference of Repair Cost With Road and Repair Cost Without Road)	Damages Paid To Road Authority (Difference of Improvement Cost and Road Authority Cost)
<b>MAIN</b>						
County Road 5	COUNTY	\$ 20,192	\$ 3,065	\$ 24,962	\$ 17,127	\$ 7,835
<b>TOTAL</b>		<b>\$ 20,192</b>	<b>\$ 3,065</b>	<b>\$ 24,962</b>	<b>\$ 17,127</b>	<b>\$ 7,835</b>
<b>STATE ROAD AUTHORITY TOTAL</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>COUNTY ROAD AUTHORITY TOTAL</b>		<b>\$ 20,192</b>	<b>\$ 3,065</b>	<b>\$ 24,962</b>	<b>\$ 17,127</b>	<b>\$ 7,835</b>
<b>TOWNSHIP ROAD AUTHORITY TOTAL</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

ROAD CROSSING SUMMARY - OPTION #2

Crossing	Road Authority	Repair Cost With Road	Repair Cost Without Road	Improvement Cost	Road Authority Cost (Difference of Repair Cost With Road and Repair Cost Without Road)	Damages Paid To Road Authority (Difference of Improvement Cost and Road Authority Cost)
<b>MAIN</b>						
County Road 5	COUNTY	\$ 20,192	\$ 3,065	\$ 24,962	\$ 17,127	\$ 7,835
<b>BRANCH J</b>						
County Road 5	COUNTY	\$ 20,192.00	\$ 3,064.91	\$ 21,492.00	\$ 17,127.09	\$ 4,364.91
County Road 6	COUNTY	\$ 19,917.00	\$ 2,756.91	\$ 21,492.00	\$ 17,160.09	\$ 4,331.91
County Road 6	COUNTY	\$ 11,412.00	\$ 2,161.91	\$ 19,917.00	\$ 9,250.09	\$ 10,666.91
<b>TOTAL</b>		<b>\$ 71,713</b>	<b>\$ 11,049</b>	<b>\$ 87,863</b>	<b>\$ 60,664</b>	<b>\$ 27,199</b>
<b>STATE ROAD AUTHORITY TOTAL</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>COUNTY ROAD AUTHORITY TOTAL</b>		<b>\$ 71,713</b>	<b>\$ 11,049</b>	<b>\$ 87,863</b>	<b>\$ 60,664</b>	<b>\$ 27,199</b>
<b>TOWNSHIP ROAD AUTHORITY TOTAL</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>



ROAD CROSSINGS

MAINLINE TILE REPAIR COST WITH ROAD - COUNTY ROAD 5

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 800.00	\$ 800
102	BORE 18-INCH TILE	LF	50	\$ 255.00	\$ 12,750
103	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 15,720</b>
10% CONTINGENCY					\$ 1,572
<b>SUBTOTAL</b>					<b>\$ 17,292</b>
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,100
Construction Staking & Administration					\$ 1,400
<b>ESTIMATED MAINLINE TILE REPAIR COST WITH ROAD - COUNTY ROAD 5</b>					<b>\$ 20,192</b>

MAINLINE TILE REPAIR WITHOUT ROAD - COUNTY ROAD 5

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 200.00	\$ 200
202	18-INCH AGRICULTURAL TILE	LF	50	\$ 24.60	\$ 1,230
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
<b>TOTAL</b>					<b>\$ 2,230</b>
10% CONTINGENCY					\$ 223
<b>SUBTOTAL</b>					<b>\$ 2,453</b>
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 200
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
<b>ESTIMATED MAINLINE TILE REPAIR WITHOUT ROAD - COUNTY ROAD 5</b>					<b>\$ 3,065</b>

MAINLINE TILE IMPROVEMENT COST - COUNTY ROAD 5

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 1,000.00	\$ 1,000
302	BORE 30-INCH TILE	LF	50	\$ 325.00	\$ 16,250
303	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 19,420</b>
10% CONTINGENCY					\$ 1,942
<b>SUBTOTAL</b>					<b>\$ 21,362</b>
County Administration Costs					\$ 500
Reports, Plans and Specifications					\$ 1,300
Construction Staking & Administration					\$ 1,800
<b>ESTIMATED MAINLINE TILE IMPROVEMENT COST - COUNTY ROAD 5</b>					<b>\$ 24,962</b>



ROAD CROSSINGS

**BRANCH J TILE REPAIR COST WITH ROAD - COUNTY ROAD 5**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 800.00	\$ 800
102	BORE 18-INCH TILE	LF	50	\$ 255.00	\$ 12,750
103	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 15,720</b>
10% CONTINGENCY					\$ 1,572
<b>SUBTOTAL</b>					<b>\$ 17,292</b>
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,100
Construction Staking & Administration					\$ 1,400
<b>ESTIMATED BRANCH J TILE REPAIR COST WITH ROAD - COUNTY ROAD 5</b>					<b>\$ 20,192</b>

**BRANCH J TILE REPAIR WITHOUT ROAD - COUNTY ROAD 5**

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 200.00	\$ 200
202	18-INCH AGRICULTURAL TILE	LF	50	\$ 24.60	\$ 1,230
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
<b>TOTAL</b>					<b>\$ 2,230</b>
10% CONTINGENCY					\$ 223
<b>SUBTOTAL</b>					<b>\$ 2,453</b>
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 200
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
<b>ESTIMATED BRANCH J TILE REPAIR WITHOUT ROAD - COUNTY ROAD 5</b>					<b>\$ 3,065</b>

**BRANCH J TILE IMPROVEMENT COST - COUNTY ROAD 5**

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 800.00	\$ 800
302	BORE 24-INCH TILE	LF	50	\$ 275.00	\$ 13,750
303	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 16,720</b>
10% CONTINGENCY					\$ 1,672
<b>SUBTOTAL</b>					<b>\$ 18,392</b>
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,200
Construction Staking & Administration					\$ 1,500
<b>ESTIMATED BRANCH J TILE IMPROVEMENT COST - COUNTY ROAD 5</b>					<b>\$ 21,492</b>



ROAD CROSSINGS

**BRANCH J TILE REPAIR COST WITH ROAD - COUNTY ROAD 6**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 800.00	\$ 800
102	BORE 15-INCH TILE	LF	50	\$ 250.00	\$ 12,500
103	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 15,470</b>
10% CONTINGENCY					\$ 1,547
<b>SUBTOTAL</b>					<b>\$ 17,017</b>
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,100
Construction Staking & Administration					\$ 1,400
<b>ESTIMATED BRANCH J TILE REPAIR COST WITH ROAD - COUNTY ROAD 6</b>					<b>\$ 19,917</b>

**BRANCH J TILE REPAIR WITHOUT ROAD - COUNTY ROAD 6**

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 100.00	\$ 100
202	15-INCH AGRICULTURAL TILE	LF	50	\$ 21.00	\$ 1,050
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
<b>TOTAL</b>					<b>\$ 1,950</b>
10% CONTINGENCY					\$ 195
<b>SUBTOTAL</b>					<b>\$ 2,145</b>
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 200
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
<b>ESTIMATED BRANCH J TILE REPAIR WITHOUT ROAD - COUNTY ROAD 6</b>					<b>\$ 2,757</b>

**BRANCH J TILE IMPROVEMENT COST - COUNTY ROAD 6**

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 800.00	\$ 800
302	BORE 24-INCH TILE	LF	50	\$ 275.00	\$ 13,750
303	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 16,720</b>
10% CONTINGENCY					\$ 1,672
<b>SUBTOTAL</b>					<b>\$ 18,392</b>
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,200
Construction Staking & Administration					\$ 1,500
<b>ESTIMATED BRANCH J TILE IMPROVEMENT COST - COUNTY ROAD 6</b>					<b>\$ 21,492</b>



ROAD CROSSINGS

**BRANCH J TILE REPAIR COST WITH ROAD - COUNTY ROAD 6**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 500.00	\$ 500
102	BORE 6-INCH TILE	LF	50	\$ 125.00	\$ 6,250
103	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 8,920</b>
10% CONTINGENCY					\$ 892
<b>SUBTOTAL</b>					<b>\$ 9,812</b>
County Administration Costs					\$ 200
Reports, Plans and Specifications					\$ 600
Construction Staking & Administration					\$ 800
<b>ESTIMATED BRANCH J TILE REPAIR COST WITH ROAD - COUNTY ROAD 6</b>					<b>\$ 11,412</b>

**BRANCH J TILE REPAIR WITHOUT ROAD - COUNTY ROAD 6**

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 100.00	\$ 100
202	6-INCH AGRICULTURAL TILE	LF	50	\$ 12.00	\$ 600
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
<b>TOTAL</b>					<b>\$ 1,500</b>
10% CONTINGENCY					\$ 150
<b>SUBTOTAL</b>					<b>\$ 1,650</b>
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 100
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
<b>ESTIMATED BRANCH J TILE REPAIR WITHOUT ROAD - COUNTY ROAD 6</b>					<b>\$ 2,162</b>

**BRANCH J TILE IMPROVEMENT COST - COUNTY ROAD 6**

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 800.00	\$ 800
302	BORE 15-INCH TILE	LF	50	\$ 250.00	\$ 12,500
303	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
<b>TOTAL</b>					<b>\$ 15,470</b>
10% CONTINGENCY					\$ 1,547
<b>SUBTOTAL</b>					<b>\$ 17,017</b>
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,100
Construction Staking & Administration					\$ 1,400
<b>ESTIMATED BRANCH J TILE IMPROVEMENT COST - COUNTY ROAD 6</b>					<b>\$ 19,917</b>





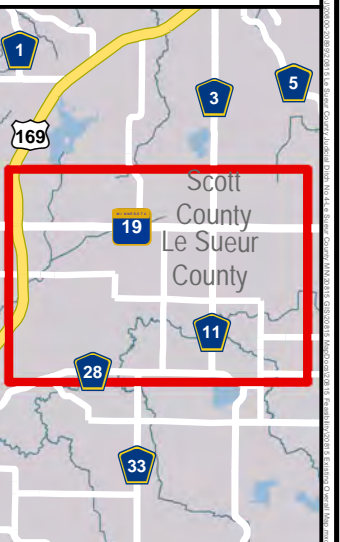
Existing  
Overall Watershed  
Map  
Joint County Ditch  
No. 4 and  
County Ditch No. 70  
Le Sueur and Scott  
County, Minnesota  
Thursday, September 07, 2017

- Legend**
- JCD 4 Watershed
  - CD70 Watershed
- JCD 4 System**
- TYPE**
- EXISTING OPEN DITCH
  - EXISTING TILE

PN: 17-20815

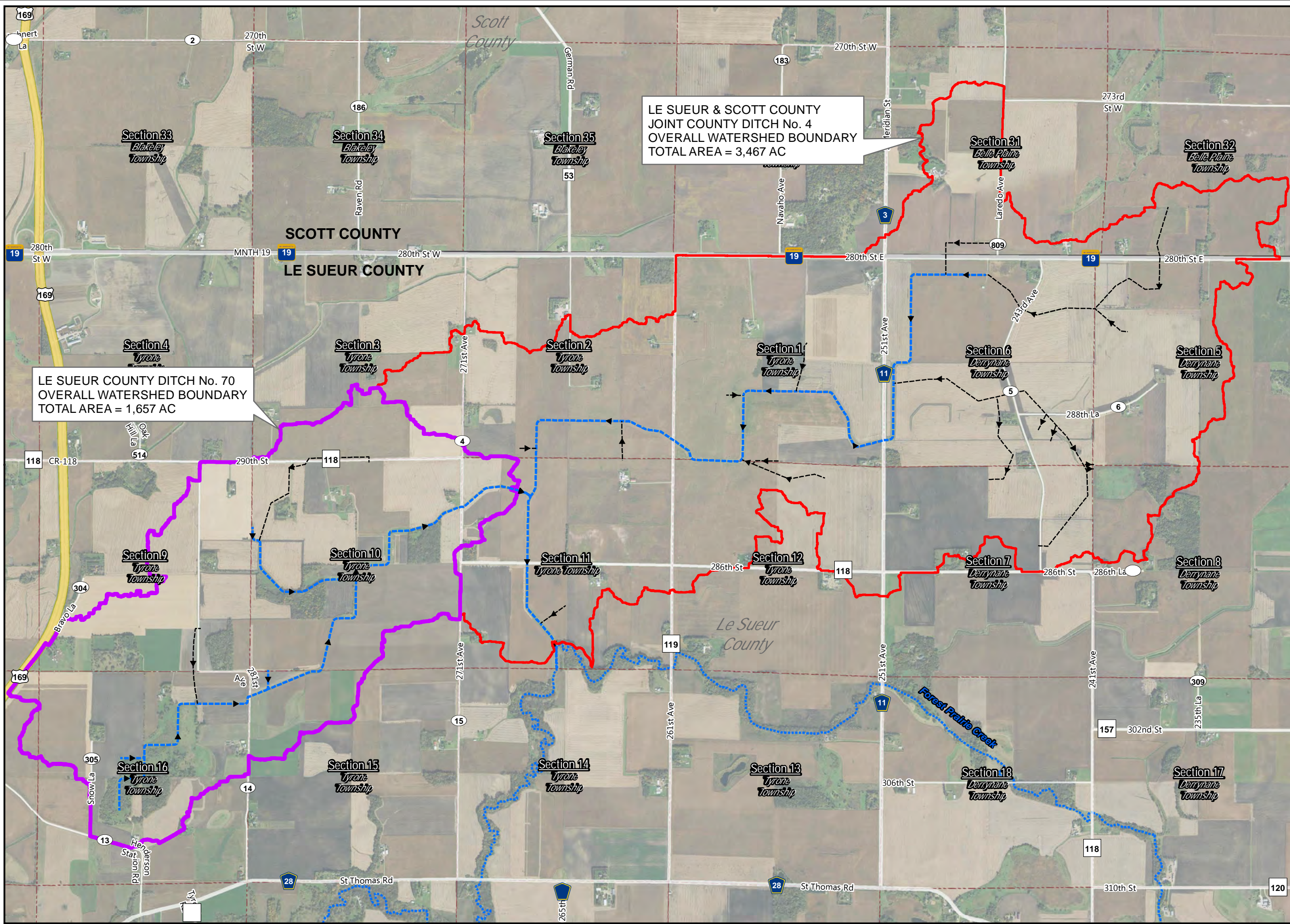
Source:

- Orthophotograph (Le Sueur County, 2016)
- Tile/Ditch (Le Sueur County, 11/21/2016)
- Parcels (Le Sueur County, 2/4/2016)
- Lakes (MN DNR, July, 2008)
- Major Stream (MN DNR, July 2008)
- Counties (MN DNR, July 2013)
- PLSS (MnGeo/USGS)



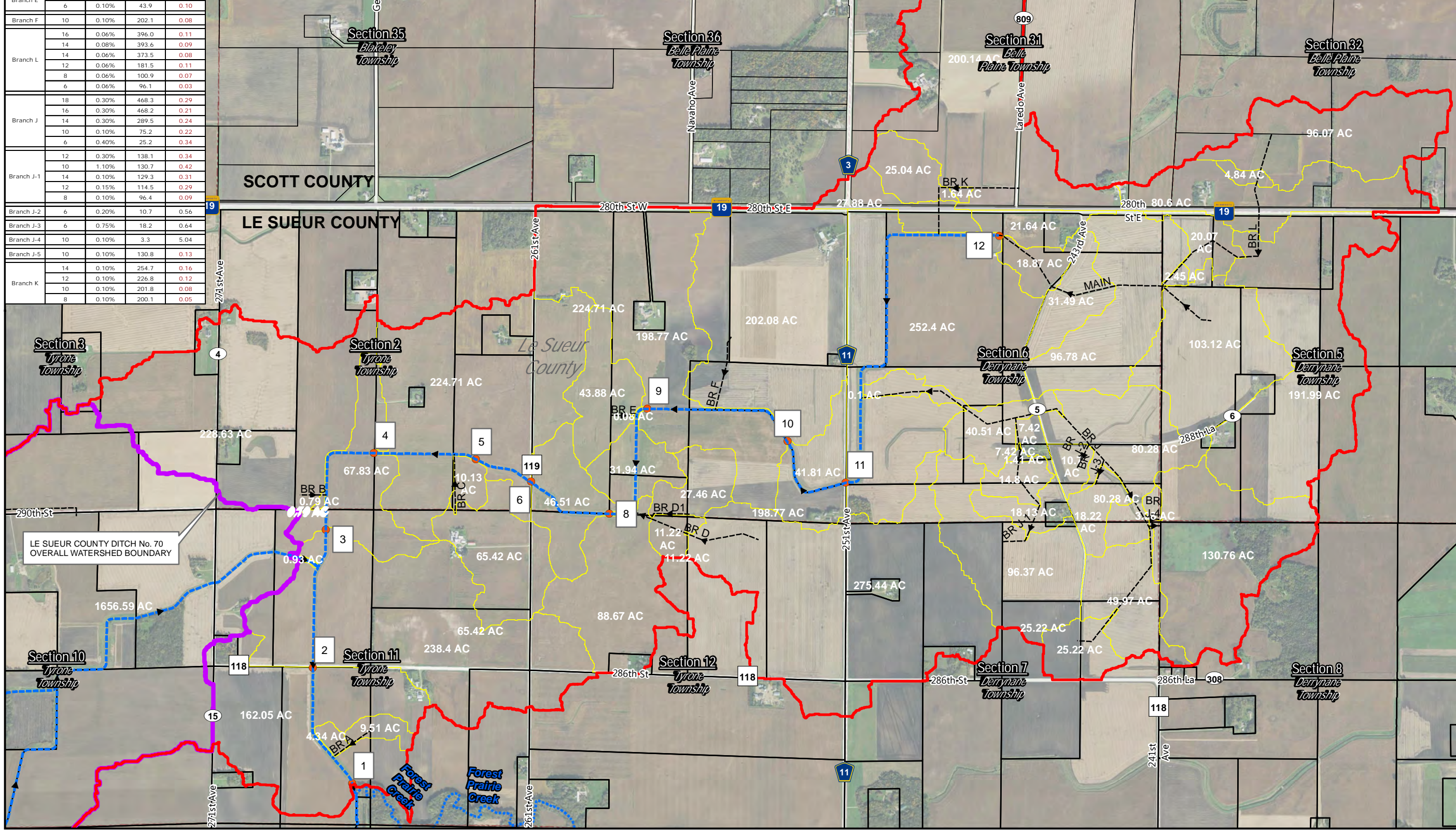
LE SUEUR & SCOTT COUNTY  
JOINT COUNTY DITCH No. 4  
OVERALL WATERSHED BOUNDARY  
TOTAL AREA = 3,467 AC

LE SUEUR COUNTY DITCH No. 70  
OVERALL WATERSHED BOUNDARY  
TOTAL AREA = 1,657 AC





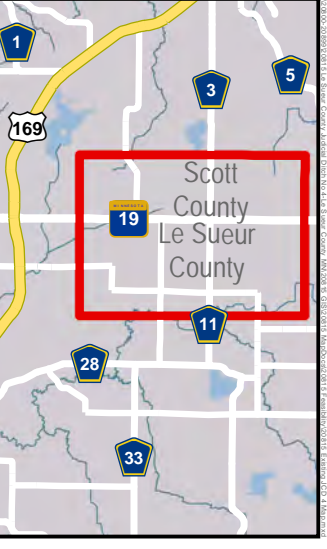
Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)	Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Rise x Span (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Main	18	0.22%	646.3	0.18	1	Main - Field Crossing	ARCH CULVERT	CMP	-	63 x 87	1.25%	5123	1.34
	18	0.20%	627.4	0.18	2	Main - TWP 118	ARCH CULVERT	CMP	-	63 x 87	2.06%	4947	1.79
	18	0.17%	595.9	0.17	3	Main - Field Crossing	ROUND CULVERT	CMP	60	-	1.00%	3051	1.06
	10	0.20%	103.1	0.23	4	Main - Field Crossing	ROUND CULVERT	CMP	60	-	1.83%	2754	1.59
Branch A	8	0.30%	13.9	1.14	5	Main - TWP 119	ROUND CULVERT	RCP	54	-	0.30%	2454	1.05
	6	0.90%	9.5	1.34	6	Main - Field Crossing	ROUND CULVERT	CMP	54	-	0.42%	2407	0.65
Branch B	10	0.40%	229.4	0.14	7	Main - Field Crossing	ROUND CULVERT	CMP	54	-	0.83%	1929	1.16
	10	0.20%	228.6	0.10	8	Main - Field Crossing	ROUND CULVERT	CMP	54	-	0.56%	1528	1.19
Branch C	8	0.10%	75.6	0.12	9	Main - CSAH 11	ROUND CULVERT	RCP	54	-	0.31%	1486	1.77
	6	0.40%	65.4	0.13	10	Main - Field Crossing	ROUND CULVERT	CMP	42	-	2.50%	482	4.10
Branch D	18	0.12%	402.8	0.22									
	18	0.08%	286.7	0.25									
Branch D-1	12	0.50%	275.4	0.22									
	8	0.10%	27.5	0.33									
Branch E	8	0.10%	44.7	0.20									
	6	0.10%	43.9	0.10									
Branch F	10	0.10%	202.1	0.08									
	16	0.06%	396.0	0.11									
Branch L	14	0.08%	393.6	0.09									
	14	0.06%	373.5	0.08									
Branch J	12	0.06%	181.5	0.11									
	8	0.06%	100.9	0.07									
Branch J-1	6	0.06%	96.1	0.03									
	18	0.30%	468.3	0.29									
Branch J-2	16	0.30%	468.2	0.21									
	14	0.30%	289.5	0.24									
Branch J-3	10	0.10%	75.2	0.22									
	6	0.40%	25.2	0.34									
Branch J-4	12	0.30%	138.1	0.34									
	10	1.10%	130.7	0.42									
Branch J-5	14	0.10%	129.3	0.31									
	12	0.15%	114.5	0.29									
Branch K	8	0.10%	96.4	0.09									
	6	0.20%	10.7	0.56									
Branch J-4	6	0.75%	18.2	0.64									
	10	0.10%	3.3	5.04									
Branch J-5	10	0.10%	130.8	0.13									
	14	0.10%	254.7	0.16									
Branch K	12	0.10%	226.8	0.12									
	10	0.10%	201.8	0.08									
Branch K	8	0.10%	200.1	0.05									



**Existing JCD No. 4 Watershed Map**  
 Joint County Ditch No. 4 and County Ditch No. 70  
 Le Sueur and Scott County, Minnesota  
 Thursday, October 05, 2017

- Legend**
- JCD 4 Watershed
  - CD70 Watershed
  - JCD 4 System TYPE**
  - EXISTING OPEN DITCH
  - EXISTING TILE
  - Culvert Crossings
  - Subcatchments
  - Parcels

PN: 17-20815  
 Source:  
 Orthophotograph (Le Sueur County, 2016)  
 Tile/Ditch (Le Sueur County, 11/21/2016)  
 Parcels (Le Sueur County, 2/4/2016)  
 Lakes (MN DNR, July, 2008)  
 Major Stream (MN DNR, July 2008)  
 Counties (MN DNR, July 2013)  
 PLS (MnGeo/USGS)







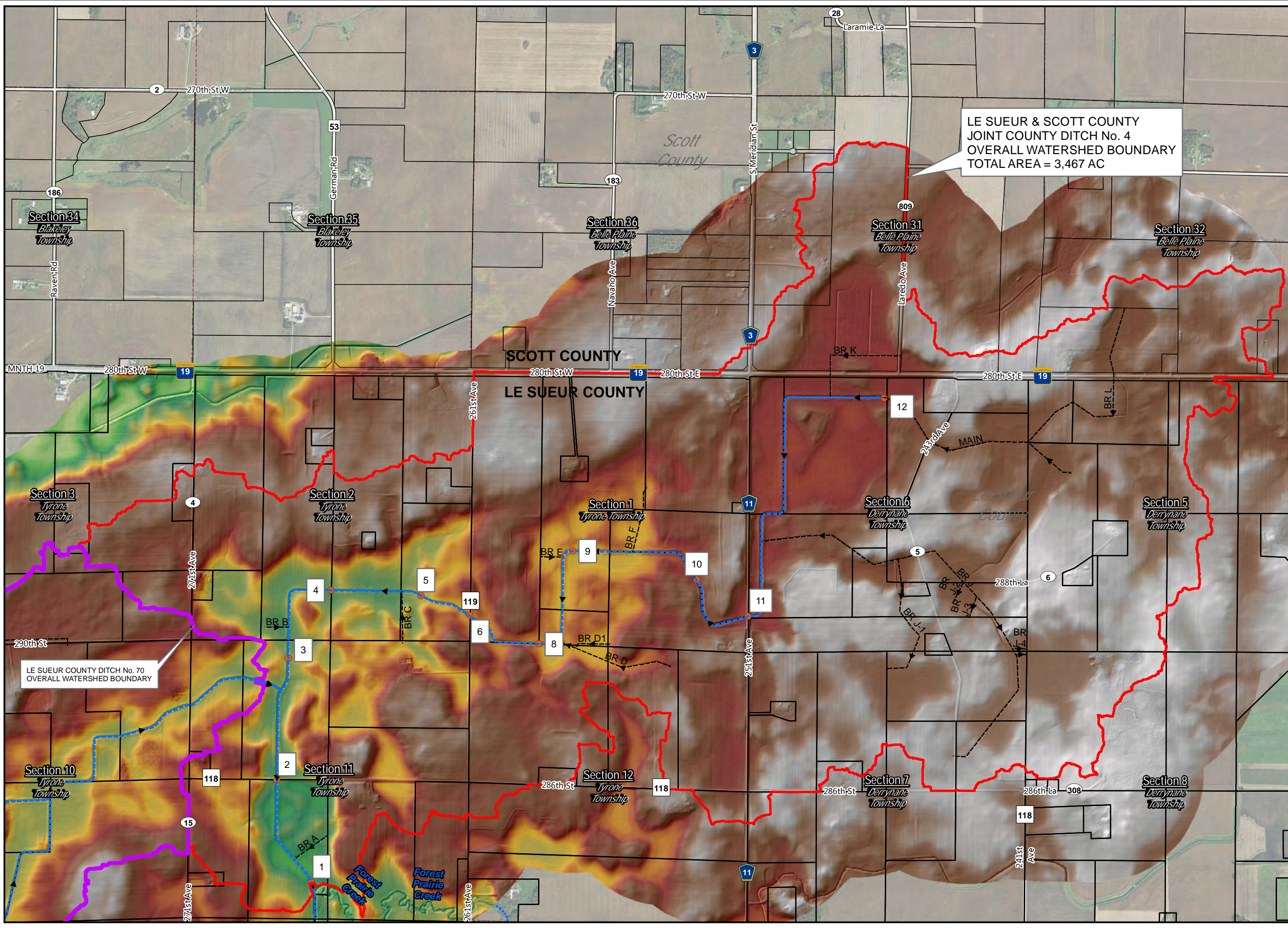
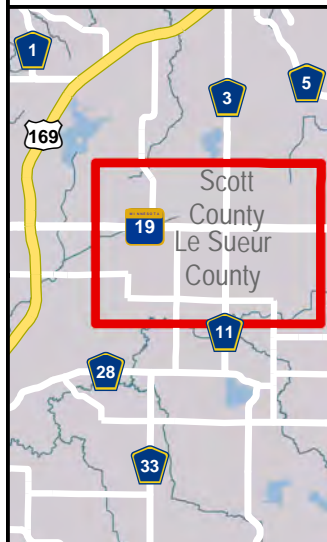
**Existing Hillshade Map**  
 Joint County Ditch No. 4 and  
 County Ditch No. 70  
 Le Sueur and Scott  
 County, Minnesota  
 Thursday, September 07, 2017

- Legend**
- █ CD70 Watershed
  - █ JCD 4 Watershed
  - JCD 4 System**
  - EXISTING OPEN DITCH
  - EXISTING TILE
  - Culvert Crossings
  - Parcels
  - DEM**
  - Value**
  - High : 1027.14
  - Low : 905.694

PN: 17-20815  
 Source:  
 Orthophotograph (Le Sueur County, 2016)  
 Tile/Ditch (Le Sueur County, 11/21/2016)  
 Parcels (Le Sueur County, 2/4/2016)  
 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



LE SUEUR & SCOTT COUNTY  
 JOINT COUNTY DITCH No. 4  
 OVERALL WATERSHED BOUNDARY  
 TOTAL AREA = 3,467 AC

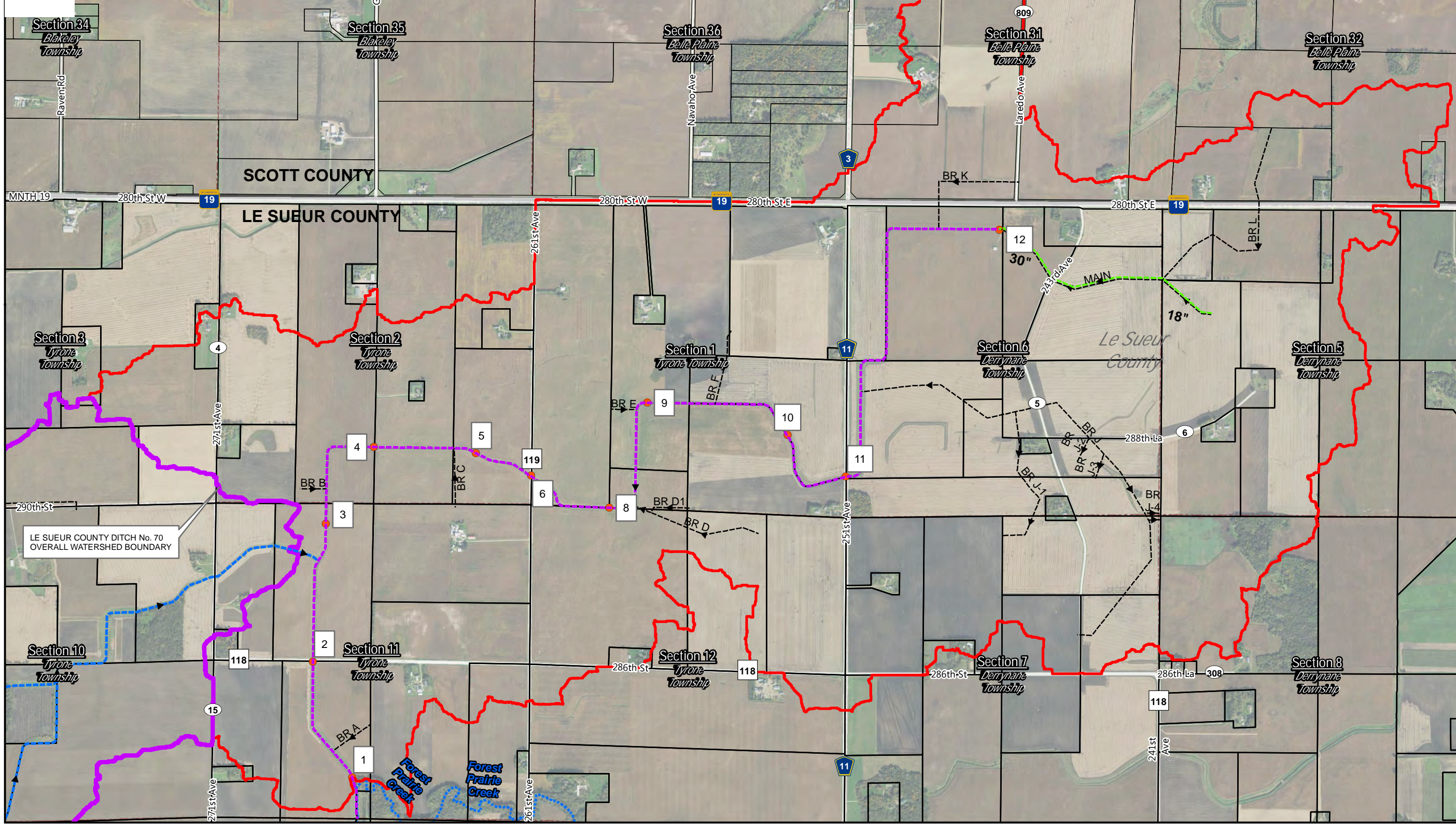
LE SUEUR COUNTY DITCH No. 70  
 OVERALL WATERSHED BOUNDARY



Area	Existing Size (in)	Proposed Size (in)	Existing Slope (%)	Proposed Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
Main	18	30	0.22%	0.15%	646.3	0.18	0.59
	18	30	0.20%	0.10%	627.4	0.18	0.49
	18	24	0.17%	0.30%	595.9	0.17	0.50
	10	15	0.20%	0.15%	103.1	0.23	0.58

Crossing #	Location	Proposed Type	Proposed Material	Proposed Size (in)	Proposed Rise x Span (in)	Proposed Slope (%)	Drainage Area (Acres)	Proposed Drainage Coefficient (in/day)
6	Main - Field Crossing	ROUND CULVERT	RCP	54	-	0.30%	2407	1.07



LE SUEUR & SCOTT COUNTY  
JOINT COUNTY DITCH No. 4  
OVERALL WATERSHED BOUNDARY  
TOTAL AREA = 3,467 AC

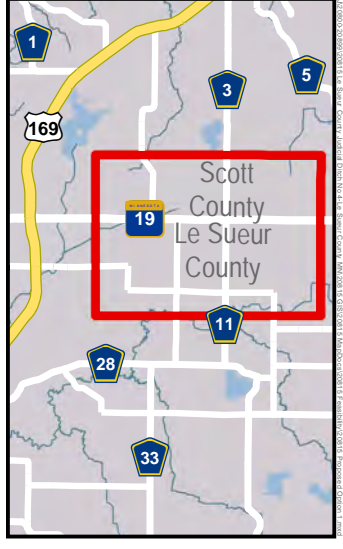
LE SUEUR COUNTY DITCH No. 70  
OVERALL WATERSHED BOUNDARY



**Proposed Option #1**  
**Watershed Map**  
Joint County Ditch No. 4 and County Ditch No. 70  
Le Sueur and Scott County, Minnesota  
Thursday, October 05, 2017

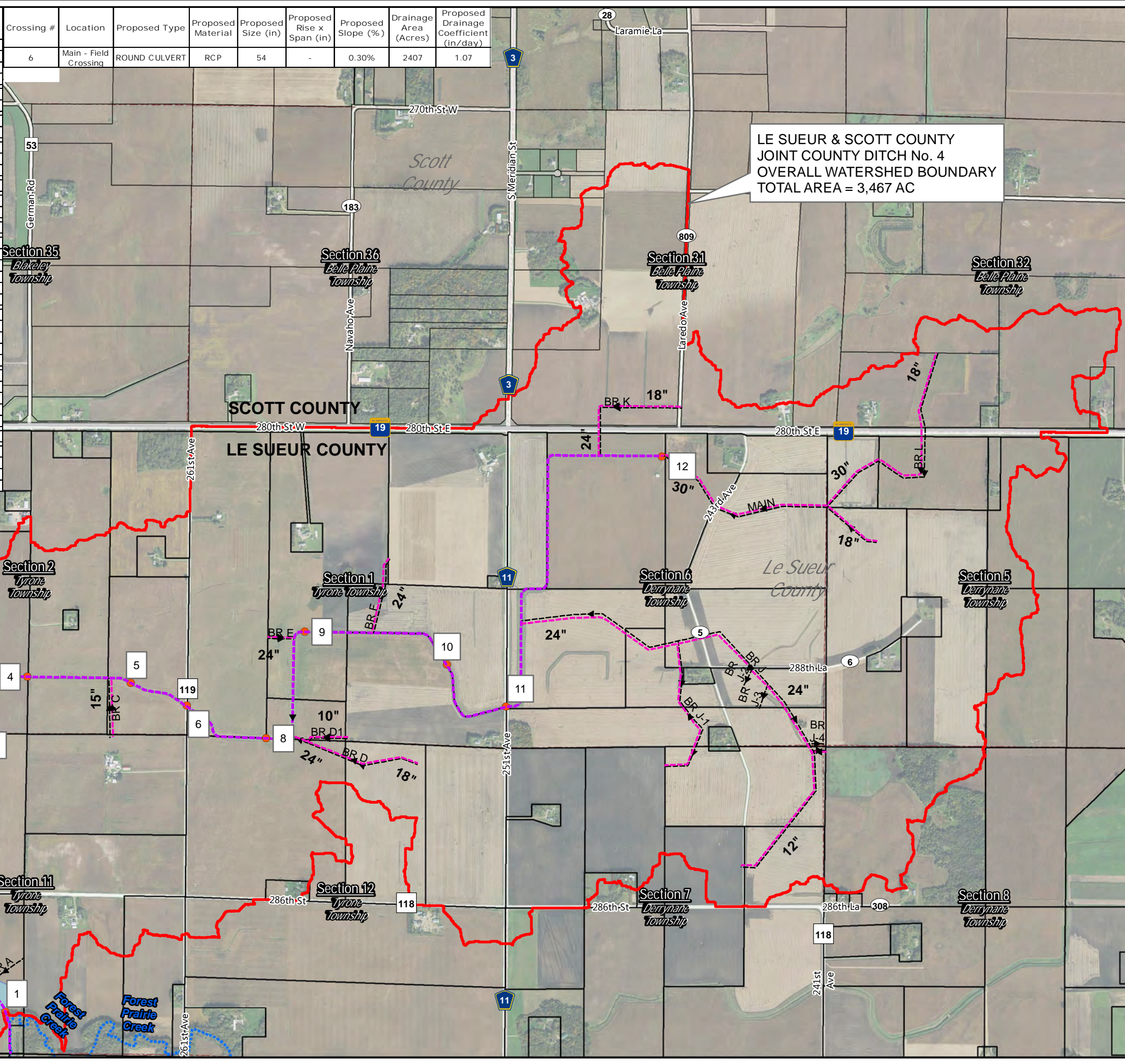
- Legend**
- CD70 Watershed
  - JCD 4 Watershed
  - JCD 4 System**
  - TYPE**
  - EXISTING TILE
  - Culvert Crossings
  - Proposed Option 1**
  - TYPE**
  - OPEN DITCH CLEANING
  - PROPOSED TILE
  - Parcels

PN: 17-20815  
Source:  
Orthophotograph (Le Sueur County, 2016)  
Tile/Ditch (Le Sueur County, 11/21/2016)  
Parcels (Le Sueur County, 2/4/2016)  
Lakes (MN DNR, July, 2008)  
Major Stream (MN DNR, July 2008)  
Counties (MN DNR, July 2013)  
PLSS (MnGeo/USGS)





Area	Existing Size (in)	Proposed Size (in)	Existing Slope (%)	Proposed Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
Main	18	30	0.22%	0.15%	646.3	0.18	0.59
	18	30	0.20%	0.10%	627.4	0.18	0.49
	18	24	0.17%	0.30%	595.9	0.17	0.50
	10	15	0.20%	0.15%	103.1	0.23	0.58
Branch B	10	18	0.40%	0.20%	229.4	0.14	0.49
	10	18	0.20%	0.20%	228.6	0.10	0.49
Branch C	8	15	0.10%	0.10%	75.6	0.12	0.65
	6	12	0.40%	0.15%	65.4	0.13	0.50
Branch D	18	24	0.12%	0.15%	402.8	0.22	0.52
	18	24	0.08%	0.08%	286.7	0.25	0.53
	12	18	0.50%	0.30%	275.4	0.22	0.50
Branch D-1	8	10	0.10%	0.10%	27.5	0.33	0.60
Branch E	8	12	0.10%	0.10%	44.7	0.20	0.60
	6	12	0.10%	0.10%	43.9	0.10	0.61
Branch F	10	24	0.10%	0.05%	202.1	0.08	0.60
Branch L	16	30	0.06%	0.05%	396.0	0.11	0.55
	14	30	0.08%	0.05%	393.6	0.09	0.56
	14	30	0.06%	0.05%	373.5	0.08	0.59
	12	24	0.06%	0.05%	181.5	0.11	0.67
	8	18	0.06%	0.05%	100.9	0.07	0.56
Branch J	6	18	0.06%	0.05%	96.1	0.03	0.58
	18	24	0.30%	0.20%	468.3	0.29	0.52
	16	24	0.30%	0.20%	468.2	0.21	0.52
	14	24	0.30%	0.10%	289.5	0.24	0.59
Branch J-1	10	12	0.10%	0.20%	75.2	0.22	0.51
	6	10	0.40%	0.10%	25.2	0.34	0.66
	12	15	0.30%	0.20%	138.1	0.34	0.50
	10	15	1.10%	0.20%	130.7	0.42	0.53
Branch J-5	14	15	0.10%	0.20%	129.3	0.31	0.53
	12	15	0.15%	0.15%	114.5	0.29	0.52
	8	15	0.10%	0.10%	96.4	0.09	0.51
Branch K	10	18	0.10%	0.10%	130.8	0.13	0.61
	14	24	0.10%	0.10%	254.7	0.16	0.67
	12	24	0.10%	0.05%	226.8	0.12	0.53
	10	24	0.10%	0.05%	201.8	0.08	0.60
	8	18	0.10%	0.15%	200.1	0.05	0.49



LE SUEUR & SCOTT COUNTY  
JOINT COUNTY DITCH No. 4  
OVERALL WATERSHED BOUNDARY  
TOTAL AREA = 3,467 AC

LE SUEUR COUNTY DITCH No. 70  
OVERALL WATERSHED BOUNDARY

**ISG**

**Proposed Option #2**  
Watershed Map  
Joint County Ditch No. 4 and  
County Ditch No. 70  
Le Sueur and Scott  
County, Minnesota  
Thursday, October 05, 2017

**Legend**

**Proposed Option 2**

**TYPE**

- OPEN DITCH CLEANING
- PROPOSED TILE
- CD70 Watershed
- JCD 4 Watershed
- JCD 4 System

**TYPE**

- EXISTING TILE
- Culvert Crossings
- Potential Storage
- Parcels

PN: 17-20815  
Source:  
Orthophotograph (Le Sueur County, 2016)  
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Parcels (Le Sueur County, 2/4/2016)  
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