



Le Sueur County, MN

Tuesday, January 22, 2019

Board Meeting

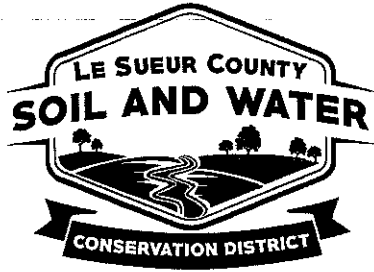
Item 6

9:30 a.m. Mike Schultz, District Manager, SWCD

RE: Arrow Equipment Purchase

RE: Gibbs County Line Project

Staff Contact:



Le Sueur County Soil & Water Conservation District

Le Sueur County SWCD
181 W Minnesota St
Le Center, MN 56057

Tel. (507) 357-4879 Ext. 3
Website: www.lesueurswcd.org

January 16, 2019

LSC Ditches / Drainage Records Modernization

Le Sueur SWCD has received a grant in 2018 to update the Drainage Records. The grant has several phases and one of the phases is to identify ditch structures for the priority ditches identified in 2017. After much discussion internally and with other county staff we have identified new survey equipment that will be user friendly for this tasks. We plan to start our structure surveys spring of 2019. As part of the grant funding we are unable to purchase equipment for our work, but we can use equipment to match the grant.

I am requesting to purchase an **Arrow Gold** survey unit that will work with our Drainage Records Modernization Database. I am requesting that the ditch system pay for half of the unit and the buffer enforcement funds pay the other half.

Arrow Gold Unit	\$8,025.00
50% Ditch Funds:	\$4,000.00
50% Buffer Enforcement:	\$4,025.00

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Schultz".

Michael Schultz
District Manager
Le Sueur SWCD

For the Beauty of the Earth

2275 Highland Pkwy.
 Saint Paul, MN 55116
 Phone (651) 336-8095

DATE 1/16/2019
Quotation # 389
Customer ID

Quotation For:
 Le Sueur County Soil and Water
 101 W. Minnesota St.
 Le Center, MN 56057

Quotation valid until: 2/15/2019
Prepared by: SJN

Attn: Mike Schultz

Comments or Special Instructions: None

SALESPERSON	P.O. NUMBER	SHIP DATE	SHIP VIA	F.O.B. POINT	TERMS
S. Nicholson			ground		Due on receipt

QUANTITY	DESCRIPTION	UNIT PRICE	TAXABLE?	AMOUNT
1	ARROWGOLDRTK-Kit includes: receiver, antenna, charger, hard case, antenna cable, pole bracket two year warranty	\$7,995.00		\$7,995.00

SUBTOTAL	\$7,995.00
TAX RATE	
SALES TAX	-
Shipping	\$30.00
TOTAL	\$8,025.00

Note: Expedited shipping available at extra charge

Questions concerning this quotation? Contact Stephen Nicholson, 651-336-8095, steve@tree-biz.com

THANK YOU FOR YOUR BUSINESS!



ARROW Gold™

ARROW Series™
for 1cm RTK Accuracy, SafeRTK

World's Most Advanced GNSS receiver for Every Mobile Device

The Arrow Gold is the first high-accuracy iOS, Android, and Windows Bluetooth GNSS receiver to implement all four global constellations (GPS, GLONASS, Galileo, BeiDou), three frequencies (L1, L2, L5), and satellite-based RTK augmentation. The Arrow Gold works with all apps that run on iOS, Android, and Windows devices. It also supports all planned global satellite constellations as well as all planned signals, giving it an awesome return on investment that will serve you well into the next decade and beyond.

RTK Everywhere - Even in Poor Cell Coverage Areas

The Arrow Gold offers a new feature called SafeRTK. There's nothing more frustrating than trying to stay connected to an RTK network in areas with poor cell coverage. This feature is the answer. When the Arrow Gold loses connection to the RTK network, SafeRTK takes over in a few seconds and allows it to maintain RTK-level accuracy for up to 20 minutes, until the Arrow Gold is automatically reconnected to the RTK network. This results in smooth, RTK accuracy even in areas with poor cell coverage.

No RTK Network Access Available? Pioneering Low-Cost Global Satellite

Do you work in an area without an RTK network available? The Arrow Gold features a 4 cm, real-time satellite correction service available anywhere in the world. Using all four constellations and signals, the Arrow Gold offers convergence times as low as 15 minutes anywhere in the world, at a revolutionary price point that works with all iOS, Android, and Windows devices.

Key Features:

- Supports GPS, GLONASS, Galileo, BeiDou, QZSS
- Triple-Frequency L1/L2/L5
- 1 cm RTK real-time accuracy
- Long-range RTK baselines up to 50 km
- SafeRTK for poor cell coverage areas
- Worldwide satellite correction service
- 100 % iOS, Android, and Windows compatibility



The Ultimate Accuracy for Your iOS, Android, or Windows Device

Of course, iOS, Android, and Windows compatibility is our expertise. Eos has the most advanced connectivity with all mobile devices and free software utilities to ensure compatibility with apps like Esri Collector, ArcPad, Survey123, and many other mobile GIS software apps.



For more details,
www.eos-gnss.com

Specifications

GPS Sensor

Receiver Type:	GNSS multi-frequency RTK with carrier phase
Signals Received:	GPS: L1CA, L1P, L1C, L2P, L2C, L5 GLONASS: G1, G2, P1, P2 Galileo: E1BC, E5a, E5b BeiDou: B1, B2, B3 (without L5) QZSS: L1CA, L2C, L5, L1C
Channels:	394-channel, parallel tracking
Number of Tracked Satellites:	12 GPS (15 when no SBAS) 12 GLONASS 15 BeiDou 22 Galileo 4 QZSS
SBAS Support:	3-channel, parallel tracking WAAS/EGNOS/MSAS/GAGAN (with SBAS ranging)
L-Band (Atlas):	1
Update Rate:	1 Hz Default, Optional 10 Hz, 20 Hz, and 50 Hz
RTK Accuracy:	1 cm ¹ + 1 ppm Horizontal
SBAS Accuracy:	< 30 cm HRMS ¹
Atlas Accuracy:	H10: 4 cm H30: 15 cm H100: 50 cm
Autonomous Accuracy:	1.2 meters HRMS ¹
Cold Start:	< 60 sec typical (no almanac or time)
Reacquisition:	< 1 sec
Max Speed:	1,850 kph (1,150 mph / 999 knots)
Max Altitude:	18,288 meters / 60,000 ft

Communication

Port:	Bluetooth, USB 2.0, Serial (Optional)
Bluetooth Transmission:	Class 1, 300 m typical range ² , up to 1 km
Frequency:	2.400 - 2.485 GHz
Fully Bluetooth Pre-Qualified:	Bluetooth 2.1 + EDR
Supported Bluetooth Profiles:	SPP and iAP
Data I/O formats:	NMEA 0183, RTCM SC-104, Binary
Output Datum:	Autonomous: WGS-84 (G1674) Epoch 2005.0 SBAS & Atlas: ITRF08 (current year epoch) RTK: Same as RTK base
Raw Measurement Data:	Binary and RINEX
Correction I/O Protocol:	RTCM 2.x, 3.x, CMR, CMR+, proprietary binary
GPS Status LEDs:	Power, GNSS, DGNSS, DIFF, Bluetooth
Battery Status LED:	5 LED Indicator
Timing Output: (with optional serial port)	1PPS, CMOS, active high, rising edge sync, 10 kΩ, 10 pF load
Event Marker Input: (with optional serial port)	CMOS, active low, falling edge sync, 10kΩ, 10 pF load

Power

Battery Type:	Field replaceable, rechargeable Lithium-Ion pack (rechargeable inside unit or separately)
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Eos Positioning Systems Inc.
Terrebonne (Quebec), Canada
Tel: (450) 824-3325
www.eos-gnss.com | info@eos-gnss.com

Battery Autonomy:	8.5 hrs ³ (Atlas™ OFF) - 7+ hrs ³ (Atlas™ ON)
Charging Time:	4 hours (vehicle charger available)

Environmental

Operating Temperature:	-40°C to +85°C (-40°F to +185°F) ³
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing
Compliance:	FCC, CE, RoHS and Lead-free

Mechanical

Enclosure Material:	Xenoy
Enclosure Rating:	Waterproof, IP-67
Immersion:	30 cm, 30 minutes
Dimensions:	12.5 x 8.4 x 4.2 cm (4.92 x 3.3 x 1.65 in.)
Weight:	372 g (0.82 lb)
Data Connectors:	Mini USB Type B Receptacle
Antenna Connector:	SMA Female

Antenna

GPS Freq Range:	1525 - 1606 MHz, 1164 - 1254 MHz
Impedance:	50 OHMs
Gain (no cable):	30 dB (± 2 dB)
LNA Noise Figure:	2.5 dB Max at 25°C
Voltage:	+2.5 to +16 VDC
Connector:	SMA female
Dimensions:	69 mm diam. x 22 mm (2.72 x 0.87 in.)
Weight:	170 g (0.374 lbs)
Temperature:	-40°C to +85°C (-40°F to + 185°F)
Humidity:	Waterproof

Standard Accessories

Li-Ion Battery Pack (Field replaceable)	Pole Bracket and Clamp
12VDC Power Supply	Hard Shell Carrying Case
USB Cable	Antenna Cable
L1/L2/L5, L-Band GNSS Antenna	Antenna Mounting Plate

Field Activated Options

10 Hz, 20 Hz Output Rates

NOTES :

1. Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for local services) and ionospheric activities. Stated accuracies for baseline lengths of up to 50 km
2. Transmission in free space
3. Lithium-Ion battery performance degrades below -20°C (-4°F)

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Made in Canada

Authorized Distributor

RevC-2017/09/19



Le Sueur County Soil & Water Conservation District

Le Sueur County SWCD
181 W Minnesota St
Le Center, MN 56057

Tel. (507) 357-4879 Ext. 3
Website: www.lesueurswcd.org

January 11, 2019

Jeff Gibbs Grade Stabilization Project Kilkenny Township, Section 1

Le Sueur SWCD has been working with the Rice County SWCD and NRCS to design a solution for this project site (see pictures). The site has approximately 100 acres from Rice County draining onto Jeff Gibbs property in Le Sueur County. Over the past 30 years the Rice County farmland has been improved and additional drainage has been outlet into a ravine just east of the Gibbs farm. Historically the Gibbs farm drained this watershed with an 8" tile. Currently the tile is under much pressure and continues to fail due to 3 new tile lines draining into the ravine in Rice County, a 10" and two 12" tiles that outlet through the county line road through a 36" pipe.

As you can see the system needs a fair amount to get back to what it once was. NRCS has completed a design for the project that includes upgrading the existing 8" tile to an 18" and 15" (this will handle all normal flow of water) as well as installing 1000' of grassed waterway (this will hand all peak rain events). A rock catch basin will be installed at the outlet of the road culvert on Le Sueur County side and will drain into a 15" tile for 240' then the tile increase to 18" for 2150' to the ditch.

I am requesting to use gravel tax funds to offset the cost of the project due to the nature of this project.

Budget Items:

Bid Amount: \$56,985.54

Cost Share:	\$28,492.77
<u>Land Owner:</u>	<u>\$14,250.00</u>
Balance:	\$14,245.00

I am requesting \$14,245.000 of gravel tax funds for this project. SWCD and NRCS staff will oversee the project and construction will take place spring of 2019.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Schultz".

Michael Schultz
District Manager
Le Sueur SWCD

Conservation Cooperator
PROJECT FACT SHEET



Jeff Gibbs/Grade Stabilization

Cooperator & Location

Applicant(s): Jeff Gibbs
Address: 18036 400th St.
City State Zip: Kilkenney, MN 56052
Twp/Range: T 110N – R 23W **Section:** 1
City or Twp: Kilkenney Twp
Funding Source: 2018 Capacity **Watershed:** 39085

Aerial Photo

Le Sueur County, MN
Landowner: Jeff Gibbs
 Contact: 507-330-0252
 Le Sueur Soil and Water Conservation District
 Township & Section: Kilkenney 1
 Date: 10/1/2018
 Assisted By: Joe Jirik



Project Information

Practice

Grade Stabilization

Resource Protected

Cannon River

Description

Install a grade stabilization structure along Le Sueur/Rice, the site has a large amount of water coming from Rice County that does not all go into tile. The site is washed out from the county road 450' west. A waterway will be installed downstream until the grade stabilizes.

Dates

SWCD Review
 4/23/2018
 Project Start
 9/11/2018
 Project Finish
 12/31/2020

Environmental Benefits

Parameter	Before	After	Saved
Soil Erosion (tons/yr)	220.50	0	220.50
Sediment Load (tons/yr)	110.25	0	110.25
Phosphorus Load (lbs/yr)	126.79	0	126.79
Runoff Reduction (acre ft)	N/A	N/A	N/A

Current Project Site Photo



Cost Analysis

PROJECT COSTS

Other:	
Construction:	\$33921.25
Total:	\$33,921.25

FUNDING SOURCES %

Landowner:	\$8,480.31	25
Federal:		
State:	\$25,440.94	75

For more information about this project, contact the Le Sueur SWCD at (507) 357-4879x3

Lowest Bid

ESTIMATE

Date: 11-24-2018
ESTIMATE # 01

Havel Land Improvement
37334 151st Ave.
Montgomery MN 56069
612.226.6267 Jim Jr.
507.210.9103 Jim Sr.

To Jeff Gibbs Estimate

Qty	Description	Unit Price	Discount	Line Total
1,000ft	Build waterway	\$4.00/ft		\$4,000.00
	18in Intake, Beehive and T	\$550.00		\$550.00
240ft	15in Dual Wall Non-perf	\$14.56/ft		\$3,494.40
1,850ft	18in Dual Wall Perf	\$18.10/ft		\$33,485.00
300ft	18in Dual Wall Non perf	\$18.10/ft		\$5,430.00
14ft	24in metal outlet pipe and guard	\$426.16		\$426.14
35cu yards	Class 3 rip rap rock installed			\$5,000.00
72sq yds	Non-Woven Geotextile, installed under rip rap			\$400.00
1900 sq yds	Excelsior mulch blanket installed with staples to fasten to ground			\$3,200.00
	Dual wall elbows for main line			\$1,000.00
	<u>Price does not include hooking up old tile</u>			
Total Discount				
				Subtotal
				Total
				\$56,985.54



Make all checks payable to **Havel Land Improvement**
Thank you for your business!

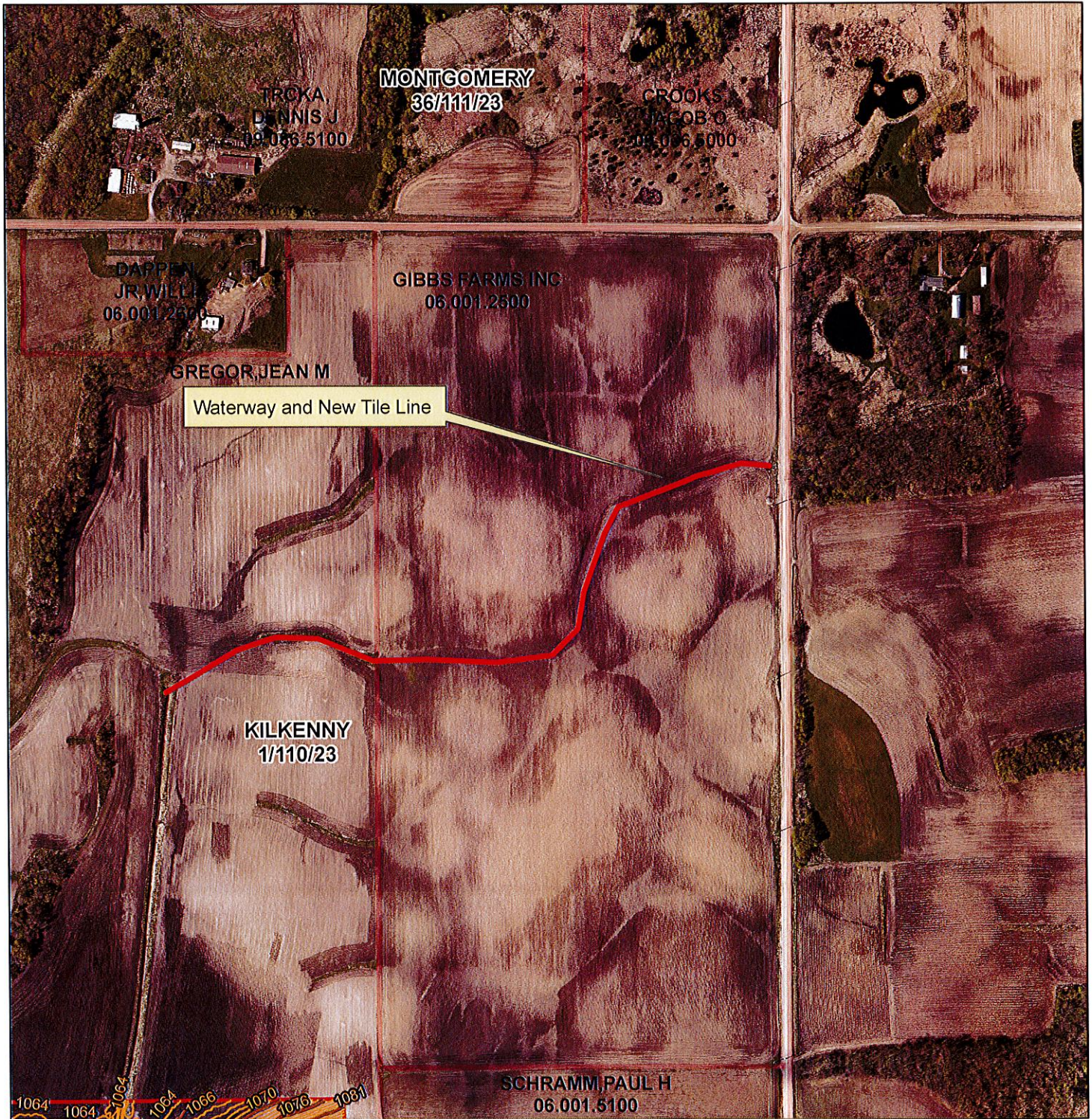


Landowner: Jeff Gibbs

Contact: 507-330-0252

Le Sueur Soil and Water Conservation District
Township & Section: Kilkenny 1

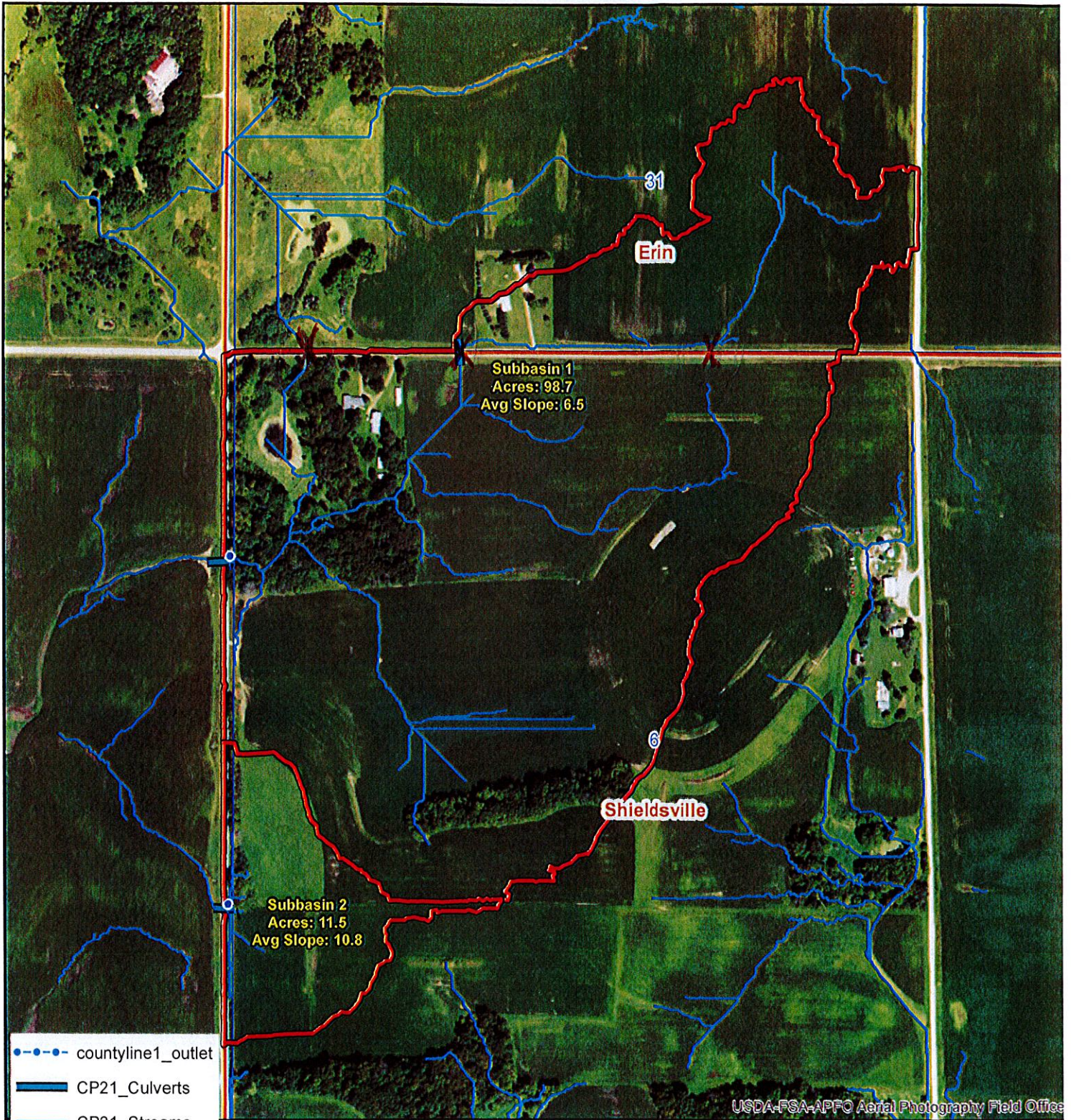
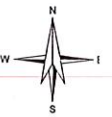
Date: 9/13/2018
Assisted By: Joe Jirik



Waterway and New Tile Line

1 inch = 440 feet





- countyline1_outlet
- CP21_Culverts
- CP21_Streams

- countyline1
- Civil Townships
- Sections

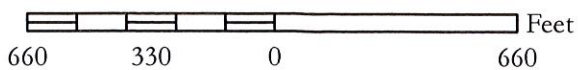
2017 NAIP\Minnesota



3 culverts

1:6,078

1 inch equals 506 feet



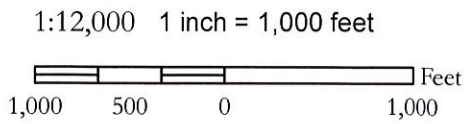
Date: 4/18/201

Maps are for graphical purposes only. They do not represent a legal survey.



**Jeff Gibbs
Project Location**

- County Ditch Type**
- MAIN
 - SPUR
 - TILE
 - Parcels (Certified)
 - Section



Maps are for graphical purposes only. They do not represent a legal survey.

Le Sueur County SWCD
(507)357-4879 Ext. 3





