Le Sueur County, MN

Thursday, June 11, 2015

Regular session

Item 4

Great River Energy

Staff Contact: Kathy Brockway or Michelle Mettler

STAFF REPORT

GENERAL INFORMATION

APPLICANT: Great River Energy

PROJECT DESCRIPTION: Allow the applicants to construct a 69kv electric transmission line consisting of approximately 4.25 miles within the road right of way, along the north side of 320th Street in Sections 20,21,22,23 and along the south side of 320th Street in Sections 26 and 28; and along the west side of 265th Ave in Section 26, Tyrone Township.

NOTE: On Monday, June 1, 2015, the Minnesota Environmental Quality Board (EQB) received a petition from citizens to require environmental review in regards to potential environmental impacts to the area pertaining to the proposed substation and transmission line being proposed by both the applicant and Minnesota Valley Electric Co-op.

Please read below the EQB process when a petition is filed.

4410.1100 PETITION PROCESS.

Subpart 1.**Petition.**

Any person may request the preparation of an EAW on a project by filing a petition that contains the signatures and mailing addresses of at least 100 individuals who reside or own property in the state.

Subp. 2. **Content.**

The petition shall also include:

A. description of the proposed project;

B. the proposer of the project;

C. the name, address, and telephone number of the representative of the petitioners;

D. a brief description of the potential environmental effects which may result from the project; and

E. material evidence indicating that, because of the nature or location of the proposed project, there may be potential for significant environmental effects. The material evidence must physically accompany the petition. It is not sufficient to merely provide a reference or citation to where the evidence may be found.

Subp. 3. **Filing of petition.**

The petition shall be filed with the EQB for a determination of the RGU.

Subp. 4.**Notice to proposer.**

The petitioners shall notify the proposer in writing at the time they file a petition with the EQB.

Subp. 5.**Determination of RGU.**

The EQB's chair or designee shall determine whether the petition complies with the requirements of subparts 1 and 2. If the petition complies, the chair or designee shall designate an RGU pursuant to part 4410.0500 and forward the petition to the RGU within five days of receipt of the petition. If the petition fails to comply, the chair or designee shall return the petition to the petitioner's representative within five days of receipt of the petition with a written explanation of why it fails to comply.

Subp. 6.**EAW decision.**

The RGU shall order the preparation of an EAW if the evidence presented by the petitioners, proposers, and other persons or otherwise known to the RGU demonstrates that, because of the nature or location of the proposed project, the project may have the potential for significant environmental effects. The RGU shall deny the petition if the evidence presented fails to demonstrate the project may have the potential for significant environmental effects. In considering the evidence, the RGU must take into account the factors listed in part 4410.1700, subpart 7. The RGU shall maintain, either as a separate document or contained within the records of the RGU, a record, including specific findings of fact, of its decision on the need for an EAW.

Subp. 7.**Time limits.**

The RGU has 15 days from the date of the receipt of the petition to decide on the need for an EAW.

If the decision must be made by a board, council, or other body which meets only on a periodic basis, the time period may be extended by the RGU for an additional 15 days.

For all other RGU's, the EQB's chair shall extend the 15-day period by not more than 15 additional days upon request of the RGU.

Subp. 8.**Notice of decision.**

Within five days of its decision the RGU shall notify, in writing, the proposer, the EQB staff, and the petitioner's representative of its decision. The EQB staff shall publish notice of the RGU's decision concerning the petition in the EQB Monitor.

Subp. 9.**Duration of effect of petition.**

If an RGU cannot act on a petition because no permit application has been filed, the application has been withdrawn, or the application has been denied, the petition remains in effect for no more than one year from the date on which it was filed with the EQB. While the petition remains in effect, part 4410.3100, subparts 1 and 2, apply to any proposed project for which the nature and location is substantially similar to the project identified in the petition.

4410.1000 PROJECTS REQUIRING AN EAW.

Subpart 1.

Purpose of an EAW.

The EAW is a brief document prepared in worksheet format which is designed to rapidly assess the environmental effects which may be associated with a proposed project. The EAW serves primarily to:

A.aid in the determination of whether an EIS is needed for a proposed project; and

B.serve as a basis to begin the scoping process for an EIS.

Subp. 2. **Mandatory EAW categories.**

An EAW shall be prepared for any project that meets or exceeds the thresholds of any of the EAW categories listed in part 4410.4300 or any of the EIS categories listed in part 4410.4400.

Subp. 3.**Discretionary EAWs.**

An EAW shall be prepared:

A. when a project is not exempt under part 4410.4600 and when a governmental unit with approval authority over the proposed project determines that, because of the nature or location of a proposed project, the project may have the potential for significant environmental effects;
B. when a project is not exempt under part 4410.4600 and when a governmental unit with approval authority over a proposed project determines pursuant to the petition process set forth in part 4410.1100 that, because of the nature or location of a proposed project, the project may have the potential for significant environmental effects;
C. whenever the EQB determines that, because of the nature or location of a proposed project, the project may have the potential for significant environmental effects (this item shall not be applicable to a project exempt under part 4410.4600 or to a project for which a governmental unit, with approval authority over the project, has made a prior negative or positive determination concerning the need for an EAW concerning the project); or
D. when the proposer wishes to initiate environmental review to determine if a project has the potential for significant environmental effects.

Categories:

Subp. 6. **Transmission Lines-** For construction of a transmission line at a new location with a nominal capacity of between 70 kilovolts and 100 kilovolts with 20 or more miles of its length in Minnesota, the EQB shall be the RGU. For transmission lines and associated facilities designed for and capable of operating at a nominal voltage of 100 kilovolts or more, environmental review shall be conducted according to parts 7849.1000 to 7849.2100 and 7850.1000 to 7850.5600**.**

Category Exemptions:

Subp. 5.**Transmission lines.** Construction of a transmission line with a nominal capacity of 69 kilovolts or less is exempt.

DEFINITIONS:

ESSENTIAL SERVICES - Overhead or underground electrical, gas, steam or water transmission or distribution systems and structures; or collection, communication, supply or disposal systems and structures, used by public utilities or governmental departments or commissions; or as are required for protection of the public health, safety or general welfare, including towers, poles, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, and accessories in connection therewith, but not including structures.

PUBLIC UTILITY - Persons, corporations, or governments, supplying gas, electric, transportation, water, sewer, or land line telephone service to the general public. For purposes of this Ordinance wireless telecommunication services shall not be considered utility uses, and are defined separately.

ZONING DISTRICT PURPOSES: The Agriculture (A) District is established for areas where agriculture uses are seen as the best and highest long term use of the land. The land itself needs to be preserved for primarily agricultural activities. These areas should avoid existing cities, residential zones, and subdivisions. They should be large contiguous land areas with mostly prime soils. Rezoning should only be considered on the zone's borders in order to maintain the Zoning integrity of the District. Dwellings that are allowed should be on the edges of the open farmland where possible or utilize existing abandoned farm sites. The total number of Dwellings shall not exceed sixteen (16) per section of land with the exception of Transfer of Development Right and lots of record. Transfer of development rights may be utilized to exceed the permitted housing density of one dwelling per quarter-quarter section (40 acres), provided that the density does not exceed four dwellings per quarter-quarter section in the receiving quarter-quarter section. Lots of Record, shall be exempt from density standards.

ZONING ORDINANCE SECTIONS: Sections 8, 19, and 27

GOALS AND POLICIES:

Goal 1: Le Sueur County contains some of the most productive agricultural soils in Minnesota and should adopt and enforce land use goals and policies that conserve and protect agricultural resources and uses.

Policy: The County will protect the best of its agricultural land as a resource for long term agricultural use.

SITE INFORMATION

LOCATION: 4.25 miles within the road right of way, along the north side of 320th Street in Sections 20,21,22,23 and along the south side of 320th Street in Sections 26 and 28; and along the west side of 265th Ave in Section 26, Tyrone Township.

ZONING: Ag

GENERAL SITE DESCRIPTION: Road Right of Way

ACCESS: N/A

EXISTING LAND USE WITHIN ¼ MILE:

North: Ag South: Ag
East: Ag West: Ag

BACKGROUND INFORMATION

Great River Energy along with Minnesota Valley Electric Co-op (MVEC) held public informational meetings in Le Sueur regarding the proposed substation and transmission line routes. Several route options were looked at for the placement of the transmission line before deciding on the proposed route.

Great River Energy is proposing to construct 4.25 miles of 69kV transmission line that will be fed off the Minnesota Valley Electric Co-op (MVEC) proposed substation located in Section 20 of Tyrone Township. The transmission line proposal is dependent upon the approval of the substation being proposed by MVEC. The project is being proposed to address the needs of the area and provide additional service and realiability to the Cities of Le Sueur and Le Center,Tyrone Township and residents in the surrounding areas.

The proposal is to locate 60 wood mono-poles that range in height from 70-85 ft. above ground and are spaced anywhere from 350-500 ft apart. Safety measures will be taken to provide a buffer for the transmission line with easements that extend from either side of the transmission centerline. All poles will within the road right of ways.

Project time frame is winter of 2015/2016 if approved.

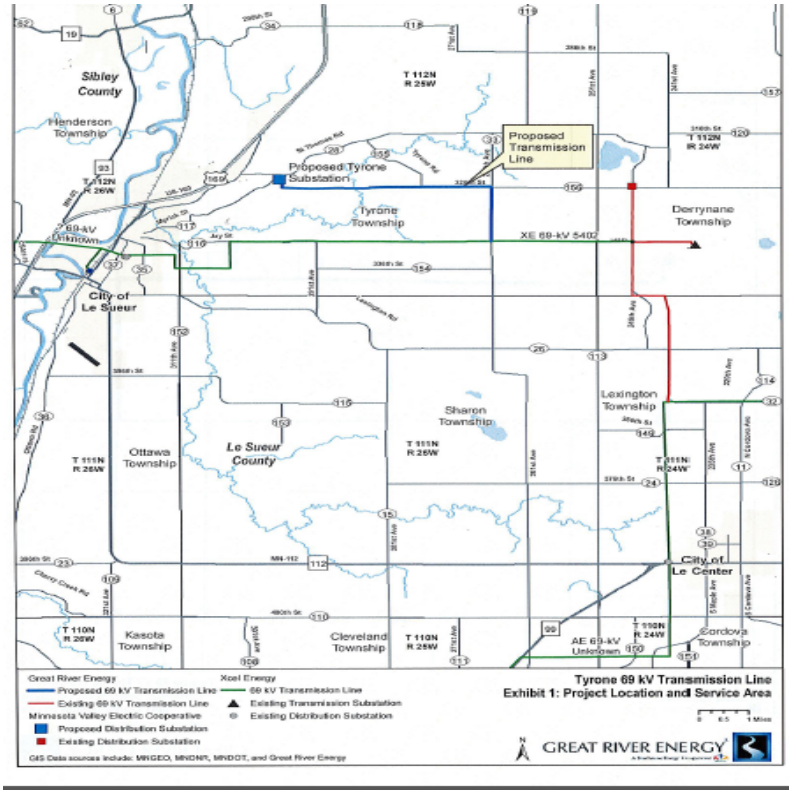
TOWNSHIP BOARD NOTIFICATION

Applicant notified Bill Krenik, Tyrone Township Board member on April 28, 2015.

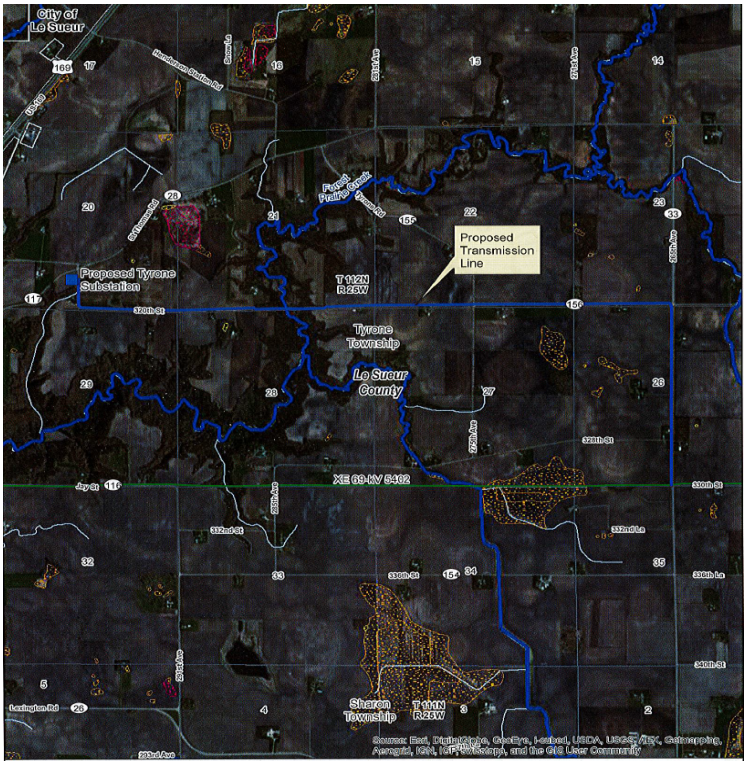
NATURAL RESOURCES INFORMATION

SHORELAND: The proposal is not located within the Shoreland District.
WETLANDS: According to the National Wetlands Inventory, Type 1 & 3 wetlands located in the quarter-quarter section where the transmission line is proposed.

SITE PLAN



AERIAL PHOTO



ATTACHMENTS

Application, Survey, Maps

PLANNING AND ZONING COMMISSION CONSIDERATIONS

The Planning Commission and staff shall consider possible adverse effects of the proposed conditional use and what additional requirements may be necessary to reduce such adverse effects. Its judgment shall be based upon the following factors to include, but not limited to:

1. Relationship to County plans.
2. The geographical area involved.
3. Whether such use will negatively affect surrounding properties in the area in which it is proposed.
4. The character of the surrounding area.
5. The demonstrated need for such use.
6. Whether the proposed use would cause odors, dust, flies, vermin, smoke, gas, noise, or vibration or would impose hazards to life or property in the neighborhood.
7. Whether such use would inherently lead to or encourage disturbing influences in the neighborhood.
8. Whether stored equipment or materials would be screened and whether there would be continuous operation within the visible range of surrounding residences.
9. Abatement of Environmental Hazards as regulated in this Ordinance
10. Other factors impacting the public health, safety and welfare.

PLANNING AND ZONING COMMISSION FINDINGS

Based on the information submitted by the applicant, contained in this report, and as required by the Le Sueur County Zoning Ordinance, the following findings have been developed for this request:
*(Please circle one for each item: **A**gree, **D**isagree, Not **A**pplicable.)*

1. The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminishes and impairs property values within the immediate vicinity. **A D NA**

2. The establishment of the conditional use will not impede the normal and orderly development and improvement of surrounding vacant property for uses predominant in the area. **A D NA**

3. The adequate utilities, access roads, drainage and other facilities have been or are being provided. **A D NA**

4. The adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use**. A D NA**

5. The adequate measures have been or will be taken to prevent and control offensive odor, fumes, dust, noise and vibration, so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result. **A D NA**

***Recommend** (circle one) **approval / denial / table / of Conditional Use Permit**.*

GREAT RIVER ENERGY®

12300 Elm Creek Boulevard • Maple Grove, Minnesota 55369-4718 • 763-445-5000 • Fax 763-445-5050 • greatriverenergy.com

May 4, 2015

WO #78531
Tyrone Project

Le Sueur County Planning & Zoning Commission
c/o Kathy Brockway, Planning & Zoning Administrator
88 South Park Avenue
Le Center, MN 56057

SUBJECT: Conditional Use Permit (CUP) Application to Le Sueur County for Great River Energy 69 kV "MV-TYT" Transmission Line "Tyrone" Project.

Dear Commissioners and Ms. Brockway:

Please accept this letter and accompanying Conditional Use Application as Great River Energy's request for a Conditional Use Permit to construct a 69 kV transmission line in Tyrone Township (Project). I have also enclosed with this letter:

- A check in the amount of $796.00 for the CUP and filing fees
- An electronic version of supporting documents
- Route map/site plan
- Project fact sheet
- An Environmental Impact Statement (EIS)
- 12 copies of application documents, including route maps (site plan)

Description of Project

Minnesota Valley Electric Co-op (MVEC) proposes to construct and operate a new, 69 kilovolt (kV) substation (the "Tyrone" Substation). The substation will be located east of the City of Le Sueur, near the intersection of Myrick Street and St. Thomas Road in Tyrone Township. MVEC has applied for a Conditional Use Permit (CUP) for the substation. To power its member co-op's substation, Great River Energy, a not-for-profit generation and transmission cooperative based in Maple Grove, Minn., proposes to construct a 69 kilovolt (kV) electric transmission line connecting the Tyrone Substation to the existing Xcel Energy "5402" 69 kV line east of the City of Le Sueur, near the intersection of 265th Avenue and 330th Street, in Tyrone Township.

This project will address the distribution system needs of the area. The existing distribution system has been identified not capable to reliably serve the expected load growth in the area.

The project will support the needs and requirements of the regional electric transmission system and is needed to provide additional service and improve reliability to Le Sueur, Tyrone, Le Center, and surrounding areas. Specifically, current shortages of high voltage transmission trigger the inability to maintain acceptable voltages in the region north of Le Sueur. Without this project, future growth within the area cannot be supported.

The total proposed project area for the transmission line will require approximately 15 acres in new transmission line easements and 7.85 acres in property purchased for the substation.

Please refer to the MVEC submissions for information regarding the specifications of the proposed Tyrone Substation.

From the substation to the Xcel Energy 5402 line, the proposed MV-TYT 69 kV transmission line will be approximately 4.25 miles long (please see Route map/site plan – aerial photos). Great River Energy proposes to locate the line in Township 112 North, Range 25 West, (Tyrone Township), Le Sueur County. The line will run along: the north side of 320th Street in Sections 20, 21, 22, 23; the south side of 320th Street in Sections 26 and 28; and, the west side of 265th Avenue in Section 26. (Please refer to Section 6 of the Environmental Impact Statement for specific parcel identification numbers).

The 69 kV line will have approximately 60 wood mono-poles that will range in height from 70 to 85 feet above ground. The structures will generally be spaced 350 to 500 feet apart. A steel pole on a concrete pier foundation will be installed in areas where guying is not feasible due to right of way and clear zone limitations..

To provide the necessary safety buffer for the transmission line, the transmission line easements will extend 35 feet from either side of the transmission centerline. All trees that are, or will grow to 15 feet tall or greater will be removed from the transmission line easement.

Pursuant to Le Sueur county ordinance, Great River Energy plans to place the transmission line structures not on private property but, within the road rights-of-way to avoid interfering with existing farming operations. In discussions with Darrell Pettis, Le Sueur County Engineer, it is our understanding that the structures should generally be placed approximately two - five feet from the edge of the road rights-of-way. Therefore, Great River Energy will also purchase from adjoining property owners overhang easements of approximately 30 - 33 feet, to comprise the total 35 feet of easement needed on the property side of the line. The 35 feet needed over the road will be obtained via permit.

MVEC plans to begin substation grading and foundations late fall of 2015. Construction of the connecting electric transmission lines would occur in winter 2015/spring 2016.

Direct Dial (763) 445-5976 E-mail pschaub@grenergy.com Fax (763) 445-6776

Construction of the Project should be completed within approximately 6 months of construction start with a projected September 2016 in-service date. This date is dependent on permitting progress and outage constraints.

Upon approval of a route in the CUP, Great River Energy will obtain final soil and survey data and then complete the transmission line design as well as the erosion control plan. The final plans will be provided to Le Sueur County as they become available.

Routes Considered

The route proposed in this Conditional Use Permit Application is known as the "**Northeast Option**" (see enclosed fact sheet). Alternate routes were also evaluated, reviewed and analyzed both in the field and using various geographic data (e.g., aerial photos, environmental data maps, etc.). Route options were identified based on the ability to maintain safety, reliability and accessibility of the line as well as follow state routing criteria which requires utilizing the following opportunities:

- Reduce impacts to the reliability of existing transmission systems during construction or maintenance;
- Use utility and transportation corridors to decrease the amount of right-of-way required (routes that follow existing right-of-way corridors are preferred to cross-country routes);
- Minimize the length of the transmission line, limit special structures and angles in the line to reduce the impact area and costs for the project.

Great River Energy determined that the selected route, overall, best balances the necessary criteria and offers the most effective route to build and maintain the transmission line. Specifically, it is shorter than most other routes, has fewer angle structures, follows established utility and transportation corridors, limits impact on agricultural fields and residences and has a tap point acceptable to Xcel Energy .

Great River Energy listened to feedback from open houses in January and February, and assessed alternate routes proposed by the public. Other transmission route options reviewed were:

- **Northern** – north on 320th Street to St. Thomas Road, then east to 265th Avenue, then south on 265th to the same tap point as the selected route.

  We opted to not propose this route because, at approximately 5.3 miles, it adds more than a mile of construction to the route. This route also has a difficult "pinch point" near the Tyrone Town Hall – to pass this point the line would need to be either placed too close to the town hall or, require cutting trees in the front yard of the home across the road from the town hall. It also adds a number of angle structures, which add to the complexity (more guying, stub poles and land

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affected) and cost of the engineering and construction. The additional length means more material and time, both of which add to the initial cost of the project as well as long term maintenance. Additionally, the Northern route would still require cutting a number of trees, crossing a creek, passing in front of homes at the south end of the project and, would end in the same location as the selected route. We concluded that there is no benefit to be gained by taking this route.

- **Southwest** – east on 320th Street and turn south on 275th Avenue, turn east on 328th Street, then angle across field, behind trees on south side of intersection of 328th Street and 265th Avenue., and run south on 265th Avenue to same tap point as selected route (see enclosed fact sheet).

  This route is 4.2 miles in length. It is not being proposed because it adds several angle structures to the route (same issues as above) and, by cutting across a field to reach 265th Avenue, would impair the usefulness of two parcels. There are no additional benefits by taking this route in lieu of the selected route.

- **Field** – This route is the same as the Southwest route except, instead of turning east on 328th Street, the line would continue south, cut across a private agricultural field and cross over a stream/ditch and connect into the Xcel Energy 69 kV line.

  This route is not being proposed for the following reasons:

  - Great River Energy is tapping an Xcel Energy-owned line and Xcel Energy will own and maintain the switch. Xcel Energy has reviewed the switch location and has a preference to locate just off the road for access and does not want to locate near the creek. Specifically, an Xcel Energy representative looked at this possibility and ruled it out because: switch placement would be in very close proximity to the creek and accessibility would be more difficult and expensive; emergency repair at this location would be more difficult; possible flooding and erosion could compromise the base of the switch over the long term; matting would be needed to work around the switch location; and, snow removal would, at times, be needed in winter months, delaying response times.

  - It would not follow an existing corridor, thereby deviating from routing criteria, and shifts the burden to a single property owner.

  - A road would be built to this location which would bisect the field and leave less room for farming, cause crop damage, and compaction of soils.

  - This route does not provide any additional benefit over the selected route.

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Thank you for your consideration of this Conditional Use Permit application.

Sincerely,

GREAT RIVER ENERGY

Peter M. Schaub
Sr. Field Representative

Enclosures

PS:ve\\\erntfs\shared\Transmission\Capital Projects\20557 - Tyrone Distribution Substation\78531 - Tyrone 69kV Tap Line\LR-ENV\Land Rights\LeSueur County\Tyrone CUP Application letter.docx

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VENDOR # 2720 VENDOR NAME LE SUEUR COUNTY DATE 04/30/15 CHECK NO. 541676

INVOICE NUMBER	DATE	P.O. NO.	GROSS AMT.	DISCOUNT	NET
CUPAPPLICATION	04/29/15		796.00	0.00	796.00
		TOTAL	$796.00	$0.00	$796.00

CURRENCY: U.S. DOLLARS

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER

GREAT RIVER ENERGY

12300 ELM CREEK BLVD.
MAPLE GROVE, MN 55369

56-382
412

WELLS FARGO BANK, N.A.
115 Hospital Drive
Van Wert, OH 45891

CHECK NO. 541676
DATE 04/30/15

PAY SEVEN HUNDRED NINETY-SIX AND 00/100----------

AMOUNT
$ **********796.00

U.S. DOLLARS

PAY TO THE ORDER OF
LE SUEUR COUNTY
88 S PARK AVE
LE CENTER MN 56057

VOID AFTER 6 MONTHS

SECURITY FEATURES INCLUDED. DETAILS ON BACK.

⑈00541676⑈ ⑆041203824⑆ 9600110495⑈

Le Sueur County

Conditional Use Application

I. Applicant:

Name GREAT RIVER ENERGY (GRE)
Mailing Address 12300 ELM CREEK BLVD.
City MAPLE GROVE State MN Zip 55369-4718
Phone # 763-445-5976 Phone # 612-801-7370

II. Landowner:

Name EASEMENTS TO BE ACQUIRED BY GRE
Mailing Address SAME AS ABOVE
City _____ State _____ Zip _____

Property Address PLEASE SEE ETS # 6.A.
City _____ State _____ Zip _____
Phone # _____ Phone # _____

III. Parcel Information:

Parcel Number SEE ETS #6.A. Parcel Acreage 2.15 ACRES OF EASEMENTS
Attach Full Legal Description (***NOT*** *abbreviated description from tax statement)*
Township TYRONE (112) Section 5 20-23, & 26-28
Subdivision _____ Lot _____ ~~Block~~ RANGE 25

IV. Township Notification: Township must be notified of proposed use prior to application.

TYRONE Township notified on 4-28-2015
(Township Name) *(Date)*

Board Member BILL KRENIK regarding the proposed use.
(Name)

V. Quantities and Submittal Formats:

a. One (1) reproducible 8.5" x 11" copy of the request and all other supporting documents.

b. Twenty three (23) copies must be submitted, if any documents are in color, an aerial, or larger than 8.5" x 11" in size.

c. Electronic version of any supporting documents *if available*.

c. Additional copies may be requested as deemed necessary by the Department.

d. Application must be made **in person** by the applicant and/or landowner no later than 12 P.M. on the date of application deadline.

e. Appointment is necessary.

f. ***Applications will not be accepted by mail.***

VI. Fees: Must be paid at the time of application.

Conditional Use Permit	$ 750	After-The-Fact fee is **doubled.**
Filing Fee	$ 46	

Additional Fees:

Special Meeting	$ 2,000	
After-The-Fact Penalty	$ 1,500	OR 10% of improvement, whichever is greater

VII. Type of Request:

☐ Self Service Storage	☐ Value Added Agriculture
☐ School/Church/Cemetery	☐ Antique Sales/Service/Repair
☐ Retail Nursery/Greenhouse	☒ Substation/Transmission Lines etc.
☐ School/Church/Cemetery	☐ Other _____

VIII. Description of Request:

a. A full description of request with detailed information must be attached.

b. Complete the following in relationship to the proposed Conditional Use Permit.

1. **PROPOSED DAYS AND HOURS OF OPERATION:** LINE WILL OPERATE 24 HRS./7 DAYS/WEEK
2. **ESTIMATED NUMBER OF PERSONS TO ATTEND PLACE OF BUSINESS/LOCATION ON A DAILY OR WEEKLY BASIS:** NONE. ONLY FOR REPAIR/MAINTENANCE AS NEEDED
3. **LIST OF PUBLIC HEALTH PLANS:**
   i. **Water Supply:** N/A
   ii. **Toilet facilities:** N/A
   iii. **Solid Waste Collection:** N/A
4. **FIRE PREVENTION:** N/A
5. **SECURITY PLANS:** N/A
6. **RETAIL SALES:** N/A
7. **FOOD OR ALCOHOL SERVED OR FOR SALE:** N/A
8. **DESCRIBE IF THE APPLICANT REQUESTS THE COUNTY TO PROVIDE ANY SERVICES OR COUNTY PERSONNEL:** (*For example, pedestrian and/or vehicular traffic control.*) N/A
9. **SOUND AMPLIFICATION, PUBLIC ADDRESS SYSTEM, PLAYING OF MUSIC:** N/A
10. **EXTERIOR LIGHTING:** N/A
11. **PARKING AND LOADING:** N/A
12. **SIGNAGE:** N/A
13. **ROAD ACCESS:** (*Approved by the road authority*) ONLY DURING CONSTRUCTION
14. **CERTIFICATE OF INSURANCE:** _____
15. **MEET ALL APPLICABLE COUNTY STATE & FEDERAL REGULATIONS:** (*For example additional licensing and/or permitting*) SEE EIS RE: ENVIRONMENTAL

IX. Site Plan: Shall include but not limited to the following:

• North point	• Lake	• Existing Structures	• Septic system
• Setbacks	• River	• Proposed Structures	• Well
• Property Lines	• Wetland	• Lot Dimensions	• Access (size & location)
• Road Right-Of-Way	• Stream	• Ponds	• Easements

- Parking *(Size & location-if applicable to application)*
- Landscape, screening and buffering *(if applicable to application)*
- Location of significant trees to be removed *(if applicable to application)*

X. Attachments: shall include but not limited to:

- [x] a. **Description of Request**-*See Part VIII for full details and requirements.*
- [x] b. **Site Plan**-*See Part IX for full details and requirements.*
- [ ] c. **Full legal description**-*Not abbreviated description from tax statement.*
- [ ] d. **Access approval**-*Attach approval in writing from proper road authority.*
- [x] e. **Township Notification**-*See Part IV for details and requirements.*
- [ ] f. **Septic System Compliance Inspection**
- [x] g. **Erosion control plan**-*Attach completed and signed plan including map.*
- [ ] h. **Floor plans and/or blue prints**

XI. Procedure:

The Planning & Zoning Commission shall hold a public hearing on the proposed Conditional Use Permit at a scheduled Planning and Zoning Commission meeting.

The Planning and Zoning Commission is an advisory board to the County Board of Commissioners and will make a recommendation to the County Board.

The Department shall report the finings and the recommendations of the Planning Commission to the County Board for final decision.

Action by the County Board shall be a majority vote of its members.

The Department shall notify the applicant and/or landowner in writing of the County Board decision.

A certified copy of the Conditional Use Permit shall be filed with the Le Sueur County Recorder by the Department.

XII. Signatures:

I hereby certify with my signature that all data contained herein as well as all supporting data are true and correct to the best of my knowledge.

Patrick M. Schaub For GRE _____ May 1, 2015
Applicant signature Date

I hereby certify with my signature that all data contained herein as well as all supporting data are true and correct to the best of my knowledge.

_____ _____
Property Owner signature Date

OFFICE USE ONLY

Request: _____

Pre-App Date _____	Lake Classification _____		Feedlot	**500'**	**1000' N**
Meeting Date _____	Lake _____		Wetland Type	**1-2**	**3-8 N**
60 Day _____	FEMA Panel # 27079C0 _____	D	Water courses		**Y N**
Zoning District _____	Flood Zone _____		Bluff		**Y N**

☐ Request Description	☐ Access Approval	☐ Septic	**Comp Insp / Design**
☐ Site Plan	☐ Erosion Control Plan	☐ Meeting	**Reg / ATF / Spec**
☐ Full Legal	☐ Blue Prints	☐ Fee	$ _____
☐ Ordinance	☐ Other _____	☐ Penalty	$ _____

☐ Application Complete _____ _____ _____
Planning & Zoning Department Signature Date Permit #

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
www.greatriverenergy.com

MINNESOTA VALLEY ELECTRIC CO-OP
125 Minnesota Valley Electric Dr.
Jordan, MN 55352
1-800-282-6832
www.mvec.net

Project Need

Minnesota Valley Electric Co-op (MVEC) proposes to build a new electrical distribution substation (Tyrone Substation) south of the intersection of 320th Street and Myrick Street, on the west side of 320th Street. To provide electric service to the new Tyrone Substation, Great River Energy, power supplier to MVEC and 27 other Minnesota cooperatives, proposes to construct an approximately four mile long 69,000 volt (69 kV) electric transmission line between the new MVEC Tyrone Substation and Xcel Energy's existing 69 kV 5402 line, located near the intersection of 265th Avenue and 320th Street (see Project Map on back). The new substation and transmission line are needed to serve the existing and growing electrical demand in the area.

Project Description

Great River Energy plans to build a 69 kV electric transmission line, the centerline of which will generally run parallel to the roadways. The route would run along 320th Street at least to 275th Avenue. From there, two options are being considered: the **Northeast Option** would continue on 320th Ave. to 265th Avenue and turn south on 265th and continue to the Xcel Energy 69 kV transmission line; the **Southwest Option** would turn south on 275th Avenue, run east on 328th Street then angle south and east, behind the trees that abut 265th Ave. and 328th Street, and continue to the Xcel Energy line. Existing structures and other construction considerations may, in some areas, move the centerline away from the roads. The new transmission line will require a right-of-way 35 feet wide on either side of the centerline. Easements will be needed within the existing road rights-of-way and partially on private property adjacent to the roadways. Property owners will be contacted by a Great River Energy representative to discuss access and the acquisition of easements for the new transmission line. This new transmission line will be a single circuit configuration (see example photo at right). The poles will be primarily wood and will range in height from 70 - 85 feet above ground.

Typical 69 kV Transmission Line

Trees

Removal of trees and vegetation will be necessary for safety and maintenance purposes along the transmission line right-of-way. A representative from Great River Energy will contact property owners along the transmission corridor before any tree work takes place.

Project Schedule

Project contact and/or notification ----------	Fall/Winter 2014
Project Permitting ----------	Spring 2015
Transmission Line Build ----------	Fall 2015 – Spring 2016
Energization ----------	June 2016

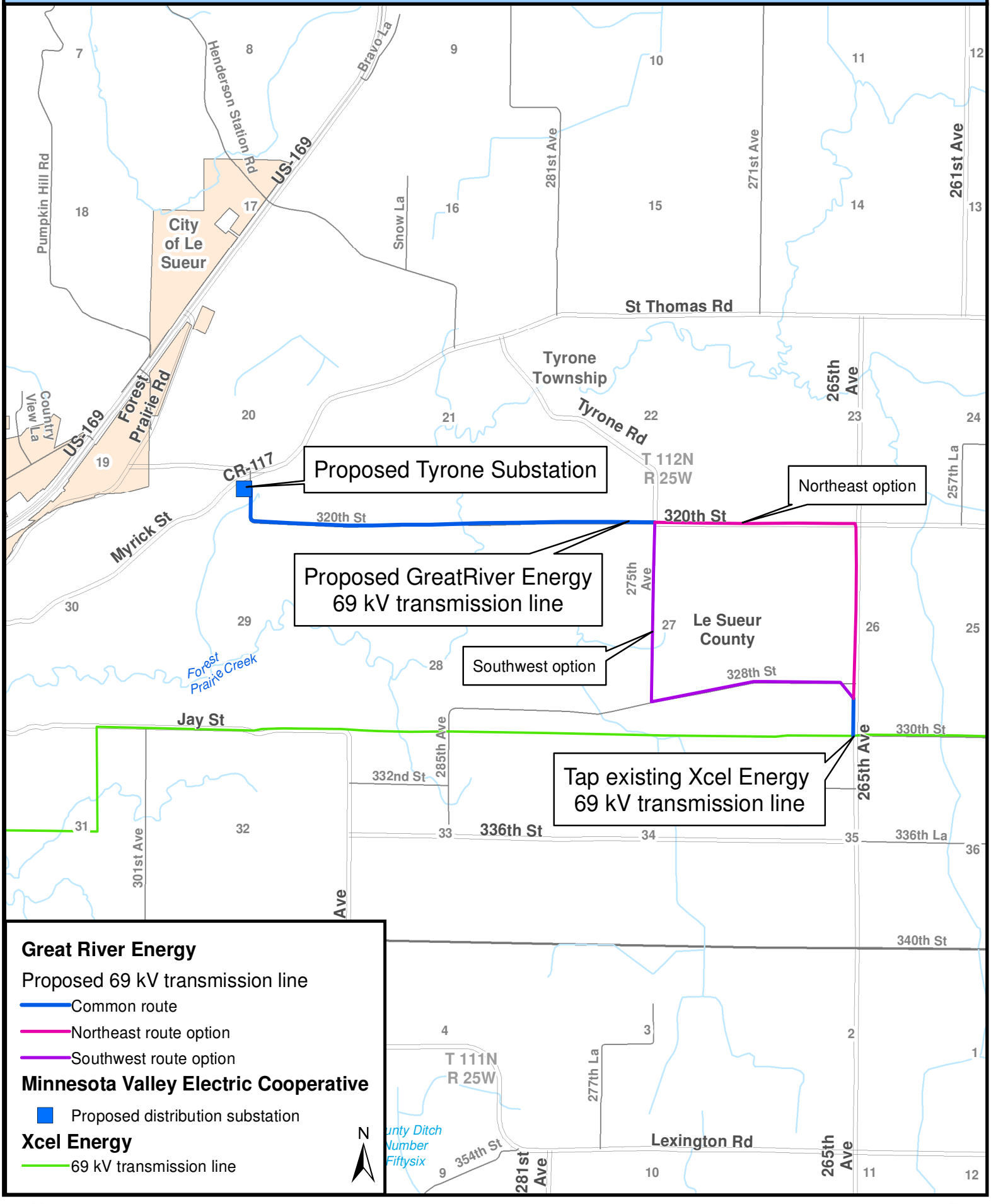
For project updates and information, visit greatriverenergy.com/tyrone or contact

Great River Energy
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 4/30/2015

Proposed Project



Tyrone
WO# 78531

Form No. 2962
Business Records Corp

COUNTY OF Le Sueur
DEPARTMENT OF HIGHWAYS

APPLICATION FOR UTILITY PERMIT on COUNTY HIGHWAY RIGHT OF WAY

Board of County Commissioners
Le Sueur County, Minnesota
Attn: County Highway Engineer

C.S.A.H. 33
C.R. 155 + 156

Application is hereby made for permission to place, construct and thereafter maintain a a aerial 69 kV electric transmission system **along or across County Highway No.** ____ **from** 330th Street north to 320th Street & west **to** Tyrone substation (south of CR 117) ____ **feet from center line on the** ____ **(east, west, north or south) side of the county highway in accordance with the sketch shown on the inside hereof, or attached thereto.**

I. AERIAL CONSTRUCTION

- ☒ Single pole
- ☐ H-Frame
- ☐ Single pole and H-Frame
- ☐ Steel tower
- ☐ Other ____

- ☒ Open wire
- ☐ Cable
- ☐ Vertical
- ☐ Cross-arm
- ☐ Vertical and cross-arm

VOLTAGE	NUMBER OF CONDUCTORS	SIZE OF CONDUCTORS
69 kV	3 + 1 non-energized shield wire	336 ACSR "Linnet" (OPGW shield wire)

Minimum height of conductor: TBD **ft. along highway** TBD **ft. at crossing over highway**

EXTENT AND LOCATION OF TREE TRIMMING AND/OR CLEARING:
Cut/trim/remove trees + shrubs within 35 feet each side of transmission centerline

II. UNDERGROUND CONSTRUCTION

CONDUIT n/a

- ☐ Multiple tile
- ☐ Transite
- ☐ Clay tile
- ☐ Sectional concrete
- ☐ Steel pipe
- ☐ Other ____

CASING
☐ Steel pipe ☐ Sectional concrete ☐ Other ____

SIZE	DEPTH

VOLTAGE	NUMBER OF CONDUCTORS	SIZE OF CONDUCTORS

METHOD OF INSTALLING UNDER ROADBEDS (if open trench, explain why necessary)
☐ Open trench ____
☐ Jacking ☐ Boring ☐ Pneuma Gopher

EXTENT AND LOCATION OF TREE CLEARING	New Facility	Replacement Facility
	☒	☐

III. Work to start on or after 2/1/2016 **and to be completed on or before** 10/1/2016.

IV. The applicant in carrying on any and all of the work herein above mentioned or referred to in its application and in the Permit issued herefore, shall strictly conform to the terms of such Permit, and the regulations of the Board of County Commissioners, as set forth herein together with the Special Provisions, all of which are made a part hereof. The applicant specifically agrees to be bound hereby. The applicant shall also comply with the regulations of all other governmental agencies for the protection of the public. The work shall be accomplished in a manner that will not be detrimental to the highway and that will safeguard the public.

Dated this 30th **day of** April, ~~19~~ 2015

Great River Energy
Name of Company making application

Signature ____

By Trisha Berthel, THLe + Permitting Coord
Title

Address 12300 Elm Creek Blvd, Maple Grove, MN 55369

Rules and Regulations of Board of County Commissioners for Utilities on County Highways.

DEFINITIONS

Utility. Under this order "utility" shall mean and include all privately, publicly or co-operatively owned communication lines and facilities, any systems, lines and facilities for the distribution and transmission of electical energy, oil, gas, water, sewer, steam and other pipe lines, railways, ditches, flumes or other structures which under the laws of this State or the ordinance of any town or city may be constructed, placed or maintained across, along or on county highway right of way. Dependent upon the meaning intended in the context, "Utility" shall also mean the utility company, inclusive of any wholly owned subsidary.

GENERAL

I. Except as otherwise permitted, utility construction and relocation on county highway right of way shall not be commenced until an application for a Permit has been made and such Permit granted. The Permit sketch shall show the location of the proposed utility with reference to county highway center line. A copy of the sketch shall be provided for each copy of such Permit.

II. Burning or disking operations and/or the use of chemicals to control or kill trees, brush and other vegetation is prohibited without prior approval from the County Highway Engineer.

III. All waterways and lines of drainage shall remain operative.

IV. Wherever topsoil and sod are disturbed they shall be replaced and maintained satisfactorily until the turf is established.

V. The utility facility and installation shall not interfere with any existing utility facilities on the county highway right of way.

VI. When necessary, barricades, warning devices and flagmen shall be provided by the Utility during all phases of their construction and maintenance operations on county highway right of way.

VII. At the time of construction of the utility and at the times of subsequent maintenance, prior approval shall be obtained from the County Highway Engineer for the cutting and trimming of trees within the county highway right of way. Wherever trees are cut the resulting stumps shall be removed unless otherwise provided in the Special Provisions of the Permit. Any holes caused by stump removal shall be backfilled, the area leveled and all materials associated therewith disposed of outside the county highway right of way. The utility shall advise the County Highway Engineer at least 48 hours in advance of its intent to start clearing and grubbing operations so that proper supervision can be provided.

VIII. The Utility shall notify the County Highway Engineer of its intent to perform service and maintenance operations which will interfere with the flow of traffic on county highways, and shall obtain his approval prior to performing such operations. However, the Company may perform service and maintenance operations on county highways including opening and disturbing the surface of the right of way without prior approval in those instances where an emergency exists that is dangerous to the life or safety of the public and which requires immediate repair. The Utility shall take all necessary and reasonable safety measures to protect the traveling public and shall notify the County Highway Engineer at the earliest possible moment.

X. The Utility shall assume all liability for, and save the County, its agents and employees, harmless from, any and all claims for damages, actions or causes of action arising out of the work to be done herein and the continuing uses by the Utility, including but not limited to the placing, constructing, reconstructing, maintaining and using of said utility under this application and Permit.

XI. The Board of County Commissioners may require the Utility, or its contractor, to furnish a deposit in the form of a certified check, a surety bond or corporate undertaking, in favor of the Board of County Commissioners of Le Sueur County, for any expense incurred by the County in the repairing of damage to any portion of the county highway right of way caused by work performed under a Permit, including any out of the ordinary engineering supervision and inspection expense provided by the county. In those instances wherein a deposit is required, the amount of the deposit shall be specified in the Special Provisions of the Permit. If a check is furnished, any monies remaining over and above such expense shall be returned to the applicant.

XII. The Permit as issued does not in any way imply an easement on private property.

XIII. The installations shall be made in conformity with all applicable laws, regulations and codes covering said installations. All installations shall be made in conformity with regulations of governmental agencies for the protection of the public.

XIV. Upon completion of an installation, the Utility shall restore the county highway right of way to its original condition. The Utility shall then notify the office of the County Highway Engineer of the completion of the work so that inspection can be made to determine its acceptability.

AERIAL

I. There shall be only a single pole line on the county highway right of way on either side of the center line thereof.

II. Longitudinal installations on county highways shall normally be located in the outer five feet of the right of way. At crossing of the county highway, poles shall be placed at a minimum of thirty feet from the shoulder lines of the through roadbeds unless right of way widths are prohibitive to such location.

III. The location of all brace poles, anchors and anchor poles within the limits of the county highway right of way shall be approved by the County Highway Engineer.

IV. In those instances in which a Utility is issued a Permit or Permits for construction on both sides of the county highway right of way in a given area, such Permit is conditioned upon the Utility subsequently providing joint use to other Utilities upon reasonable terms mutually agreeable to the Utilities.

UNDERGROUND

I. All crossings of the roadbeds of the county highways shall be made by boring inside a casing or carrier pipe, or by jacking, unless this procedure is modified in the Special Provisions of the Permit. The auger shall not lead the casing or carrier pipe by more than one inch. Open trenching shall be restricted to the area from 5 feet beyond the shoulder to the right of way line except as modified in the Special Provisions of the Permit.

IX. If at any time _____ County, acting through its Board of County Commissioners, shall deem it necessary to make any improvements or changes on all or any part of the right of way of the county highway which affect a utility located on county highway right of way, then and in such event, the owner of the utility shall within 15 days after written notice from the Board of County Commissioners, or its authorized agent, proceed to alter, change, vacate or remove said utility from the county highway right of way so as to conform to said county highway changes and as directed by the Board of County Commissioners. Such work shall be done without any cost whatsoever to _____ County and shall be completed within the date specified in said written notice. The Utility shall assume all liability and save _____ County harmless from any and all claims of damage of any nature whatsoever occasioned by reason of not having removed said utility within the time specified in said notice.

II. When pipes with bells or flanges are installed, the crossings of the roadbeds of the county highway shall be made by boring inside a conduit as provided in paragraph I of this section or jacking a conduit of sufficient diameter to permit threading the carrier pipe through it.

III. All voids caused by jacking or boring shall be filled by pressure grouting. The grout material shall consist of a sand-cement slurry of at least two sacks of cement per cubic yard and a minumum of water to assure satisfactory placement.

IV. The underground utilites shall be so installed as virtually to preclude any necessity for distrubing the roadbeds to perform maintenance operations.

V. Underground installations shall be accomplished without damaging or destroying the principal root structure of specimen trees.

LOCATION SKETCH

Show location of proposed facility in relation to the center line of the county highway and other pertinent features such as right of way line, shoulder line, curb line and edge of surfacing. The facility should also be referenced to adjacent land lines.

See attached maps

Le Sueur COUNTY
DEPARTMENT OF HIGHWAYS

Utility Permit

Reference: Project _____
C.S.A.H. _____
C.R. _____

In accordance with the application herein, a Utility Permit is granted to _____ _____ to place, construct and thereafter maintain _____ _____ on or across, or under the right of way of County Highway No. _____ in the location shown on the sketch which is a part of said application, or in such location as may be specified by the Department of Highways in the Special Provisions hereof.

SPECIAL PROVISIONS:

Approved _____ (date)

Board of County Commissioners

_____, Minnesota

By _____ County Highway Engineer

Permit No. _____ _____ _____
Certified Check No. _____
Surety Bond No. _____
Date of S. Bond or C. Check _____
Bank or Bonding Co. _____
Deposit Made by _____
_____

COPIES:

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
www.greatriverenergy.com

MINNESOTA VALLEY ELECTRIC CO-OP
125 Minnesota Valley Electric Dr.
Jordan, MN 55352
1-800-282-6832
www.mvec.net

Project Need

Minnesota Valley Electric Co-op (MVEC) proposes to build a new electrical distribution substation (Tyrone Substation) south of the intersection of 320th Street and Myrick Street, on the west side of 320th Street. To provide electric service to the new Tyrone Substation, Great River Energy, power supplier to MVEC and 27 other Minnesota cooperatives, proposes to construct an approximately four mile long 69,000 volt (69 kV) electric transmission line between the new MVEC Tyrone Substation and Xcel Energy's existing 69 kV 5402 line, located near the intersection of 265th Avenue and 320th Street (see Project Map on back). The new substation and transmission line are needed to serve the existing and growing electrical demand in the area.

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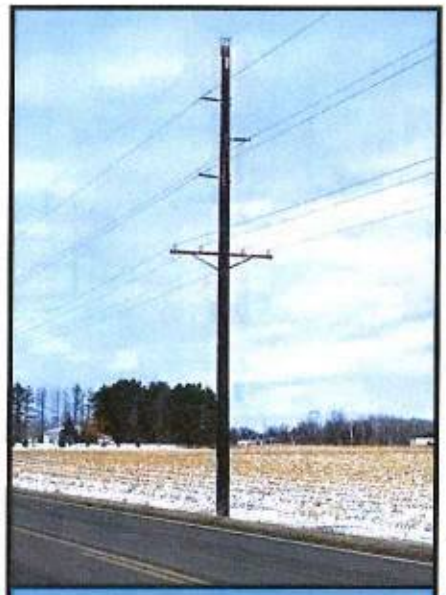


Typical 69 kV Transmission Line With Distribution Underbuild

Trees

Removal of trees and vegetation will be necessary for safety and maintenance purposes along the transmission line right-of-way. A representative from Great River Energy will contact property owners along the transmission corridor before any tree work takes place.

Project Schedule

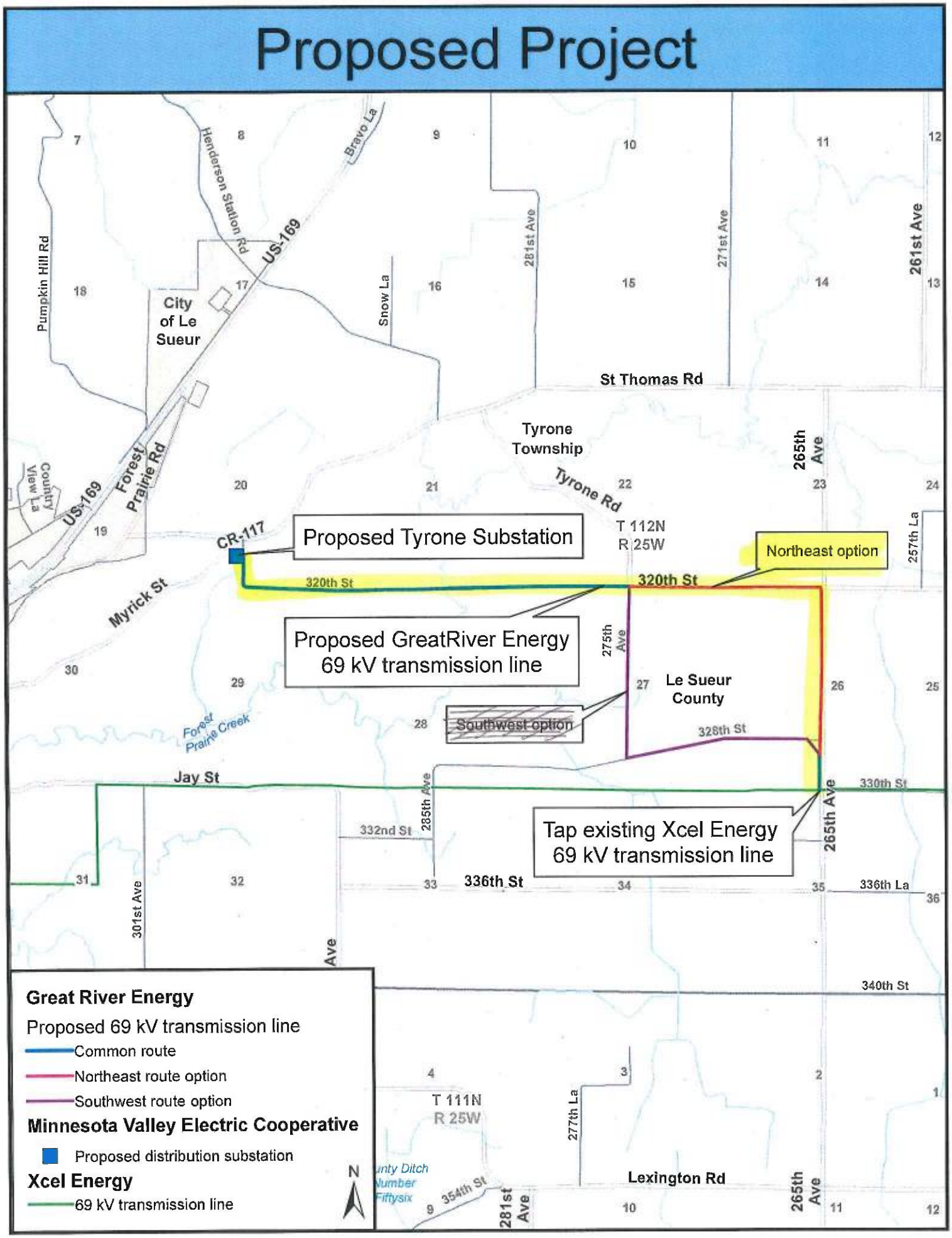
Project contact and/or notification	Fall/Winter 2014
Project Permitting	Spring 2015
Transmission Line Build	Summer 2015
Energization	June 2016

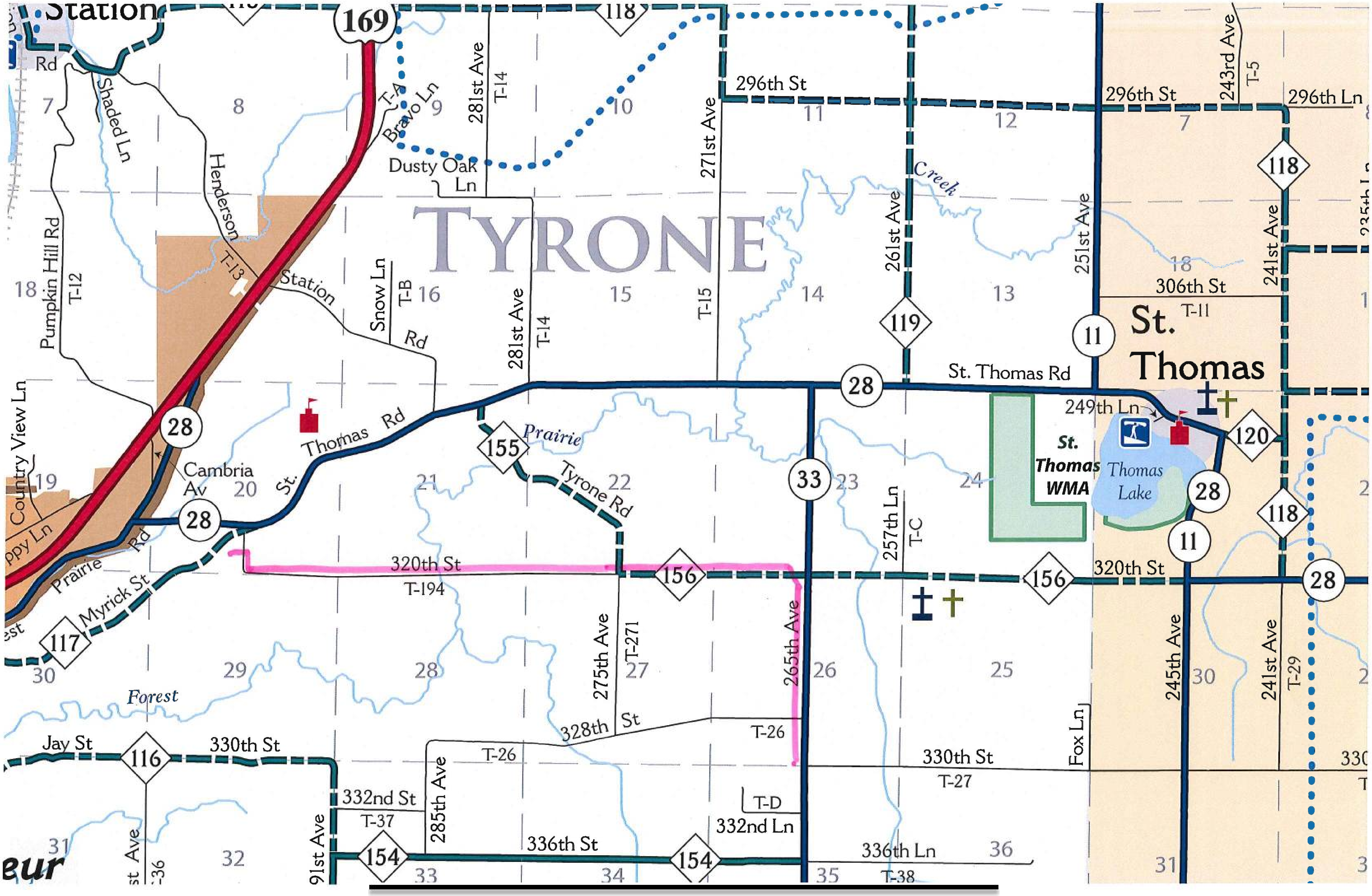
For project updates and information, visit greatriverenergy.com/tyrone or contact

Great River Energy
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 3/11/2015


Proposed Project
Proposed Tyrone Substation
Proposed GreatRiver Energy
69 kV transmission line
Northeast option
Southwest option
Tap existing Xcel Energy
69 kV transmission line
City of Le Sueur
Tyrone Township
Le Sueur County
St Thomas Rd
Tyrone Rd
Lexington Rd
Jay St
Myrick St
Forest Prairie Creek
Pumpkin Hill Rd
Henderson Station Rd
Bravo La
Snow La
Forest Prairie Rd
US-169
CR-117
320th St
328th St
330th St
332nd St
336th St
336th La
340th St
354th St
261st Ave
265th Ave
271st Ave
275th Ave
281st Ave
285th Ave
301st Ave
257th La
277th La
T 112N
R 25W
T 111N
R 25W
Great River Energy
Proposed 69 kV transmission line
Common route
Northeast route option
Southwest route option
Minnesota Valley Electric Cooperative
Proposed distribution substation
Xcel Energy
69 kV transmission line
N


TYRONE
St. Thomas
Station
Rd
296th St
296th Ln
281st Ave
271st Ave
261st Ave
251st Ave
243rd Ave
241st Ave
Shaded Ln
Henderson
Pumpkin Hill Rd
Dusty Oak Ln
Bravo Ln
Snow Ln
St. Thomas Rd
Cambria Av
Prairie
Creek
Tyrone Rd
306th St
249th Ln
St. Thomas WMA
Thomas Lake
320th St
T-194
275th Ave
T-271
265th Ave
257th Ln
Myrick St
Forest
328th St
T-26
Fox Ln
245th Ave
Jay St
330th St
T-27
332nd St
T-37
285th Ave
T-D
332nd Ln
336th St
336th Ln
T-38
Country View Ln

Note - exact route to be determined upon route permit approval - a revised permit application will be sent at a later date with more specific information

Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation
Xcel Energy
69 kV Transmission Line

Easement width will be 35 feet either side of transmission centerline
Road Right of Way
Turns in the line are approximate and subject to final design.

Tyrone 69 kV Tap Line
Page: 1

0 100 200 Feet

N

GREAT RIVER ENERGY
A Touchstone Energy Cooperative

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy

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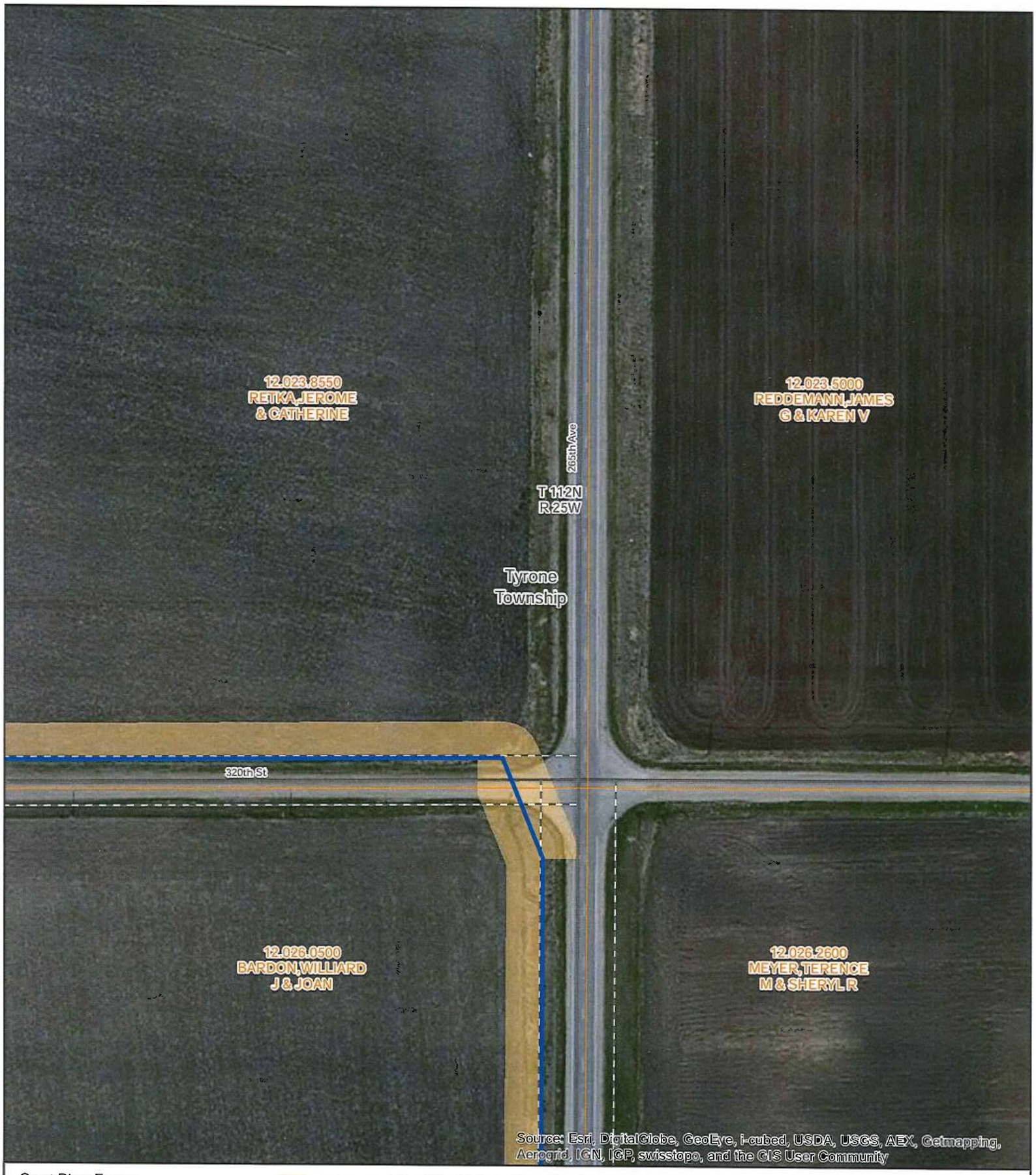

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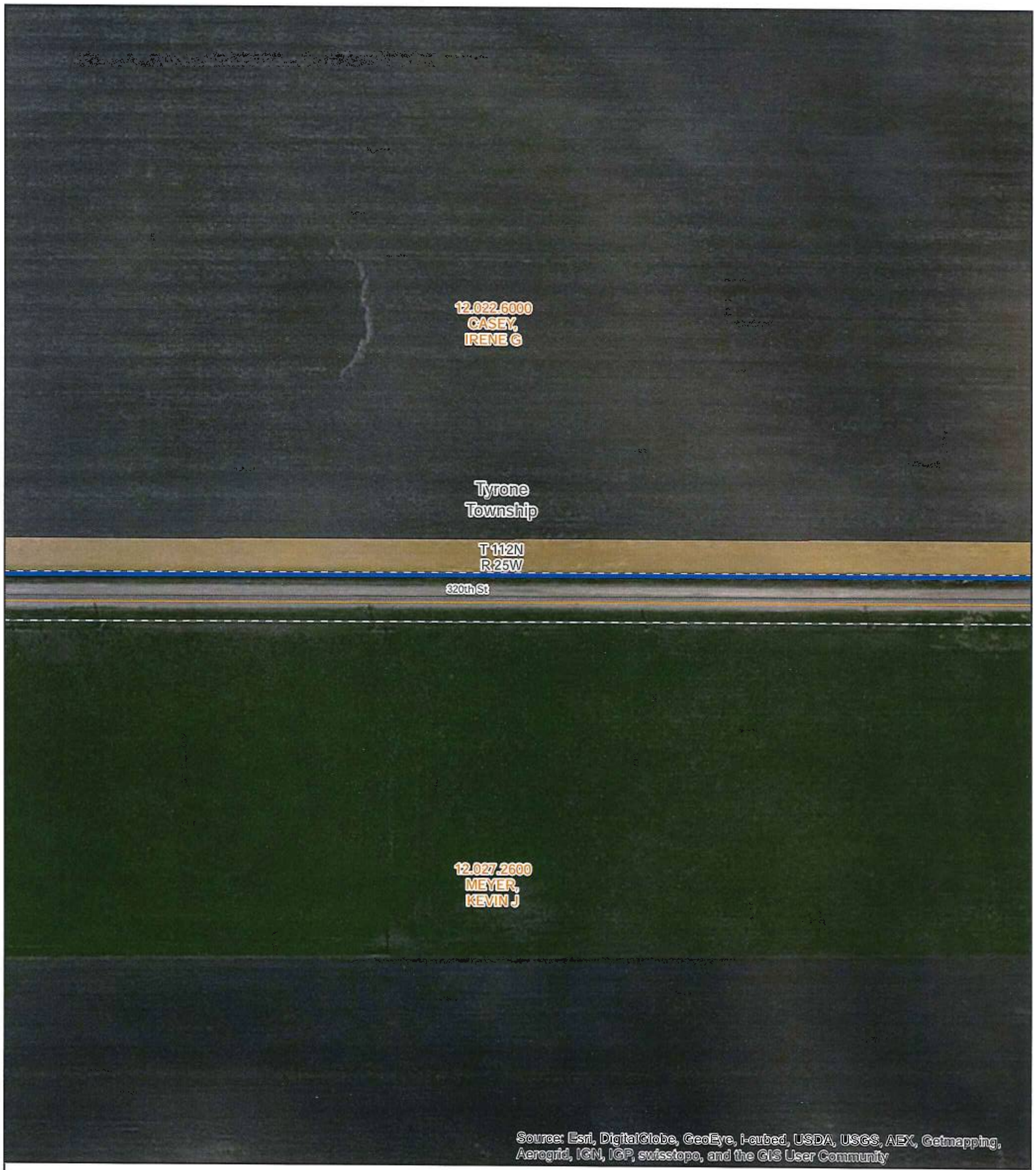

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Tyrone 69 kV Tap Line
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Le Sueur County
Environmental Impact Statement (EIS)
Tyrone Substation and Transmission Line Project

May 4, 2015

CONTENTS

TABLES

Page

EXHIBITS

APPENDICES

List of Acronyms Used in this Document

ACRONYMS	
ADT	Average Daily Traffic
ALJ	Administrative Law Judge
BMP	Best Management Practices
CRP	Conservation Reserve Program
CSAH	County State Aid Highway
DNR	Minnesota Department of Natural Resources
EAW	Environmental Assessment Worksheet
EEE	Electrical Equipment Enclosure
EIS	Environmental Impact Statement
EF	Electric Fields
ELF	Extremely Low Frequency
EMF	Electromagnetic fields
EPA	United States Environmental Protection Agency
EQB	Minnesota Environmental Quality Board
FEMA	Federal Emergency Management Agency
G mG	gauss milligauss
HVTL	High Voltage Transmission Line
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
IMD	Implantable Medical Devices
kV	Kilovolt
kV/m	Kilovolts per meter
mA rms	milliAmperes root mean square
MF	Magnetic Fields
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency

ACRONYMS	
MVEC	Minnesota Valley Electric Cooperative
NHIS	Natural Heritage Inventory System
NIEHS	National Institute of Environmental Services
NERC	National Electric Reliability Corporation
NESC	National Electric Safety Code
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PUC	Minnesota Public Utilities Commission
PWI	Public Waters Inventory
SDS	State Disposal System
SFD	Swan Flight Diverters
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic Database
SWPPP	Stormwater Pollution Prevention Plan
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WHO	World Health Organization
WMA	Wildlife Management Area

Tyrone Substation and Transmission Line Project

1. Summary

Great River Energy, a not-for-profit generation and transmission cooperative based in Maple Grove, MN and its member cooperative, Minnesota Valley Electric Cooperative (MVEC) are proposing to construct and operate a new substation (Tyrone Substation) and approximately 4.25 miles of 69 kilovolt (kV) overhead electric transmission to the existing Xcel Energy 69 kV Line "5402" northeast of the City of Le Sueur in Le Sueur County (Project).

The Project is needed to provide additional electrical service and improve reliability in the area. At present, the system is unable to maintain acceptable voltage levels and there is insufficient high voltage transmission support in the region north of Le Sueur. The affected area includes Le Sueur, Le Center, and surrounding locations. Without this Project, future growth within the area cannot be supported. The proposed Project will support the needs and requirements of the regional electric transmission system.

The Project will be permitted via a conditional use permit to be issued by Le Sueur County, Minnesota.

Based on the Project size, location and characteristics, the Tyrone Substation and Transmission Line Project is expected to have minimal environmental impacts to the surrounding area. This Environmental Impact Statement describes how all anticipated environmental effects will be mitigated by best management practices and other measures, which are summarized in Table 8 at the end of this document.

2. Purpose of this Document

Consistent with Section 27, Subdivision 2 of the Le Sueur County Zoning Ordinance (Ordinance), this document was prepared to identify potential environmental effects associated with the proposed Project and mitigation for such environmental effects. The Ordinance requires the owner of a transmission line with a voltage of 35 kV or greater, and which is used for the transfer of electrical power from station to station, to "file with the County Engineer and the Zoning Administrator such maps indicating the location, alignment and type of service proposed as well as an Environmental Impact Statement indicating areas of conflict and solutions to such environmental conflicts as shall be required."

Under the Ordinance, this Le Sueur County Environmental Impact Statement (EIS) is the only environmental review required for the proposed Project. The proposed Project does not require a Minnesota Public Utilities Commission (PUC) route permit or state environmental review in the form of an Environmental Assessment Worksheet (EAW) under Minn. R. 4410.1000 *et seq.* or an EIS under Minn. R. 4410.2000 *et seq.*

As the Project involves construction of a 69 kV transmission line, it does not meet the definition of a High Voltage Transmission Line (HVTL) under Minn. Stat. §216E.01, Subdivision 4, which defines an HVTL as "a conductor of electric energy and associated facilities designed for and capable of operation at a nominal voltage of 100 kilovolts or more and is greater than 1,500 feet in length." Environmental review for an HVTL is carried out under the PUC route permitting process.

Minn. Rules Chapter 4410.4300 indicates a state EAW is required for "construction of a transmission line at a new location with a nominal capacity of between 70 kilovolts and 100 kilovolts with 20 or more miles of its length in Minnesota." Again, with the Project voltage of 69 kV, it does not meet the definition under 4410.4300 and a state EAW is not required.

3. Project Title: Tyrone Substation and Transmission Line Project

4. Applicant:	Great River Energy a non-profit cooperative.	**5. County:**	Le Sueur County
Contact person:	Marsha Parlow	*Contact person:*	Kathy Brockway
Title:	Transmission Permitting Analyst	*Title:*	Planning and Zoning Director
Address:	12300 Elm Creek Blvd	*Address:*	88 South Park Avenue
	Maple Grove, MN 55369		Le Center, MN 56057
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Email	mparlow@grenergy.com	*Email*	kbrockway@co.le-sueur.mn.us

6. Project Description

A. Location

The proposed Project is located along the north side of 320th Street in Sections 20, 21, 22 23 and the south side of 320th Street in Sections 26 and 28; and along the west side of 265th Avenue in Section 26; T112N, R25W, Tyrone Township, Le Sueur County, Minnesota (Exhibit 1). The center coordinates of the Project are 44.4857° Latitude, -93.8316° Longitude. The Project is proposed to be constructed in the road right-of-way, on properties with parcel identification numbers: 12.020.8000, 12.020.5200, 12.020.5000, 12.021.7500, 12.021.7550, 12.021.5200, 12.028.1000, 12.028.2700, 12.021.5000, 12.022.7500, 12.022.7800, 12.022.6000, 12.022.6200, 12.023.8500, 12.023.8550, 12.026.0500, 12.026.7600, 12.026.7700, 12.026.7800, 12.026.5000, 12.026.5100 and 12.035.0300.

B. Purpose and Need

MVEC is planning to construct a substation that will connect to an existing 69 kV line (Xcel Energy Line 5402) near St. Thomas in Le Sueur County. The Project is needed to provide additional electrical service and improve reliability.

The Project will improve the electrical service and reliability to the entire area surrounding the proposed substation location (Exhibit 1). Critical issues currently exist with low voltage

and thermal overloads (overheating) in parts of this area. Without this Project, reliability of service for existing loads and the ability to support future load growth is compromised. The areas that will be supported as a result of this Project include the communities of Le Sueur, Le Center and surrounding locations.

C. Summary of Effects

The substation site will be located on a 7.85 acre parcel most of which is presently enrolled in the Conservation Reserve Program (CRP). Upon completion of the project, the property will include substation pad (0.59 acres), driveway and parking area (0.40 acres), a stormwater management area (0.07 acres) and grassland (1.53 acres) for a total of 2.59 acres of disturbed land. The remaining approximately 5.26 acres of woods and CRP will remain undisturbed with natural type ground covers.

Preservation of the upland cropped field, combined with the establishment of the stormwater management area and grassland, is expected to help mitigate potential effects on wildlife (see Table 8, Item 9.B).

Approximately 15 additional acres will be utilized for transmission line easements; however, the land conversion will be restricted to pole locations and therefore minimal.

Best Management Practices (BMPs) will be implemented to protect water quality and reduce the potential for soil erosion and sedimentation during and after construction.

D. Technical Characteristics and Construction Methods

Great River Energy and MVEC are proposing a substation and transmission line Project consisting of two parts (Exhibit 2):

1. construction of the Tyrone Substation southwest of the intersection of 320th Street and Myrick Street;
2. construction of approximately 22,440 feet (4.25 miles) of overhead 69 kV transmission line to connect the new substation to an existing 69 kV transmission line.

The substation will contain 69 kV facilities that include associated electrical equipment such as breakers, transformers and bus work. The 69 kV transmission line will run along 320th Street and 265th Avenue. The 69 kV line will have approximately 60 wood monopoles that will range from 70 to 85 feet tall and will be spaced at 350 to 500 foot intervals. A steel pole on a concrete pier foundation will be installed in areas where guying is not feasible.

The total proposed Project area will cover approximately 15 acres in new transmission line easements and 7.85 acres in property purchased for the substation. The substation property will involve ground cover that is 2.59 acres disturbed and 5.26 acres undisturbed after construction.

The substation area will be approximately 0.59 acres graded and fenced and contain electric equipment. An additional 0.4 acres will provide an access driveway and parking area. It is anticipated that the constructed slopes around the substation (1.53 acres) and stormwater management area (0.07 acres) will be occupied by grassland. The woods and residual CRP land (5.26 acres) will remain undisturbed with natural type ground covers.

The 69 kV electric transmission line is planned to be primarily wood poles with horizontal post insulators. The wood structures are proposed to be directly embedded into the ground if soil conditions warrant.

Another typical installation method involves digging a hole for each pole, filling it partially with crushed rock and then setting the pole on top of the rock base. The area around the pole is then backfilled with crushed rock and/or soil.

Rock-filled culvert foundations may be required in areas with poor soils. Culvert foundations involve auguring a hole for each pole, installing a galvanized steel culvert, filling the annular space outside the culvert with hole spoils, filling the culvert partially with crushed rock and then setting the pole on top of the rock base. The annular space between the pole and culvert is filled with crushed rock.

A concrete pier foundation will be installed where steel poles are required.

The proposed transmission line will be designed to meet or surpass relevant local and state codes, including the National Electric Safety Code (NESC) and North American Electric Reliability Corporation (NERC) standards. Appropriate standards will be met for construction and installation, and applicable safety procedures will be followed during and after installation.

Construction will begin after applicable federal, state and local approvals are obtained, property and rights-of-way are acquired, soil conditions are determined and the design is finalized. The precise timing of construction will take into account various requirements that may be in place due to permit conditions, system loading issues, available workforce and materials.

The construction process will follow standard construction and mitigation practices that have been developed from experience with past projects. These best practices address right-of-way clearance, staging, erecting transmission line structures and stringing transmission lines. Construction and mitigation practices to minimize impacts will be used based on the proposed schedule for activities, permit requirements, prohibitions, maintenance guidelines, inspection procedures, terrain and other practices. In certain cases some activities, such as schedules, are modified to minimize impacts to sensitive environments. Typical construction equipment used on transmission projects includes tree removal equipment, mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front end loaders, bucket trucks, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks and various trailers. Many types of excavation equipment are set on wheel or track-driven vehicles. Transmission poles are transported on tractor-trailers.

Construction staging for the Project will take place at the substation site. Staging involves delivering the equipment and materials necessary to construct the new transmission line facilities. Construction materials are stored at staging areas until they are needed for the Project, at which time they are sorted and loaded onto structure trailers for delivery to installation locations.

Access to the transmission line right-of-way corridor will be from the roads/road right-of-way, which will run parallel to the transmission line right-of-way. A new driveway will be constructed to access the substation from 320th Street (see Exhibit 2 and Exhibit 3). This new driveway and existing driveway access points to the Project area will be utilized for Project construction.

Environmentally sensitive areas may also require special construction techniques in some circumstances. During construction, the most effective way to minimize impacts to wet areas will be to span and/or avoid wetlands, streams, and rivers. In addition, Great River Energy will not allow construction equipment to be driven across waterways except under special circumstances and only after discussion with the appropriate resource agency. These construction practices help prevent soil erosion and ensure that equipment fueling and lubricating will occur at a distance from waterways.

When it is not feasible to span the wet areas, construction crews will consider the following options during construction to minimize impacts:

1. When possible, construction will be scheduled during frozen ground conditions;
2. Crews will attempt to access the areas with the least amount of physical impact to the waterbody in the area (i.e., shortest route);
3. The structures will be assembled on upland areas before they are brought to the site for installation; or
4. When construction during winter is not possible, construction mats will be used where wet areas could be impacted.

During construction, crews will attempt to limit ground disturbance wherever possible. As construction on each parcel is completed, disturbed areas will be restored to their original condition to the maximum extent practicable. The Great River Energy right-of-way agent contacts each property owner after construction is completed to determine whether any damage has occurred as a result of the Project.

Portions of vegetation that are disturbed or removed during construction may naturally reestablish to pre-disturbance conditions. Resilient species of common grasses and shrubs typically re-establish with few problems after disturbance. Areas with significant soil compaction and disturbance from certain construction activities could require actions to re-establish vegetation and control soil erosion. Methods commonly used to control soil erosion and assist in re-establishing vegetation may include, but are not limited to:

1. Erosion control blankets with embedded seeds;

2. Silt fences;
3. Hay bales;
4. Hydro seeding; and
5. Planting individual seeds or seedlings of native species.

These erosion control and vegetation establishment practices are regularly used in construction projects and are typically referenced in the construction stormwater permit plans. Long-term impacts are also minimized by utilizing these construction techniques.

E. Operations and Maintenance Activities

During the operational phase of the proposed Project, there will be only limited maintenance activities conducted at the site. Transmission lines and substations are designed to operate for decades and require only moderate maintenance, particularly in the first few years of operation. Maintenance includes vegetation management; transmission line corridors must be kept free of vegetation that may grow near the lines. Planting low-growth vegetation is compatible with transmission lines when such vegetation includes crops such as corn and soybeans, grasses and other low growth vegetation that does not interfere with construction, maintenance or clearances.

The estimated service life of the proposed transmission line for accounting purposes is approximately 40 years. However, high voltage transmission lines are seldom completely retired. Transmission infrastructure has few mechanical parts and is built to withstand weather extremes that are normally encountered. With the exception of severe weather such as tornadoes and heavy ice storms, transmission lines rarely fail.

Substations require a certain amount of maintenance to keep them functioning in accordance with accepted operating parameters and NESC requirements. Transformers, circuit breakers, batteries, protective relays, and other equipment need to be serviced periodically in accordance with manufacturers' recommendations. The substation site must be kept free of vegetation and adequate drainage must be maintained.

7. Project Schedule

MVEC plans to begin substation grading and foundations late fall 2015. Construction of the connecting electric transmission line would occur in winter 2015/spring 2016. Construction of the Project should be completed within approximately 6 months of construction start, with a projected September 2016 in service date. The in service date is dependent on permitting progress and outage constraints.

8. Required Government Approvals

Required permits and approvals will be obtained. Permits anticipated to be required are listed in Table 1.

Table 1. Permits and Approvals Required

Unit of Government	Type of Application	Status
Minnesota Pollution Control Agency	NPDES/SDS Construction Stormwater General Permit	To be applied for and obtained if necessary
Minnesota Department of Natural Resources	Public Water Crossing License	To be applied for and obtained if necessary
Le Sueur County	Conditional Use Permit	Applied for on May 4, 2015
Tyrone Township	Substation Driveway Access to 320th Street.	To be obtained, in process

9. Affected Environment and Environmental Effects

A. Land Use

Affected Environment

A review of aerial photography (years 1991, 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011 and 2012) indicated land use surrounding the Project includes primarily agricultural land (Exhibit 4). Historical aerial photography indicates that the site has supported agricultural uses since at least 1991. Scattered farmsteads and homesteads exist in all directions around the Project area. Residences nearest to the proposed substation are 420 feet south, 850 feet west-northwest, 1,475 feet south-southwest and 1,600 feet northwest of the proposed substation property. County Road 33/265th Street is located near the east end of the proposed 69 kV transmission line. Land use in the proposed Project area. currently consists of road right-of-way, and open fields used for row crop production, primarily corn and soybean production (Exhibit 4).

Environmental Effects

No conflicts with the neighboring properties are expected. The next nearest residence will be over 400 feet south of the new substation.

B. Cover Types

Affected Environment and Environmental Effects

The cover type acreage of the Project substation area before and after Project construction is estimated in Table 2. Construction of the Project will convert approximately 7.85 acres of CRP land and woods to approximately 1.06 acres of substation development (substation facilities and stormwater management area) and 1.53 acres of grassland, with the remaining 5.26 acres anticipated to be stay as CRP land, woods or natural type ground covers.

Table 2. Estimated Before and After Cover Types – Substation Area

Land Cover	Before (acres)	After (acres)
CRP Land /Woods	7.85	5.26
Wetland	0.0	0.00
Stormwater Management Area	0.0	0.07
Substation, Driveway, Parking	0.0	0.99
Grassland	0.0	1.53
Total	7.85	7.85

Additional acreage of 15 acres will be utilized for transmission line easements with conversion restricted to pole locations; these conversions will be negligible. No wetland impacts are anticipated.

C. Fish, Wildlife and Ecologically Sensitive Resources

Affected Environment

Fish and wildlife resources on and near the site are directly related to the composition, quality, size, and connectivity of natural communities. A field review was conducted on March 12, 2015 to assess the cover types, quality and quantity of wildlife habitats. The substation property was enrolled and planted in CRP last year. MVEC would intend to maintain the undisturbed portions of the property to CRP standards even though not eligible for subsidy. The transmission easement areas are not considered to include habitat that is highly suitable for wildlife because nearly the entire Project area consists of annually tilled agricultural cropland (Exhibit 4).

The majority of the transmission line locations are currently in agricultural farm fields used for corn and soybean production. Wildlife resources that exist throughout the Project area are sparse and include species that have adapted to cropped fields. The area may provide temporary cover during the growing season for species such as field mice, white-tailed deer, ring-necked pheasants and amphibians. In the fall the Project area may provide foraging opportunities for other species including common crow, Canada goose and mallard in the

harvested fields. Due to the agricultural practices carried out in the area, including fall harvest and plowing, the area offers very limited year-round habitat for most species. Wildlife was not observed in the Project area during the field review on March 12, 2015.

The closest wetland is approximately 620 feet south of 320th Avenue and will not be in the Project's 69 kV transmission line right-of-way (Exhibit 5).

A couple wetlands exist outside the Project area, but none of these wetlands have shoreland overlay districts for regulation of land use within 1,000 feet of the wetlands. Wetland jurisdictions and shoreland overlay districts are discussed in Items 9.D and 9.F, respectively.

The closest Minnesota Department of Natural Resources (DNR) Wildlife Management Area (WMA) located to the proposed Project is the St. Thomas Lake WMA, which is approximately 1.5 miles from the switch on the Xcel Energy transmission line (Exhibit 6). These areas provide habitat for deer, small game, pheasants, waterfowl, wild turkeys, and forest birds.

The Minnesota DNR Natural Heritage Information System (NHIS) was reviewed to determine if rare plant or animal species or other significant natural features are known to occur in the vicinity of the Project. The NHIS was last updated in January 2015. The NHIS query did identify rare species or natural communities within one mile of the Project (Exhibit 6). The nearest natural community is a Maple-Basswood (Big Woods) Forest that is located approximately 170 feet southwest of the proposed substation and transmission line. The nearest documented rare species was a state-threatened Western Fox Snake (*pantheropis ramspotti*) that was observed over a half mile northwest of the Project in May, 1998.

Environmental Effects

Project development is expected to convert approximately 2.59 acres of 7.85 acres of CRP land to a substation, driveway and parking area (0.99 acre), stormwater management area (0.07 acre), and grassland area (1.53 acres), with the remaining 5.26 acres staying as CRP land. Approximately 15 additional acres will be utilized for transmission line easements with conversion restricted to pole locations; these conversions will be negligible. Some very limited local wildlife displacement or decline in wildlife abundance could result from the Project. However, because the species most affected would be those associated within annually tilled agricultural row crops (which are abundant in the Project vicinity,) this effect is anticipated to be minimal at most. Migratory birds that utilize the site are expected to respond to the development by locating alternative nesting sites upon their return from wintering habitats. Non-migratory species with small home ranges, such as small mammals, are expected to experience the most adverse effects.

The Project is within 175 feet of endangered, threatened, or rare species or natural communities; however, the proposed line will follow along existing rights-of-way and will cause only very minimal impacts to the nearest documented occurrence of such sensitive ecological features.

Avian species occasionally collide with transmission lines and the nearby wildlife areas and large wetlands provide habitat for waterfowl that may fly through the Project area. Great River Energy has worked with various state and federal agencies on past projects to address avian issues as quickly and efficiently as possible. Great River Energy addresses avian issues related to transmission projects by:

1. working with agencies such as the DNR and United States Fish and Wildlife Service (USFWS) to identify areas that may be appropriate for marking transmission line shield wires with bird diverters; and
2. attempting to avoid known primary migration corridors or migratory resting areas.

No known migration corridors or migratory resting areas exist within the Project area; however, the DNR will be consulted to identify any areas where bird diverters may be warranted. These areas for evaluation will include the location of the new 69 kV transmission line across Forest Prairie Creek. In such areas are identified, Swan Flight Diverters (SFDs) will be installed. In most cases, the shield wire of an overhead transmission line is the most difficult part of the structure for birds to see. Great River Energy has successfully reduced collisions on certain transmission lines by marking the shield wires with SFDs, which are pre-formed spiral shaped devices made of polyvinyl chloride that are wrapped around the shield wire.

It is anticipated that most wildlife displacement and habitat impacts associated with the transmission line will be temporary. Construction of the substation will result in minor long-term effects on wildlife. Proposed activities that are expected to help mitigate effects on wildlife include preservation of approximately 5.26 acres of CRP land/woods, creation of approximately 0.07 acre of stormwater infiltration and creation of roughly 1.53 acres of grassland. The stormwater management area and grass fringe around the substation are expected to slightly increase local habitat diversity for wetland and grassland wildlife.

D. Physical Impacts on Water Resources

Affected Environment

National Wetlands Inventory (NWI) mapping shows no NWI wetlands within the Project area (Exhibit 5). Soil mapping shows hydric soil units exist within the Project area, but the majority of these soil units are drained and used for agricultural production (see Exhibit 8 and Item 9.J).

The nearest NWI wetlands are located approximately 1,600 feet northeast of the proposed substation fence and approximately 380 feet east of the proposed transmission line. The DNR Public Waters Inventory (PWI) identifies Forest Prairie Creek (DNR public water) located approximately 5,700 feet south east of the proposed substation property and crossed by the transmission line (Exhibit 8).

Environmental Effects

The proposed Project is expected to have little to no effect on wetlands and water resources. It is anticipated that wetlands regulated under the Minnesota Wetland Conservation Act will be avoided by Project design and transmission pole placement. Great River Energy will coordinate with wetland agencies to the extent necessary if wetlands cannot be entirely avoided.

The Project is not expected to have substantial effects on surface water or groundwater because wetlands will be physically avoided and Forest Prairie Creek will be spanned. Surface water runoff from lands disturbed by the substation will be treated in a stormwater management area prior to discharge offsite as described below and shown on the Grading Plan for the substation (Exhibit 3). Additionally, during construction, implementation of BMPs consistent with NPDES requirements during construction will mitigate and minimize potential adverse effects from construction-related sediment and erosion on water quality to the extent practicable.

For additional information, see the Project stormwater management report (Appendix A).

E. Water Use

Affected Environment and Environmental Effects

Based on the Minnesota County Well Index, three water wells are known to exist along or near the Project route. However, the transmission line is proposed to stay on the opposite of the road or some distance from the wells. No water use or well construction is proposed in conjunction with Project construction or operation. The nearest wells shown on the Minnesota County Well index (http://mdh-agua.health.state.mn.us/cwi/cwiViewer.htm) are located at the homesteads in NE1/4 NW1/4 (Well #191526) and NW ¼ NE ¼ (Well #413824) in Section 27, and NW ¼ NE ¼ (Well #413837) in Section 26, Range 112N, Township 25.

Water appropriation and construction dewatering are not proposed or expected to be necessary in association with Project construction and operation. If dewatering and pumping becomes necessary and exceeds permitting thresholds, the Project Applicant or construction contractor will apply for coverage under a Minnesota DNR water appropriation permit.

This Project will use wood poles treated with pentachlorophenol. The Project Applicant researched this chemical and its application to determine its environmental and health risks. It is believed the best source of information is the United States Environmental Protection Agency's (EPA) risk assessment, which concludes that ground water contamination is not likely. The EPA states:

"Degradation of pentachlorophenol will reduce the likelihood of ground water contamination and indications were that pentachlorophenol did not move significantly to lower depths in contaminated soils from utility poles. In addition, the amount leaching out of utility poles/square area/time is very small to pose risks to ground water."

F. Water-Related Land Use Management Districts

Affected Environment and Environmental Effects

The 69 kV transmission line will cross Forest Prairie Creek, which is in conservancy, special protections and flood fringe overlay districts (Exhibit 9). The proposed substation property is located over 100 feet of Forest Prairie Creek (Exhibits 3, 8, and 9). The Project will comply with the requirements of the Le Sueur County Ordinances in these districts.

The Project area is located within the Federal Emergency Management Agency (FEMA) Flood Mapping Panels 27079C0130D and 27079C0135D, published July 21, 1999. The majority of the Project area is mapped as Zone X, which is defined as outside the 500-year flood zone. The exception in the Project area is Forest Prairie Creek, which is in Zone A, defined as a special flood hazard area inundated by the 100-year flood zone. Forest Prairie Creek is the nearest flood zone associated with the substation, which is located over 5,000 feet east of the proposed substation. The proposed transmission line (Exhibit 9) will cross Forest Prairie Creek. The Project will follow the state flood management standards set by the DNR and Minnesota Department of Transportation (MnDOT), which is also cited in the Le Sueur County Ordinances. The proposed Tyrone Substation is not expected to impact Zone A (see Exhibit 1).

The Project area does not include a designated wild and scenic river district. Thus, adverse effects on wild and scenic rivers are not anticipated.

G. Water Surface Use

Affected Environment and Environmental Effects

Public access points located within approximately three miles of the proposed Project are the City of Le Sueur landing and Henderson Station on the Minnesota River. The Project will not increase the number or type of watercraft on nearby lakes or waterbodies and the proposed Project does not include an access to a lake or waterbody. No environmental effects to water surface use are expected as a result of this Project.

H. Erosion and Sedimentation

Affected Environment

According to the United States Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS) Highly Erodible Soils map unit list for Le Sueur County (January 1990), there are two highly erodible soil units in the area of the proposed Project: Lester Loam (6 to 12 percent slopes) and Lester-Storden Loams (18 to 40 percent slopes). Review of topographic mapping indicates the proposed Project area is quite flat except for Forest Prairie Creek (12% or greater). Elevations in the Project area range from 951 to 990 feet above mean sea level.

Because construction within the Project area will disturb at least one acre of land, the Applicants will submit an application and obtain coverage under Minnesota's National Pollutant Discharge Elimination System (NPDES) / State Disposal System (SDS) General Stormwater Permit for Construction Activity (MNR100001). This permit is administered by the Minnesota Pollution Control Agency (MPCA) and permit coverage is needed prior to initiating earthwork on this Project. Requirements of this permit include but are not limited to: (1) management of stormwater and non-stormwater discharges during construction, (2) use of BMPs to minimize erosion, (3) inspection of erosion controls at least once every week during active construction and within 24 hours after a rainfall event greater than 0.5 inch in a 24-hour period, and (4) restoration of disturbed areas to preconstruction conditions following completion of construction activity.

Environmental Effects

Potential erosion and sedimentation impacts will be limited primarily to short-term effects during construction. Project construction will involve earthwork and grading for the substation (Exhibit 3), which involves approximately 2.59 acres (permanent facilities and temporary construction workspace). Slopes created by grading during Project construction will not be steeper than 3:1. Great River Energy and MVEC will apply for coverage under the NPDES/SDS General Construction Permit for construction activities prior to construction. With the implementation of BMPs consistent with NPDES requirements, potential adverse effects from construction-related sediment and erosion on water quality will be minimized to the extent practical. During operation of the Project, the temporary sediment controls indicated in the construction documents will control runoff and sedimentation from the substation site.

I. Water Quality: Surface Water Runoff and Wastewaters

Affected Environment

Most of the Project area currently drains towards Forest Prairie Creek. The Project area falls within the Lower Minnesota River watershed (Exhibit 8). Forest Prairie Creek drains west to Le Sueur Creek, which drains northwest to the Minnesota River (Exhibit1).

The Project is proposed in a rural area and municipal wastewater treatment is not available in the immediate Project vicinity. Farmsteads and residences in the general vicinity rely on individual sewage treatment systems for wastewater treatment.

Environmental Effects

Construction and operation of the Project is expected to have little to no effect on the quality and quantity of runoff that drains to nearby waters. Runoff from the substation area will be sloped toward the south into the stormwater management area and will be treated onsite (see Exhibits 2 and 3). The infiltration basin/stormwater management area will cover approximately 0.07 acres and its design and function is described in detail under Item 9.D. The stormwater management area will discharge through a controlled outlet that will drain to the ravine south of the new substation. Construction of the substation is not expected to penetrate the water table. Proposed stormwater management practices are discussed in Items 9.D and 9.H above.

A small amount of sanitary wastewater will be generated by construction crews during Project construction. Wastewater generated onsite during construction will be handled with the use of a portable toilet that will be serviced by a contractor. Wastewater will be disposed of offsite by the service provider. The proposed Project will not involve onsite industrial wastewater or sanitary sewage treatment, nor will it involve connection to a public wastewater treatment facility.

J. Geologic Hazards and Soil Conditions

Affected Environment

The Project area includes no known geologic hazards in the form of sinkholes, faults, shallow limestone formations, or karst topography. Topographic mapping indicates elevations on the Project site range from 951 to 990 feet above mean sea level (Exhibit 10). Water levels in wetlands in the immediate vicinity of the Project are around 952 to 958 feet (see Exhibits 3 and 11). Depth to groundwater averages approximately 15 feet.

Based on the Geological Survey on the University of Minnesota website, the estimated depth to bedrock in the Project area is 200 to 450 feet. The Soil Survey of Le Sueur County, Minnesota (USDA, SSURGO, downloaded 2015) indicates the following soils occur within the Project area:

Table 3. Soil Classifications

Soil No.	Soil Name	Hydric Status[1]	Prime Farmland Status[2]
35	Blue Earth mucky silt loam	All hydric	Prime farmland if drained
86	Canisteo clay loam	All hydric	Prime farmland if drained
106B	Lester loam, 2 to 6 percent slope	Not Listed	Farmland of statewide importance
106C2	Lester loam, 6 to 10 percent slope	Not Listed	Farmland of statewide importance
109	Cordova clay loam	All hydric	Prime farmland if drained
414	Hamel clay loam	All hydric	Not listed
463	Minneiska fine sandy loam, occasionally flooded	All hydric	Prime farmland
525	Muskego muck	All hydric	Farmland of statewide importance
539	Klossner muck	All hydric	Prime farmland if drained
945F	Lester-Storden loams, 18 to 40 percent slopes	Not Listed	Farmland of statewide importance
1901B	Le Sueur-Lester complex, 1 to 6 percent slopes	Not Listed	Not Listed

[1] Based on the NRCS List of Hydric Soils of Minnesota (2014).

[2] Based on the Soil Survey of Le Sueur County, Minnesota (USDA, SURRGO, downloaded 2015).

The Project area falls entirely within the Lester-Le Sueur-Cordova Association general soil unit. According to the USDA/NRCS, the Clarion-Lester soil association occupies nearly level to hilly areas. The steepest slopes are at the Forest Prairie Creek crossing. The soils vary from poorly to well drained. These dark colored soils formed in calcareous, gray colored loam glacial till. Lester and Le Sueur soils account for approximately 70 percent of the Lester-Le Sueur-Cordova soil association. The Le Sueur County Soil Survey indicates that these soils are moderately suitable for development, although they have some limitations due to their shrink-swell potential.

Environmental Effects

Measures to avoid or minimize environmental problems due to sinkholes, faults, shallow limestone formations, and karst topography are not proposed because none of these hazards are known to exist in the Project area.

The potential for groundwater contamination as a result of the proposed Project is estimated to be low because various precautions will be taken during construction and operations as described in Item 9.K below. The geology of the Project area indicates the potential for groundwater contamination is low due to tight, clayey soils. Sensitivity of groundwater systems to pollution is related to the approximate time it takes water to infiltrate the land surface and percolate to groundwater. Although tight soils tend to slow infiltration and percolation time, the relatively low potential for spilling possible groundwater contaminants provides an additional impact minimization measure.

K. Solid Wastes, Hazardous Wastes and Storage Tanks

Affected Environment

No obvious indicators of environmental contamination were observed during a field review on March 12, 2015. An assessment was completed for the substation site. This assessment did not identify any issues associated with the subject property. The Project location is not known to include solid waste, underground or aboveground storage tanks, wells, or onsite sewage treatment systems.

Environmental Effects

Solid waste generation during construction will be typical of substation construction. Solid waste will be handled by the use of a commercial dumpster and disposal will be handled by the waste service company, which will dispose of the waste at an approved landfill. Solid waste is not expected to be generated on a regular basis during Project operation. Solid waste that may be generated during maintenance will be removed by the maintenance personnel and properly disposed of offsite.

Conflicts involving environmental conditions or contamination are not anticipated for the Project. The Project will not involve installation of aboveground or underground storage tanks. If potential sources of environmental contamination are discovered prior to or during Project construction, Great River Energy will work with the landowner and consult state agencies if necessary to minimize the potential for a release of regulated substances.

L. Electric and Magnetic Fields

As it pertains to the Project, the term Electromagnetic fields or "EMF" refers to the extremely low frequency (ELF) decoupled electric and magnetic fields that are present around any electrical device or conductor and can occur indoors or outdoors. Electric fields are the result of electric charge, or voltage, on a conductor. The intensity of an electric field is related to the magnitude of the voltage on the conductor. Magnetic fields are the result of the flow of electricity, or current, traveling through a conductor. The intensity of a magnetic field is related to magnitude of the current flow through the conductor. Electric and magnetic fields can be found in association with transmission lines, local distribution lines, substation transformers, household electrical wiring, and common household appliances.

Electric Fields

Voltage on a wire produces an electric field in the area surrounding the wire. The voltage on the conductors of a transmission line generates an electric field extending from the energized conductors. The intensity of transmission line electric fields is measured in kilovolts per meter (kV/m), and the magnitude of the electric field rapidly decreases with distance from the transmission line conductors. The presence of trees, buildings, or other solid structures in the path of the field can also significantly reduce the magnitude of the electric field. Because

the magnitude of the voltage on a transmission line is near-constant (ideally within ±5 percent of nominal), the magnitude of the electric field will be near-constant for each of the proposed configurations, regardless of the power flowing on the line.

Although there is no state or federal standard for transmission line electric field exposures, the Minnesota Environmental Quality Board (EQB) developed a standard of a maximum electric field limit of 8 kV/m at one meter above ground. This standard has been adopted by the PUC. Applicants have calculated the approximate electric field for the Project's transmission configurations and estimate the peak magnitude of electric field density among all possible configurations to be well below the EQB standard at approximately 0.71 kV/m underneath the conductors, one meter (3.28 feet) above ground. **Table 4** summarizes the electric fields calculated at maximum operating voltage for the proposed single circuit transmission line on the Project. Maximum operating voltage is defined as 105 percent of the nominal voltage.

Table 4. Calculated Electric Fields (kV/m) for the Proposed Transmission Line (One meter (3.28 feet) above ground)

Scenario	Max. Operating Voltage (kV)	Distance from Proposed Centerline (feet)											
		-300	-200	-100	-75	-50	-25	Max.	25	50	75	100	200	300
Single Pole 69 kV Single Circuit	72.5	0.00	0.01	0.02	0.04	0.10	0.26	0.71	0.29	0.10	0.05	0.03	0.01	0.00

Induced Voltage

When an electric field reaches a nearby conductive object, such as a vehicle or a metal fence, it can induce a voltage on the object. The magnitude of this voltage is dependent on many factors, including the object's capacitance, shape, size, orientation and location, resistance with respect to ground, and weather conditions. If the object is insulated or semi-insulated from the ground and a person touches it, a small current could pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock, similar to what can occur when a person walks across a carpet and touches an object or person.

The main concern with induced voltage is not the magnitude of the voltage induced, but the current that would flow through a person to the ground should the person touch the object. To ensure the safety of persons in the proximity of high voltage transmission lines, the NESC requires that any discharge be less than five (5) milliAmperes root mean square (mA rms). Applicants would ensure that any fixed conductive object in close proximity or parallel to the Project, such as a fence or other permanent conductive fixture, would be grounded so any discharge would be less than the 5 mA rms NESC limit.

Implantable Medical Devices

High intensity EMF can have adverse impacts on the operation of implantable medical devices (IMDs) such as pacemakers and defibrillators. While research has shown that the magnetic fields associated with high voltage transmission lines do not reach levels at which they could cause interference with such devices, it is possible that the electric fields associated with some high voltage transmission lines could reach levels high enough to induce sufficient body currents to cause interference. However, modern "bipolar" cardiac devices are much less susceptible to interactions with electric fields. Medtronic and Guidant, manufacturers of pacemakers and other IMDs have indicated that electric fields below 6 kV/m are unlikely to cause interactions affecting operation of most of their devices.

The older "unipolar" designs of cardiac devices are more susceptible to interference from electric fields. Research from the early 1990s indicates that the earliest evidence of interference with these types of IMDs could occur in electric fields ranging from 1.2 to 1.7 kV/m. **Table 4** shows that the electric fields are well below levels at which modern bipolar devices are susceptible to interaction with the fields. For older style unipolar designs, the electric fields do exceed levels that research from the 1990s has indicated may produce interference. However, recent research conducted in 2005 concluded that the risk of interference to unipolar cardiac devices from high voltage power lines in everyday life is small. In 2007, Minnesota Power and Xcel Energy conducted studies with Medtronic, Inc. under 115 kV, 230 kV, 345 kV, and 500 kV transmission lines to confirm these 2005 findings. The analysis was based on real life public exposure levels under actual transmission lines in Minnesota and found no adverse interaction with pacemakers or IMDs. The analysis concluded that although interference may be possible in unique situations, device interference as a result of typical public exposure would be rare.[1]

In the unlikely event that a pacemaker is impacted, the effect is typically a temporary asynchronous pacing (commonly referred to as reversion mode or fixed rate pacing). The pacemaker would return to its normal operation when a person moves away from the source of interference.

Magnetic Fields

Magnetic field levels associated with some common electric appliances are provided in **Table 5.**

[1] 2007 Minnesota Power Systems Conference Proceedings (University of Minnesota), *Electromagnetic Compatibility of Active Implantable Medical Devices (AIMD) and Their Interaction with High Voltage Power Lines*, at 23.

Table 5. Magnetic Fields of Common Electric Appliances (mG) [2]

Appliance	Distance from Source		
	6 inches	1 foot	2 feet
Hair Dryer	300	1	--
Electric Shaver	100	20	--
Can Opener	600	150	20
Electric Stove	30	8	2
Television	NA	7	2
Portable Heater	100	20	4
Vacuum Cleaner	300	60	10
Copy Machine	90	20	7
Computer	14	5	2

Current passing through any conductor, including a wire, produces a magnetic field in the area around the wire. The current flowing through the conductors of a transmission line generates a magnetic field that, in similar fashion to the electric field, extends outward from the energized conductors. The intensity of the magnetic field associated with a transmission line is proportional to the amount of current flowing through the line's conductors, and the magnitude of the magnetic field rapidly decreases with the distance from the conductors. Unlike electric fields, magnetic fields are not significantly affected by the presence of trees, buildings, or other solid structures nearby. The value of the magnetic field density is expressed in the unit of gauss (G) or milligauss (mG).

There are no federal or Minnesota exposure standards for magnetic fields. The EQB and the PUC have recognized Florida (a 150-mG limit) and New York (a 200-mG limit) state standards. Both state standards are to be considered at the edge of the transmission right-of-way. Recent studies of the health effects from power frequency fields conclude that the evidence of health risk is weak.[3] The general standard is one of prudent avoidance.

Table 6 summarizes the magnetic fields calculated for the Project's proposed transmission line with power flow at peak loading and at the average loading. The maximum magnetic field under expected peak demand conditions is 15.78 mG, which is below most of the levels shown in **Table 6**.

Because the actual power flow on a transmission line could potentially vary widely throughout the day depending on electric demand, the actual magnetic field level could also vary widely from hour to hour. In any case, the typical magnitude of the magnetic field

[2] *EMF In Your Environment* (EPA 1992)

[3] Minnesota Department of Health. *EMF White Paper on Electric and Magnetic Field* (EMF) Policy and Mitigation Options. 2002; National Research Council. *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields.* 1997; www.niehs.nih.gov/health/topics/agents/emf/.

associated with the Project's transmission line is expected to be well below the calculated intensity at the expected peak loading.

Table 6. Calculated Magnetic Flux Density (mG) for Proposed Transmission Line (One meter (3.28 feet) above ground)

Scenario	System Condition	Current (Amps)	Distance from Proposed Centerline (feet)											
			-300	-200	-100	-75	-50	-25	Max.	25	50	75	100	200	300
Single Pole 69kV Single Circuit	Peak	125	0.10	0.22	0.84	1.43	2.85	7.15	15.78	8.08	3.12	1.54	0.89	0.23	0.10
	Average	75	0.06	0.13	0.51	0.86	1.71	4.29	9.47	4.85	1.87	0.92	0.54	0.14	0.06

Public Health and Safety

Considerable research has been conducted since the 1970s to determine whether exposure to power-frequency, commonly referred to as "extremely-low frequency" or "ELF" (60 hertz), electric fields (EF) and magnetic fields (MF) can cause biological responses and adverse health effects. The multitude of epidemiological and toxicological studies has shown, at most, a weak association (*i.e.*, no statistically significant association) between ELF-MF exposure and health risks and no association between ELF-EF exposure and health risks.

In 1999, the National Institute of Environmental Health Sciences (NIEHS) issued its final report on "Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields" in response to the Energy Policy Act of 1992. In the report, the NIEHS concluded that the scientific evidence linking EMF exposures with health risks is weak and that this finding does not warrant aggressive regulatory concern. However, in light of the weak scientific evidence supporting some association between EMF and health effects and the fact that exposure to electricity is common in the United States, the NIEHS stated that passive regulatory action, such as providing public education on reducing exposures, is warranted.[4]

The EPA seems to have come to a similar conclusion about the link between adverse health effects, specifically childhood leukemia, and power-frequency EMF exposure. On its website, the EPA states:

> Many people are concerned about potential adverse health effects. Much of the research about power lines and potential health effects is inconclusive. Despite more than two decades of research to determine whether elevated EMF exposure, principally to magnetic fields, is related to an increased risk of childhood leukemia, there is still no definitive answer. The general scientific consensus is that, thus far, the evidence available is weak and is not sufficient to establish a definitive cause-effect relationship.[5]

[4] Report is available at http://www.niehs.nih.gov/health/topics/agents/emf/

[5] http://www.epa.gov/radtown/power-lines.html

Minnesota, California, and Wisconsin have each conducted their own literature reviews or research to examine this issue. In 2002, Minnesota formed an Interagency Working Group to evaluate the research and develop policy recommendations to protect the public health from any potential problems arising from EMF effects associated with HVTLs. The Minnesota Department of Health published the Working Group's findings in *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*. The Working Group summarized its findings as follows:

> Research on the health effects of EMF has been carried out since the 1970s. Epidemiological studies have mixed results – some have shown no statistically significant association between exposure to EMF and health effects, some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields may cause cancer. A number of scientific panels convened by national and international health agencies and the United States Congress have reviewed the research carried out to date. Most researchers concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe.[6]

In 2007, the World Health Organization (WHO) conducted an intensive review of the health implications of ELF-MFs. WHO concluded that "virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status."[7] Based on its review, WHO did not recommend exposure limits but provided that "[t]he best source of guidance for both exposure levels and the principles of scientific review are international guidelines."[8] The guidelines referred to by WHO are those of the International Commission on Non-Ionizing Radiation Protection (ICNIRP)[9] and the Institute of Electrical and Electronic Engineers (IEEE) exposure limit guidelines.[10] At the time WHO completed its review, the ICNIRP continuous general public exposure guideline was 833 mG and the IEEE continuous general public exposure guideline was 9,040 mG. In 2010, ICNIRP revised its continuous general public exposure guideline to 2,000 mG. The WHO has not provided any analysis of the 2010 ICNIRP continuous general public exposure guideline to date.

Based on findings like those of the Working Group and NIEHS, the PUC has consistently found that "there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects."[11] This conclusion was further justified in

[6] Minnesota Department of Health. 2002. *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*

[7] World Health Organization. 2007. *Environmental Health Criteria Volume No. 238 on Extremely Low Frequency Fields* at 12.

[8] *Id.* at 12-13.

[9] ICNIRP is a non-governmental organization in formal relations with WHO.

[10] *Id.*

[11] See, for example, *In the Matter of the Application for a HVTL Route Permit for the Tower Transmission Line Project*, Docket No. ET-2, E015/TL-06-1624, Findings of Fact, Conclusions of Law and Order Issuing a Route

the Route Permit proceedings for the Brookings County – Hampton 345 kV Project ("Brookings Project"). In the Brookings Project Route Permit proceedings, the Applicants (Great River Energy and Xcel Energy) and one of the intervening parties both provided expert evidence on the potential impacts of ELF-EF and ELF-MF, including the WHO findings. The Administrative Law Judge (ALJ) in that proceeding evaluated written submissions and a day-and-a-half of testimony from the two expert witnesses. The ALJ concluded: "there is no demonstrated impact on human health and safety that is not adequately addressed by the existing State standards for [EF and MF] exposure."[12] The PUC adopted this finding on July 15, 2010.[13]

Impacts and Mitigation

No impacts to public health and safety are anticipated as a result of the Project. The Project will be designed in compliance with local, state, NESC, and Great River Energy standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and right-of-way widths. The proposed transmission line will be equipped with protective devices to safeguard the public from the transmission line if an accident occurs, such as a structure or conductor falling to the ground.

Great River Energy will ensure that safety requirements are met during the construction and operation of the facilities. Additionally, when crossing roads or railroads during stringing operations, guard structures will be utilized to eliminate traffic delays and provide safeguards for the public. With implementation of these safeguards and protective measures, no additional mitigation is proposed.

M. Vehicular Traffic

Affected Environment

The Project is located along 320th Street and County State Aid Highway (CSAH) 33/265th Avenue. 320th Street is a gravel road where average daily traffic volumes are only available between Tyrone Road and CSAH 33. That segment's average daily traffic (ADT) volume is 45; therefore, it would be assumed that traffic would be similar to the entire street and would be fewer than 50 vehicles per day. The nearest bituminous roadway is Le Sueur CSAH 33, which had an average daily traffic volume of 660 vehicles in 2009 and is located at the eastern end of the proposed 69 kV transmission line.

Permit to Minnesota Power and Great River Energy for the Tower Transmission Line Project and Associated Facilities (August 1, 2007)

[12] *In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET-2/TL-08-1474, ALJ Findings of Fact, Conclusions and Recommendation at Finding 216 (April 22, 2010 and amended April 30, 2010)

[13] *In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET-2/TL-08-1474, Order Granting Route Permit (September 14, 2010)

Environmental Effects

The substation location will include a parking area for construction equipment and construction contractor employees. The average traffic generation associated with the Project after construction and during operations will be approximately 1 trip per week, depending on the maintenance schedule for the substation.

Considering the low volume of traffic to be generated, the Project is not expected to have adverse effects on the local or regional transportation system. Construction traffic will temporarily increase traffic volumes on local roadways during Project construction. Typical construction equipment used on transmission/substation projects includes trucks, trailers, flatbed tractor-trailers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, bulldozers, mowers, and tree removal equipment. The majority of this equipment will all require one trip onto the site and one trip for removal of the equipment. It is expected that non-highway construction vehicles will be left onsite until their use is complete. Transmission poles, transformers and other transmission line and substation supplies will be transported to the site on tractor-trailers. Gravel and other aggregate materials used in the site preparation will also be transported to the site using dump trucks.

The majority of the temporary construction traffic will be split between CSAH 33 to 320th Street and St. Thomas Road to 320th Street to access the site. This traffic will pass approximately 4 to 10 homes and/or 1 to 5 businesses along the access route between U.S. Highway 169 and the Project location. Approximately 4 to 20 homes will passed between CSAH 33 and Project locations. The temporary increase in construction traffic is not expected to impede traffic in the area Most of the construction traffic will be spaced out as supplies and materials arrive as needed, or are delivered to the site for staging. If dust from construction traffic becomes an issue, it may be controlled as discussed in Item 9.0 below.

During Project operation, the traffic exiting the Project site is expected to head west/northwest on 320th Street and then west on Tyrone Road toward Le Sueur; or head east on 320th Street and then south on CSAH 33 toward Le Center. The trip distribution for the site estimates that 50 percent of the traffic will be distributed north on CSAH 11 toward Le Sueur and 50 percent will be distributed south on CSAH 11 toward Le Center. The results of the trip distribution assignment after construction are included in Table 7.

Table 7. Traffic Effects on Local Roadways After Construction

Roadway	Segment	Existing ADT [1]	Daily Trip Generation after Construction [2]	ADT with Project Increase
Le Sueur CSAH 33	Between St. Thomas Road and 330th Street	660	1 (per week)	661
320th Street	Between St. Thomas Road and Le Sueur CSAH 33	< 50	1 (per week)	< 50

[1] Existing ADTs were provided by the Minnesota Department of Transportation and represent traffic for the year 2009 on State Highways and County Roadways.

[2] Daily Trip Generation is for site after construction, which is estimated to be one trip per week. The remainder of the time, traffic generation will be 0.

N. Air Quality

Affected Environment

The Project is proposed in a rural area where air quality concerns generally are not an issue.

Environmental Effects

The small increase in construction and operation traffic will generate a negligible corresponding increase in carbon monoxide levels and other vehicle-related air emissions. Vehicles used to access the site will meet state standards for air emissions. As a result, the Project is expected to have a negligible impact on air quality.

Stationary source air emissions are not expected during Project operation after construction. The Project will not result in generation of appreciable hazardous air pollutants, greenhouse gases, or hazardous ozone-depleting chemicals.

O. Dust, Odors and Noise

Affected Environment

The Project is proposed in a rural area where dust, noise and odors generally are not an issue.

Environmental Effects

Fugitive dust emissions produced by Project construction and operation will comply with MPCA/EPA opacity standards. Dust and odor problems are not expected during Project operation. If dust becomes an issue during construction, Great River Energy may implement measures to mitigate and minimize impacts to nearby sensitive receptors, including the home located approximately 400 feet south of the substation property. These measures may include application of dust suppressants such as water or calcium chloride to 320th Street.

Transmission line noise levels during Project operation are not expected to be noticeably greater than existing levels. Transmission conductors produce noise under certain conditions. The level of noise depends on conductor conditions, voltage level and weather conditions. Generally, activity-related noise levels during the operation and maintenance of substations and transmission lines are minimal.

Noise can be emitted from transmission lines during certain weather conditions. In foggy, damp, or rainy weather, power lines can create a crackling sound when a small amount of electricity ionizes the moist air near the wires. During heavy rain, the background noise level of the rain is usually greater than the noise from the transmission line. As a result, people do not normally hear noise from transmission lines during heavy rain. Even during light rain, dense fog, snow and other times of moist air, noise levels produced by transmission lines are generally less than outdoor background levels and are therefore not usually audible. Noise levels from the new 69 kV electric transmission line will be comparable to the existing 69 kV transmission line in the vicinity.

Transformers can create a humming noise and are typically the primary source of noise at substations. The substation will be designed and constructed to comply with state noise standards established by the MPCA.

P. Cultural and Historic Resources

Affected Environment and Environmental Effects

A cultural review of the Project was conducted by HDR, Inc. and forwarded to the State Historic Preservation Office (SHPO). The review and correspondence to SHPO is included in Appendix B. HDR, Inc. recommends a Phase I archaeological reconnaissance survey of the project right-of-way. As indicated in Item 9.J, the topographic elevation at the Project location is relatively level until it reaches Forest Prairie Creek and drops approximately 20 feet (see Exhibit 10). The proposed Project is considered to have a moderate probability of containing intact archaeological sites, historic archaeological sites, and/or architectural properties. Specific information will be provided to SHPO once design details are available, and guidance will be sought to determine the extent of survey needed.

Q. Farmland Resources

Affected Environment and Environmental Effects

As indicated in Item 9.J above, the Project area includes 10 soil types. Of these types, three are classified as prime farmland if drained, and one is classified as farmland of statewide importance. The Project is not expected to convert any prime farmland at the substation site. The majority of the soils in the transmission corridor will remain in agricultural production. Farmland preservation and mitigation measures are not proposed.

R. Public Parks, Recreation and Wildlife Lands

Affected Environment and Environmental Effects

The Project area does not include DNR WMAs, designated parks, recreation areas or trails. The proposed Project is not expected to affect these lands and no mitigation measures are proposed.

S. Visual Resources

Affected Environment and Environmental Effects

The Project area crosses Forest Prairie Creek; however, the Project is not expected to cause substantial adverse visual effects. The transmission line will stay within road right-of-way. The planned height of the majority of the 69 kV transmission poles is 85-90 feet. Most substation equipment, including transformers and bus work, will have a maximum height of 40 feet. Trees associated with nearby homes are expected to help screen views of the transmission line and substation from the residences.

Lights will be installed on poles within the substation and on the Electrical Equipment Enclosure (EEE). During construction of the Project, exterior lighting will be limited to time periods when 24-hour construction activities are required. These activities are anticipated to take place within a 2-4 day period. Additionally, during times of low daylight, it is likely that exterior lighting will be utilized for daily construction preparatory activities, beginning at roughly 6:30am and lasting until sufficient natural light is available. Exterior lighting will normally be off during operation of the substation and transmission line facilities (it is possible lighting will be used for activities such as emergency maintenance at the substation). Exterior lighting will be oriented downward from elevated positions on poles. Such lighting is not expected to result in glare or distraction. Therefore, the lights are not expected to cause issues for neighboring residents or passing motorists.

T. Public Plans and Land Use Regulations

Affected Environment and Environmental Effects

The Project area is subject to the Le Sueur County Comprehensive Plan and Zoning Ordinance. The Project area is generally zoned as an Agricultural District, but part of the Project area falls within conservancy, special protections and flood fringe overlay districts (DNR public water Forest Prairie Creek), as discussed in Item 9.F. The Project is consistent with the Le Sueur County Comprehensive Plan and it will be covered as a conditional use per Section 13.1, Subsection 3D.

Substations and transmission lines greater than 35 kV are permitted as conditional uses in Agricultural Districts. Section 21 of the Le Sueur County Zoning Ordinance requires submission of a conditional use permit application and a public hearing prior to conditional use permit issuance. The proposed Project is compatible with the Le Sueur County regulations and the conditional uses listed in the Zoning Ordinance. No land use conflicts are anticipated.

U. Public Infrastructure and Public Services

Affected Environment and Environmental Effects

The proposed Project is an improvement in private infrastructure to provide public services. The substation and transmission line will not require additional public or private infrastructure improvements. The Project will not require an increase in public safety or educational services, roadways, public stormwater systems, electrical lines, telephone lines, sanitary sewer systems, or water supply systems. Rather, it is anticipated that the Project will improve electrical service in the area around the Project.

10. Alternatives Considered

The Applicants considered a no build alternative, but rejected it because the Project is required to improve overall electrical service and reliability for this geographic area. Critical electrical issues exist with low voltage and thermal overloads (overheating) in parts of the service area. Great River Energy reviewed several alternative facility locations with respect to six siting criteria, based on an optimum Project location that would have, in no particular order:

1. a willing landowner for the substation;
2. good site access with minimal new access roads required;
3. acceptable separation from nearby homes;
4. minimal length of new transmission corridors;
5. minimal new infrastructure (line) construction; and

6. co-location with new facilities on existing corridors where feasible.

Great River Energy selected the proposed Project location after other potential locations were eliminated because they did not meet the siting criteria referenced above.

11. Summary of Effects and Proposed Mitigation

Based on the Project size, location and characteristics, the Tyrone Substation and Transmission Line Project are expected to have minimal to negligible environmental effects. Anticipated environmental effects will be mitigated by BMPs and other measures as summarized below.

Table 8. Summary of Environmental Effects and Proposed Mitigation

Item	Title	Expected Environmental Effects	Proposed Mitigation
9.A.	Land Use	No conflicts with the neighboring properties are expected.	Preservation of approximately 5.26 acres of CRP land/woods, and creation of approximately 0.07 acre of a stormwater management area and roughly 1.53 acres of grassland.
9.B.	Cover Types	Convert approximately 2.59 acres of CRP land to a graded, fenced pad containing an electrical substation, the grassland fringe, and the stormwater management area.	Preservation of approximately 5.26 acres of CRP land/woods, and creation of approximately 0.07 acre of a stormwater management area and roughly 1.53 acres of grassland.
9.C.	Fish, Wildlife and Ecologically Sensitive Resources	Project development is expected to convert approximately 2.59 acres of CRP land to a substation, stormwater pond, driveway, parking area and grassland.	Preservation of approximately 5.26 acres of CRP land/woods, and creation of approximately 0.07 acre of a stormwater management area and roughly 1.53 acres of grassland which will provide approximately 6.79 acres of open space and/or natural vegetation.
9.D.	Physical Impacts on Water Resources	Little to no effect on wetlands and water resources.	General avoidance of wetlands on and near the Project area. Runoff from the substation will be treated in a stormwater management area designed to infiltration water and limit the rate of runoff to pre-construction conditions.
9.E.	Water Use	No effects. Project does not included proposed water wells or construction dewatering.	None proposed.
9.F.	Water-Related Land Use Districts	The Project will comply with conservancy, special protections and flood fringe overlay districts requirements; no effects on floodplains or wild and scenic rivers.	The Project will comply as a conditional use per Section 13.1 Subsection 3D.

Table 8. Summary of Environmental Effects and Proposed Mitigation

Item	Title	Expected Environmental Effects	Proposed Mitigation
9.G.	Water Surface Use	No increase in the number or type of watercraft on nearby lakes or waterbodies.	None proposed.
9.H.	Erosion and Sedimentation	Erosion and sedimentation impacts will be limited primarily to short-term effects.	Implement BMPs consistent with NPDES/SDS General Stormwater Permit requirements and the associated SWPPP.
9.I.	Water Quality: Surface Water Runoff and Wastewaters	Little to no effect on the quality and quantity of runoff that drains to nearby waters. No onsite or public wastewater treatment is proposed.	Runoff from the substation area will discharge through a stormwater management area (controlled infiltration outlet) that will drain to the ravine south of the new substation
9.J.	Geologic Hazards and Soil Conditions	No effect on geologic hazards, sinkholes, faults, shallow limestone formations, and karst topography.	None proposed.
9.K.	Solid Waste, Hazardous Waste and Storage Tanks	Conflicts involving environmental conditions or contamination are not anticipated.	Work with the landowners and consult state agencies as necessary if potential environmental contamination is discovered.
9.L.	Electric and Magnetic Fields	Electric and magnetic fields from the proposed Project are not expected to cause health risks.	Electrical facilities will not be located over areas typically used for parking; the substation will be fenced. The Project will comply with NESC requirements.
9.M.	Vehicular Traffic	Construction traffic will temporarily increase traffic volumes on local roadways. The Project is not expected to affect the local or regional transportation system.	None proposed.
9.N.	Air Quality	A negligible increase in carbon monoxide levels and related vehicle air emissions is expected; stationary source air emissions are not expected.	None proposed.
9.O.	Dust, Odors and Noise	During Project operation, dust and odor problems are not expected. Noise levels are not expected to be noticeably greater than existing levels.	Use water or calcium chloride for dust suppression if necessary during construction.
9.P.	Cultural and Historic Resources	Moderate probability of affecting intact cultural resources.	A Phase I Survey will be completed prior to construction and SHPO guidance sought.
9.Q.	Farmland Resources	Convert up to 2.59 acres of CRP land to use for a substation, driveway and parking area, grassland fringe, and stormwater ponding.	None proposed.

Table 8. Summary of Environmental Effects and Proposed Mitigation

Item	Title	Expected Environmental Effects	Proposed Mitigation
9.R.	Public Parks, Recreation and Wildlife Lands	No direct effects on wildlife lands or public parks.	None proposed.
9.S.	Visual Resources	Substantial adverse visual effects are not expected.	Existing farmstead trees provide some visual screening. Landscaping will also be utilized at the substation site.
9.T.	Public Plans and Land Use Regulations	Project is an allowed conditional use; no land use conflicts are anticipated.	Conditional use permitting.
9.U.	Public Infrastructure and Public Services	No required additional public or private infrastructure improvements.	None proposed.

12. Le Sueur County Certification

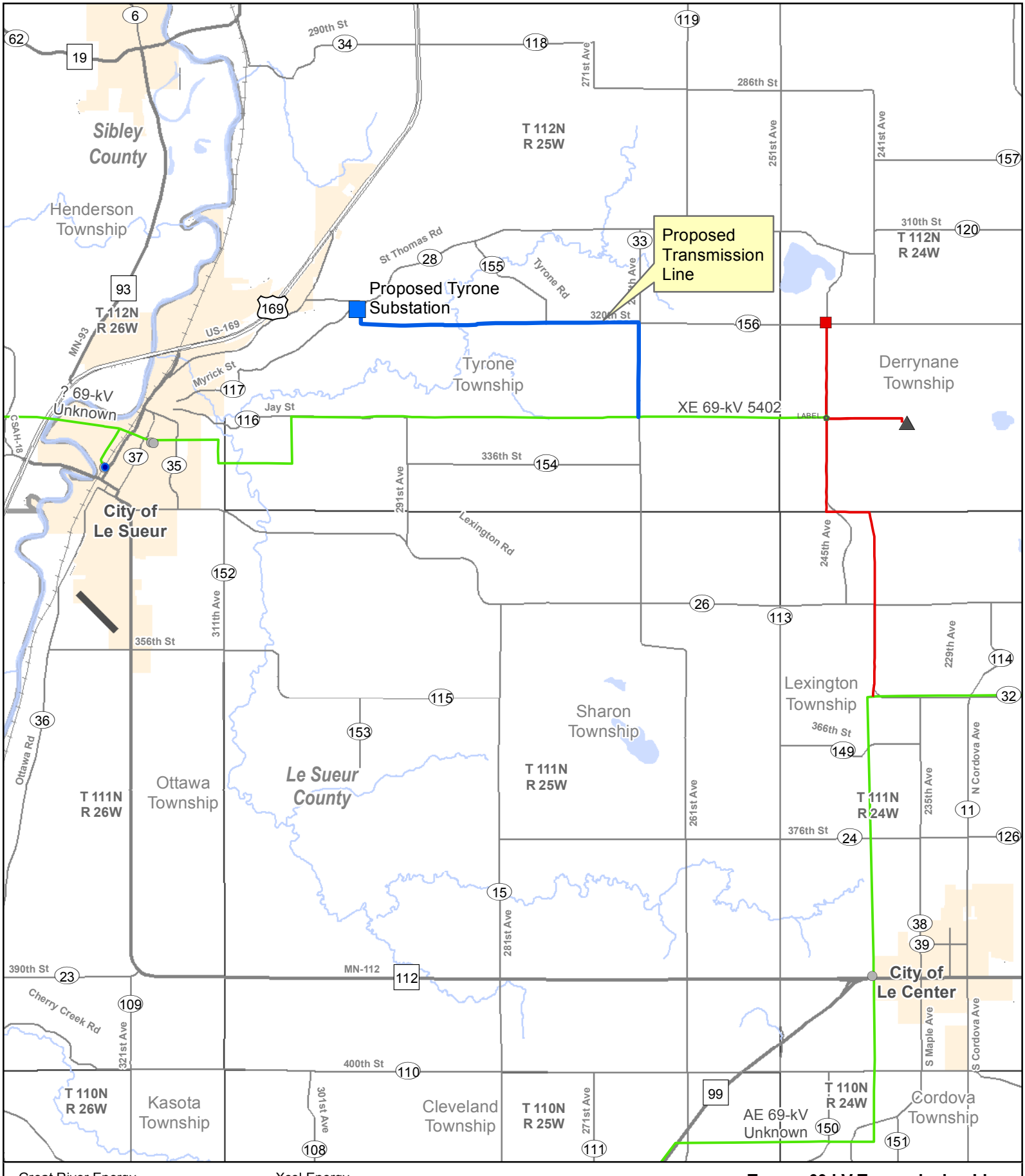
I hereby certify that:

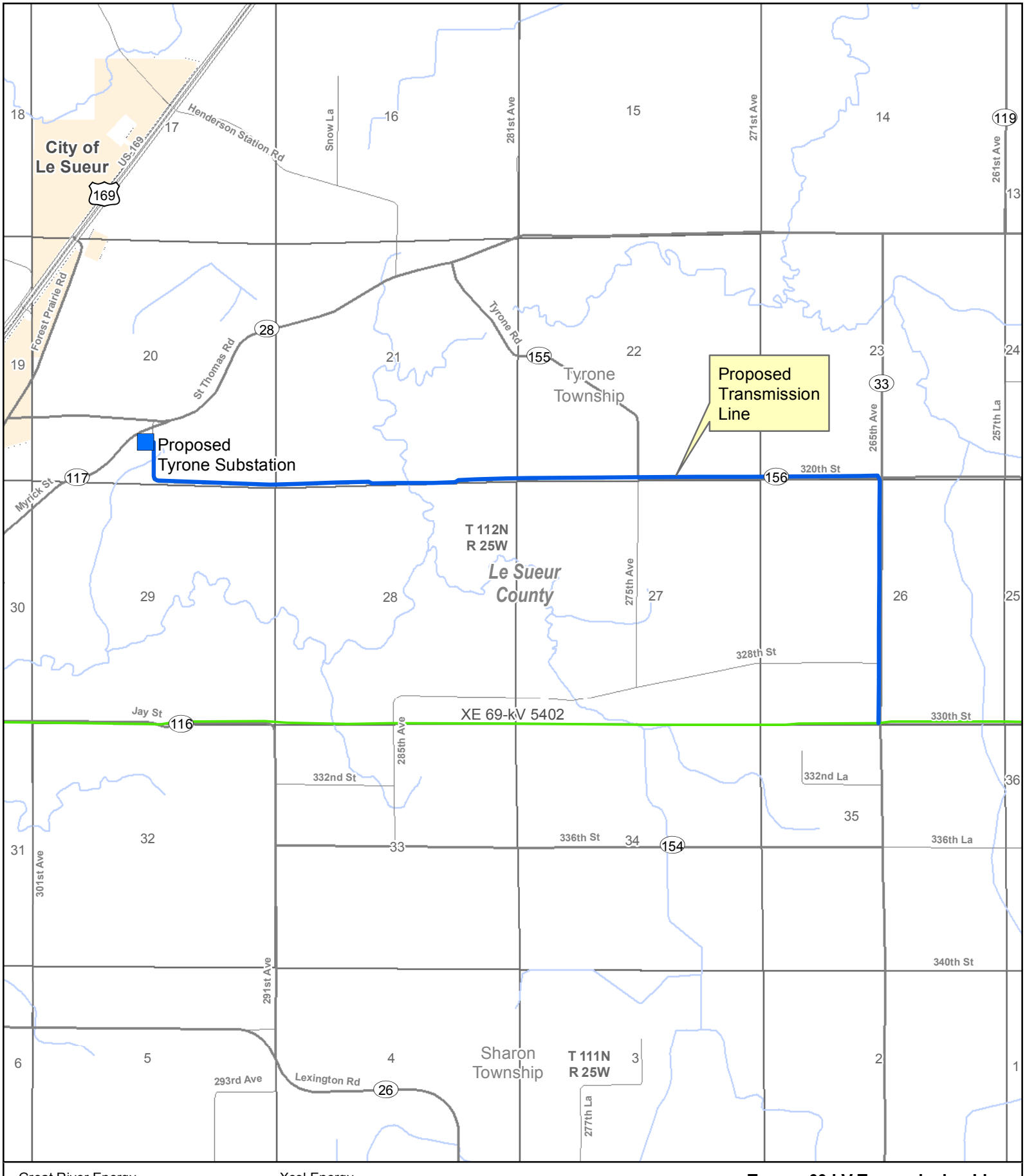
- The information contained in this document is accurate and complete to the best of my knowledge.
- This EIS describes the complete Project; there are no other Projects, stages or components other than those described in this document.

Signature_____ Date _____

Title: **Kathy Brockway, Le Sueur County Planning and Zoning Director**

Exhibits


Proposed Transmission Line
Proposed Tyrone Substation
XE 69-kV 5402
? 69-kV Unknown
AE 69-kV Unknown
Sibley County
Henderson Township
Tyrone Township
Derrynane Township
City of Le Sueur
Lexington Township
Sharon Township
Le Sueur County
Ottawa Township
Kasota Township
Cleveland Township
Cordova Township
City of Le Center
T 112N R 25W
T 112N R 24W
T 112N R 26W
T 111N R 25W
T 111N R 24W
T 110N R 26W
T 110N R 25W
T 110N R 24W
St Thomas Rd
Tyrone Rd
Lexington Rd
Ottawa Rd
Cherry Creek Rd
Myrick St
Jay St
MN-93
US-169
MN-112
CSAH-18
290th St
310th St
320th St
336th St
356th St
366th St
376th St
390th St
400th St
286th St
271st Ave
251st Ave
241st Ave
291st Ave
311th Ave
261st Ave
281st Ave
301st Ave
321st Ave
245th Ave
229th Ave
235th Ave
N Cordova Ave
S Maple Ave
S Cordova Ave
Great River Energy
Proposed 69 kV Transmission Line
Existing 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation
Existing Distribution Substation
Xcel Energy
69 kV Transmission Line
Existing Transmission Substation
Existing Distribution Substation
GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy
Tyrone 69 kV Transmission Line
Exhibit 1: Project Location and Service Area
0 0.5 1 Miles
N
GREAT RIVER ENERGY
A Touchstone Energy Cooperative



Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation

Xcel Energy
69 kV Transmission Line

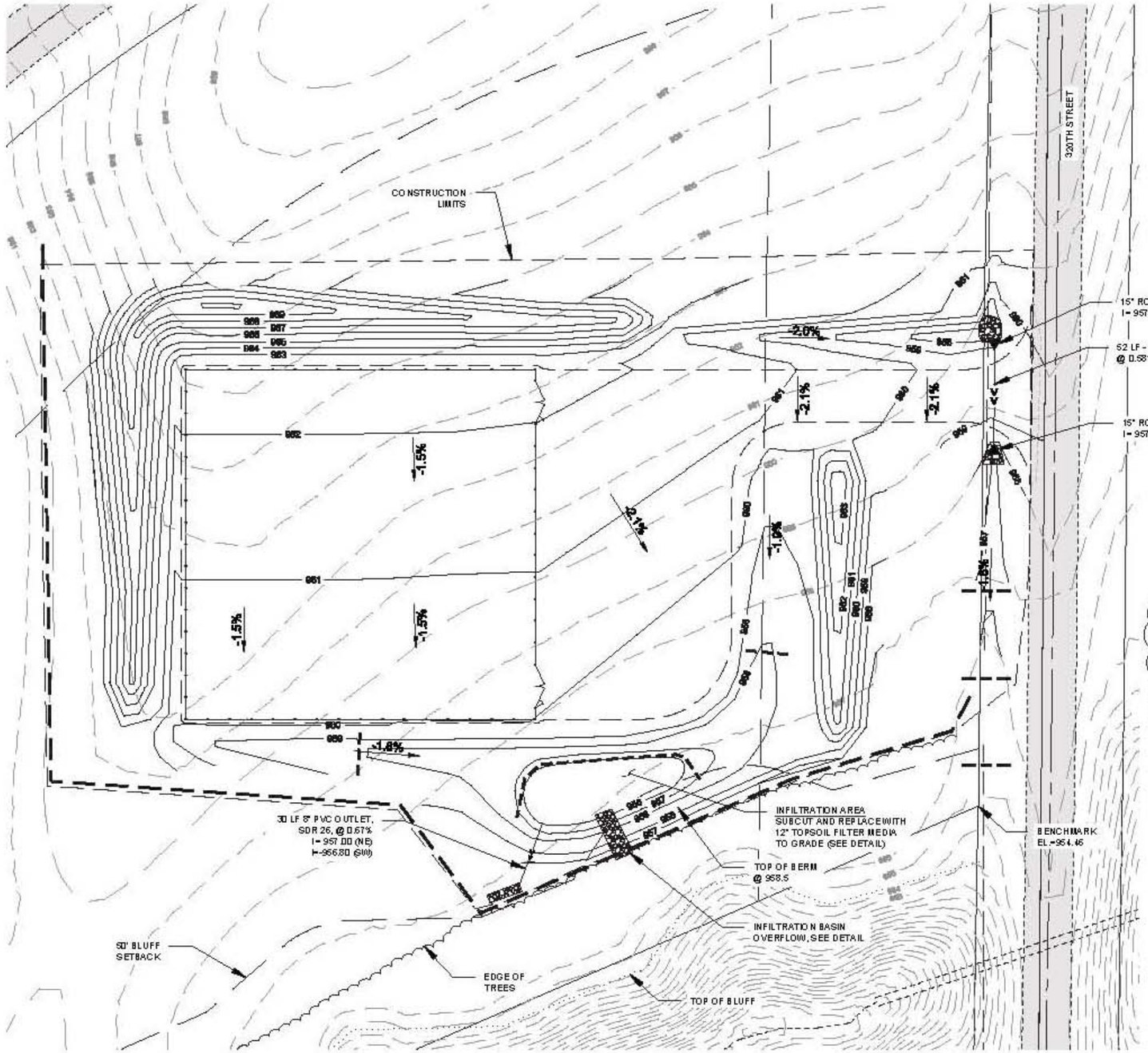
Tyrone 69 kV Transmission Line
Exhibit 2: Substation Location and Transmission Route

0 0.5 1 Miles

N

GREAT RIVER ENERGY®
A Touchstone Energy Cooperative

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy



BENCHMARK
Iron Pipe, Southeast Lot Corner, 550' South of Myrick CL
Elevation = 954.46

GENERAL NOTES:

1. The subsurface utility location information in this plan is utility quality level D. This utility quality level was determined according to the guidelines of CI/ASCE 38-02, titled "Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data." Engineer does not guarantee the accuracy of utility locations or that all existing utilities are shown; Contractor is responsible for locating utilities prior to digging.
2. Protect light poles and other existing utilities, signs, trees, etc. Relocation of any private utilities not directed on these plans shall be coordinated with the utility owner. If drain tile is encountered, Engineer shall be notified immediately; reconnection or rerouting will be required.
3. Damaged items or property shall be repaired or replaced at Contractor's expense.

GRADING & UTILITY NOTES:

1. Topsoil from grading areas shall be stripped, salvaged and stockpiled (if applicable); subsoil be low final grade and replace salvaged topsoil. All organic material / topsoil shall be removed prior to fill.
2. Unless noted otherwise, all proposed contours indicate finished grades.
3. Contractor to protect areas with new Filter Topsoil Borrow; no construction traffic allowed on surfaces after placement. Scarify bank subgrade depth of 12", incidental.
4. Swales to be formed and compacted per Mn/DOT 2105. Spread and compact in layers less than 8" thick with suitable compaction equipment.
5. Berms shall have a max inum side slope of 3:1 (H:V).
6. Subgrade preparation is incidental to items bid, and shall be approved by Engineer prior to placement of aggregate. Additional suitable material may be mined from disturbed areas.
7. Compact all fill placed in gravel areas to 95% of Standard Proctor within 3 feet of the subgrade elevation, and 90% from 3 feet below the subgrade elevation to the bottom of the excavation. A suitable compacted subgrade is required in all areas of aggregate placement (incidental).
8. Pipe lengths shown include flared end sections.
9. Contact Owner or Engineer if hazardous material is discovered.

AGGREGATE DRIVE & PAD NOTES:

1. Mn/DOT specification 2211 shall apply to the Class V aggregate drive and pad construction.
2. The depth and class of aggregate to be constructed shall be as shown on the plans. Aggregate construction shall take place only after the subgrade condition and grade has been examined by the Owner/Engineer.
3. Aggregate shall be placed in lifts no greater than 4". Each layer course shall be wetted and rolled to achieve maximum compaction of 100% Standard Proctor per Mn/DOT 2211.
4. Gravel entrance drive shall include a min imum 2.0% cross slope.
5. Established final grades of aggregate surface areas shall be verified by Contractor with shots taken at no more than 50 ft intervals.

EARTHWORK SUMMARY:

CUT		FILL	
SUITABLE CUT (EV)=	565 CY	SUITABLE FILL UNDER GRAVEL (CV)=	1,091 CY
TOPSOIL STRIP UNDER PAD/DRIVE (EV)=	2,472 CY	MODEL FILL BALANCE (CV)=	562 CY
TOTAL CUT=	3,037 CY	TOTAL FILL=	1,653 CY
ONSITE BALANCE		ONSITE BALANCE	
SUITABLE CUT (20% SHRINK) =	452 CY	SUITABLE BORROW = 1092 - 452 =	639 CY
TOPSOIL CUT (35%) SHRINK) =	1,607 CY	TOPSOIL WASTE = 562 + 639 =	1,201 CY
		SUMMARY	
		TOTAL TOPSOIL BALANCE (CV) =	+406 CY
		SUITABLE BORROW (ONSITE MINING) (CV) =	+639 CY
		TOTAL PROJECT CUT (EV) = 3037 + 639(1.20) =	3,804 CY

NOTES:
1. All earthwork data is approximate; Contractor is responsible for making earthwork determination.
2. Excavated Volume (EV) is volume of material as present in existing condition; Compacted Volume is volume of material placed and compacted.
3. Stripping and shrinkage factors are estimates.
4. Topsoil stripping estimate includes 15" over gravel drive and pad areas.
5. Site earthwork is to be balanced; waste excess material in berm areas.

*Update once soil borings are received

LEGEND:

- CONSTRUCTION LIMITS
- PROPOSED EDGE OF GRAVEL
- PROPOSED GRADE
- PROPOSED CULVERT
- SEDIMENT CONTROL LOG
- SILT FENCE, TYPE MS
- EXISTING ROAD SURFACE
- EXISTING TOP OF BLUFF
- EXISTING TREE LINE

REVIEW SET - NOT FOR CONSTRUCTION

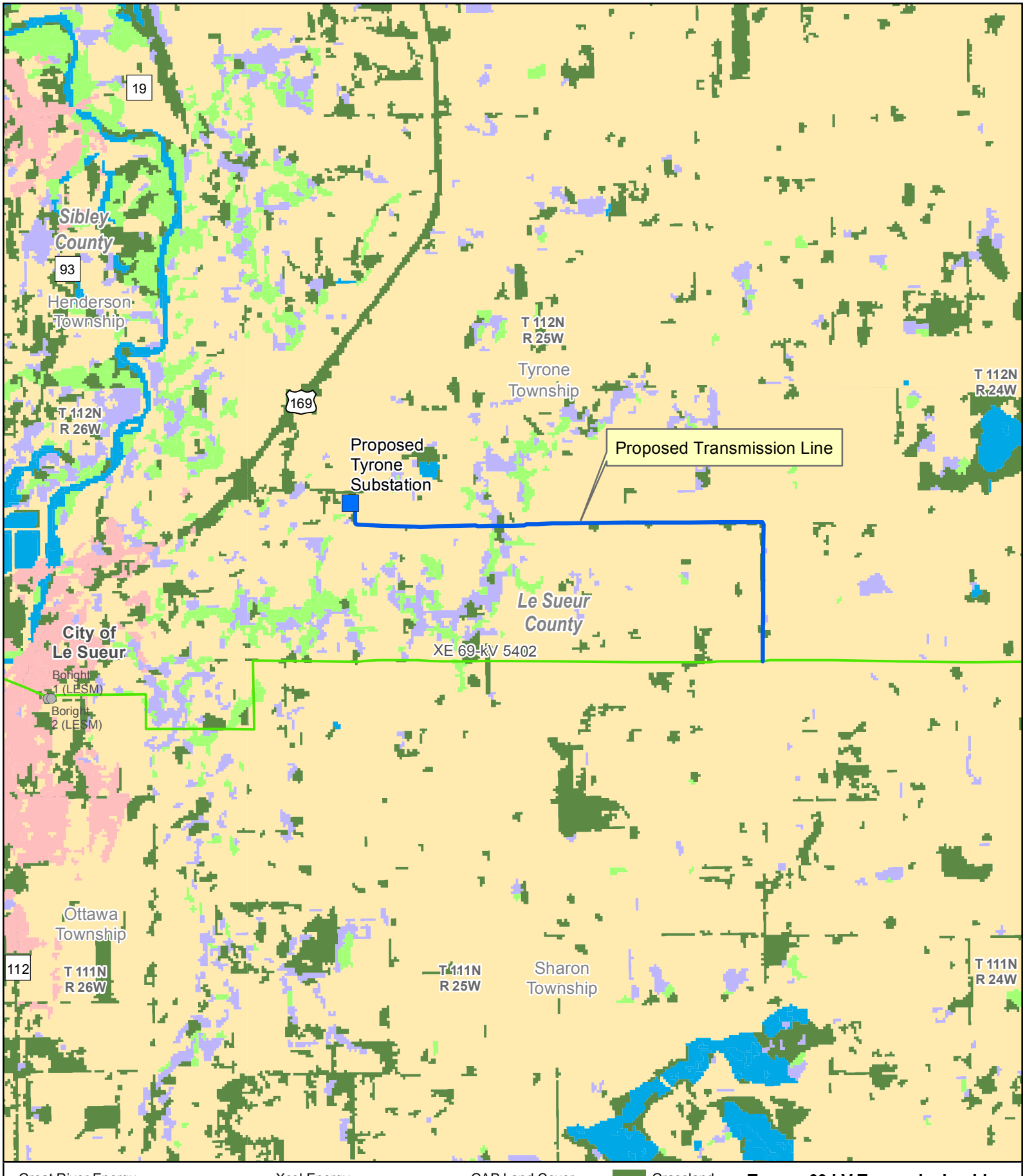
CIVIL METHODS, INC.
1551 Livingston Avenue, Suite 104
West St. Paul, MN 55118
o:763.210.5713 | www.civilmethods.com

Scale: 0 — 50 Feet

REV.	BY	DATE	DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DAVID M. POGGI
DATE 03/30/2015
LIC. NO. 44573

TYRONE SUBSTATION
MINNESOTA VALLEY ELECTRIC COOPERATIVE
GRADING & DRAINAGE PLAN
03 / 06


19
Sibley County
93
Henderson Township
T 112N R 26W
169
T 112N R 25W
Tyrone Township
T 112N R 24W
Proposed Tyrone Substation
Proposed Transmission Line
Le Sueur County
City of Le Sueur
XE 69-kV 5402
Boright 1 (LESM)
Boright 2 (LESM)
Ottawa Township
112
T 111N R 26W
T 111N R 25W
Sharon Township
T 111N R 24W
Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation
Xcel Energy
69 kV Transmission Line
GAP Land Cover
Forested Area
Barren
Water/Wetlands
Cropland
Grassland
Urban
Shrub Land
Transportation
Tyrone 69 kV Transmission Line
Exhibit 4: Surrounding Land Use
0
0.5
1 Miles
N
GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy
GREAT RIVER ENERGY
A Touchstone Energy Cooperative

Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation

Xcel Energy
69 kV Transmission Line
Public Waters Inventory
PWI River

NWI Wetlands
Freshwater Emergent Wetland
Freshwater Forested / Shrub Wetland
Freshwater Pond
Lake
Riverine

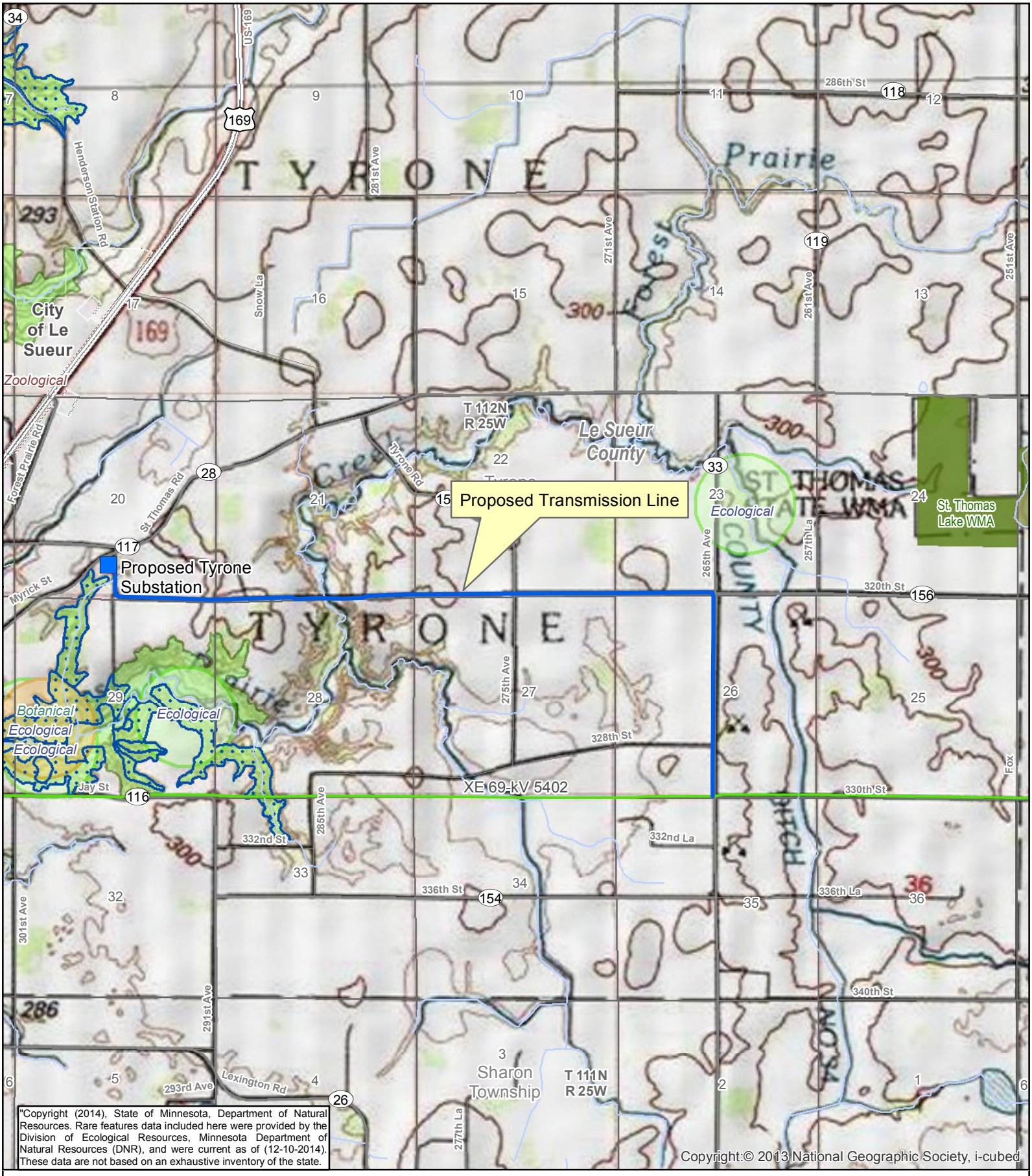
Tyrone 69 kV Transmission Line
Exhibit 5: Water Resources Map

0 0.5 1 Miles

N

GREAT RIVER ENERGY®
A Touchstone Energy® Cooperative

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy. Aerial from ESRI Basemap service.



Great River Energy
- Proposed 69 kV Transmission Line

Minnesota Valley Electric Cooperative
- Proposed Distribution Substation

Xcel Energy
- 69 kV Transmission Line

Rare Natural Feature (NHIS) Protection Status
- Special Concern
- Not listed

Sites of Biodiversity Significance
- Moderate
- Below

- MN Wildlife Management Areas
- Native Plant Community

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy. Topo from ESRI Basemap service.

Tyrone 69 kV Transmission Line
Exhibit 6: Locations of Rare Features & Wildlife Management Areas

0 0.5 1 Miles

N

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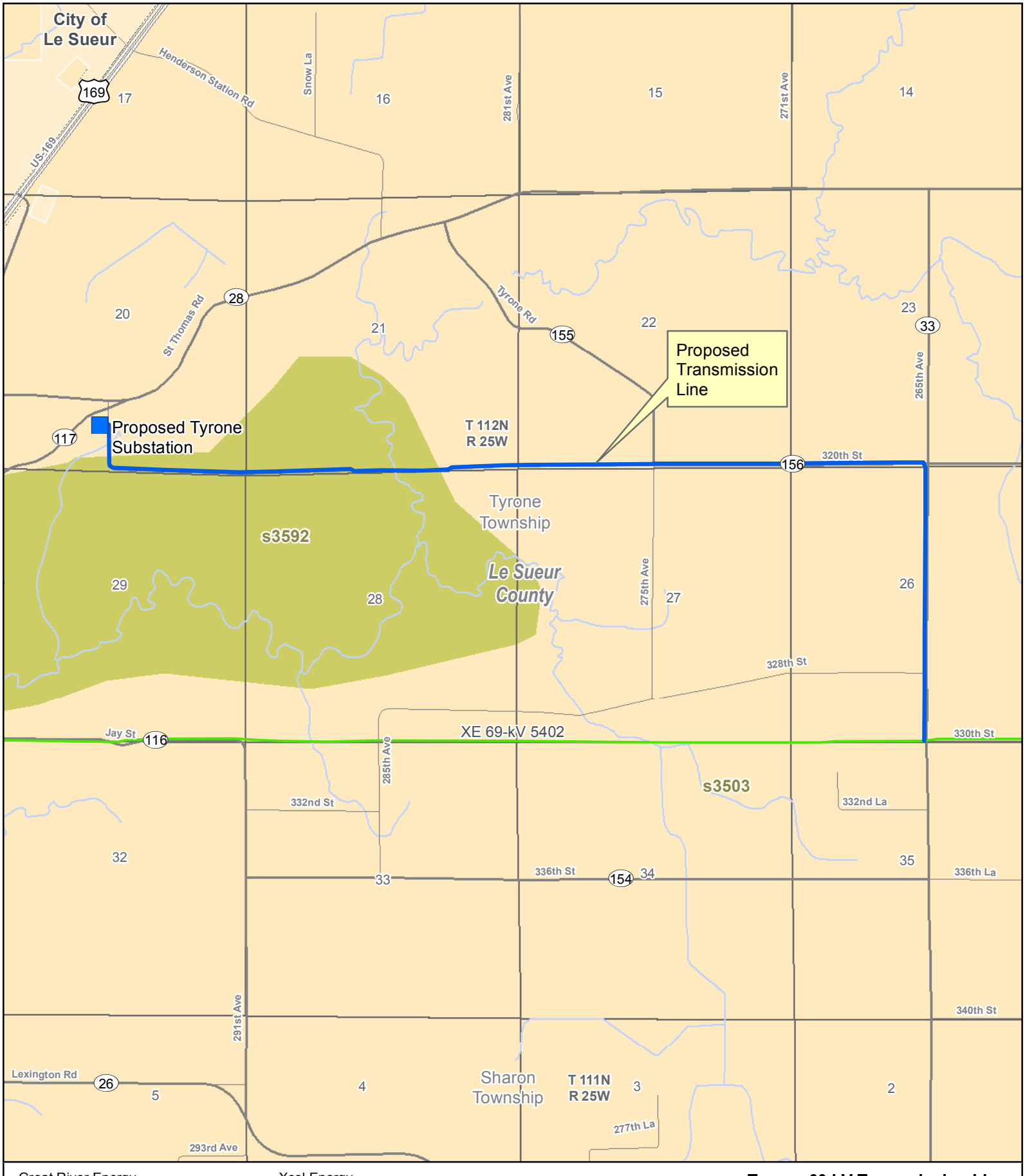
A Touchstone Energy® Cooperative



Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation

Xcel Energy
69 kV Transmission Line
MN Soils
s3503 Lester-Le Sueur-Cordova
s3592 Terril-Swanlake-Sparta-Lester-Kalmarville-Hawick

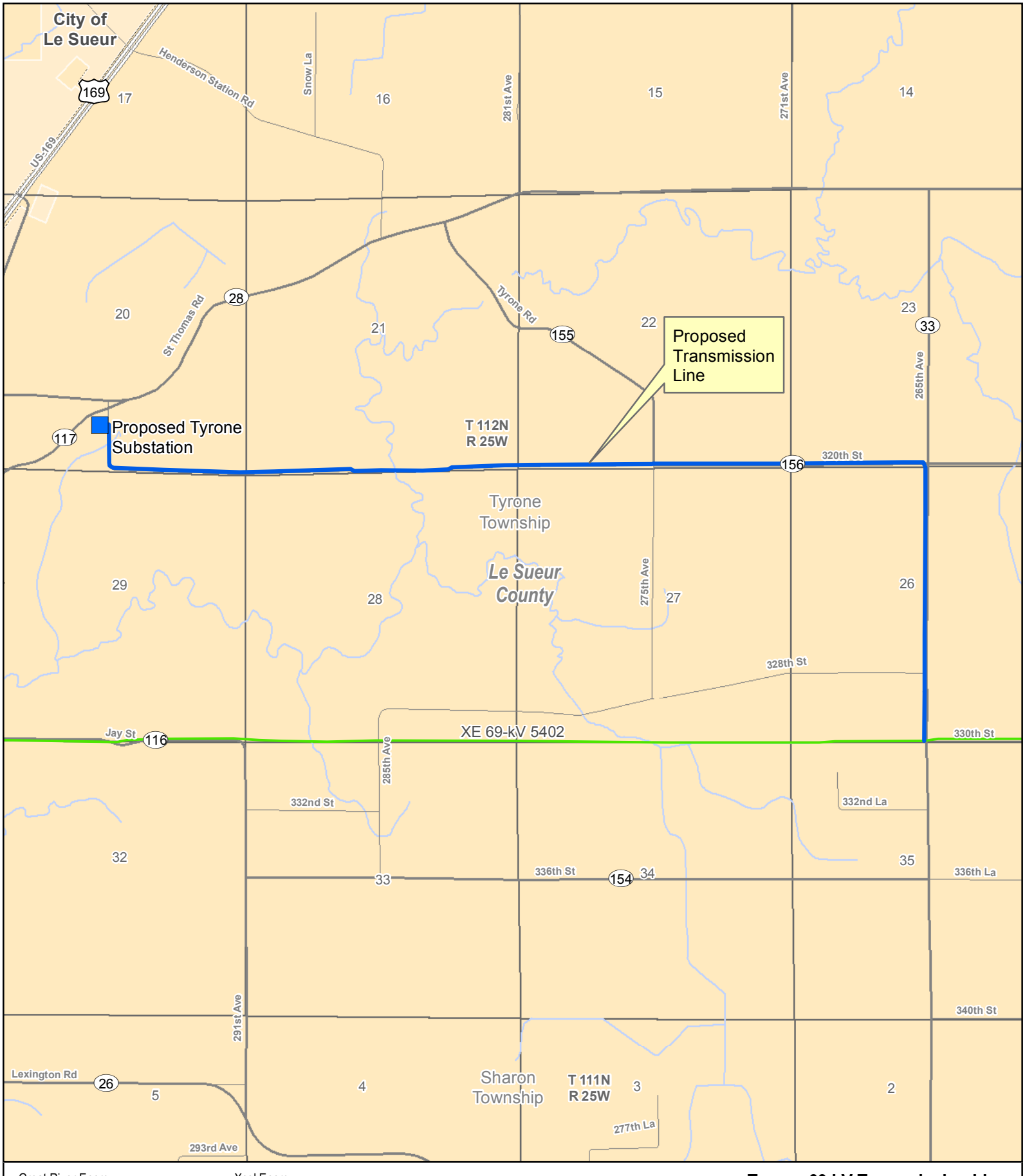
Tyrone 69 kV Transmission Line
Exhibit 7: Soils Map

0 0.5 1 Miles

N

GREAT RIVER ENERGY®
A Touchstone Energy Cooperative

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy



Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation

Xcel Energy
69 kV Transmission Line
MN Watersheds HUC
Lower Minnesota River

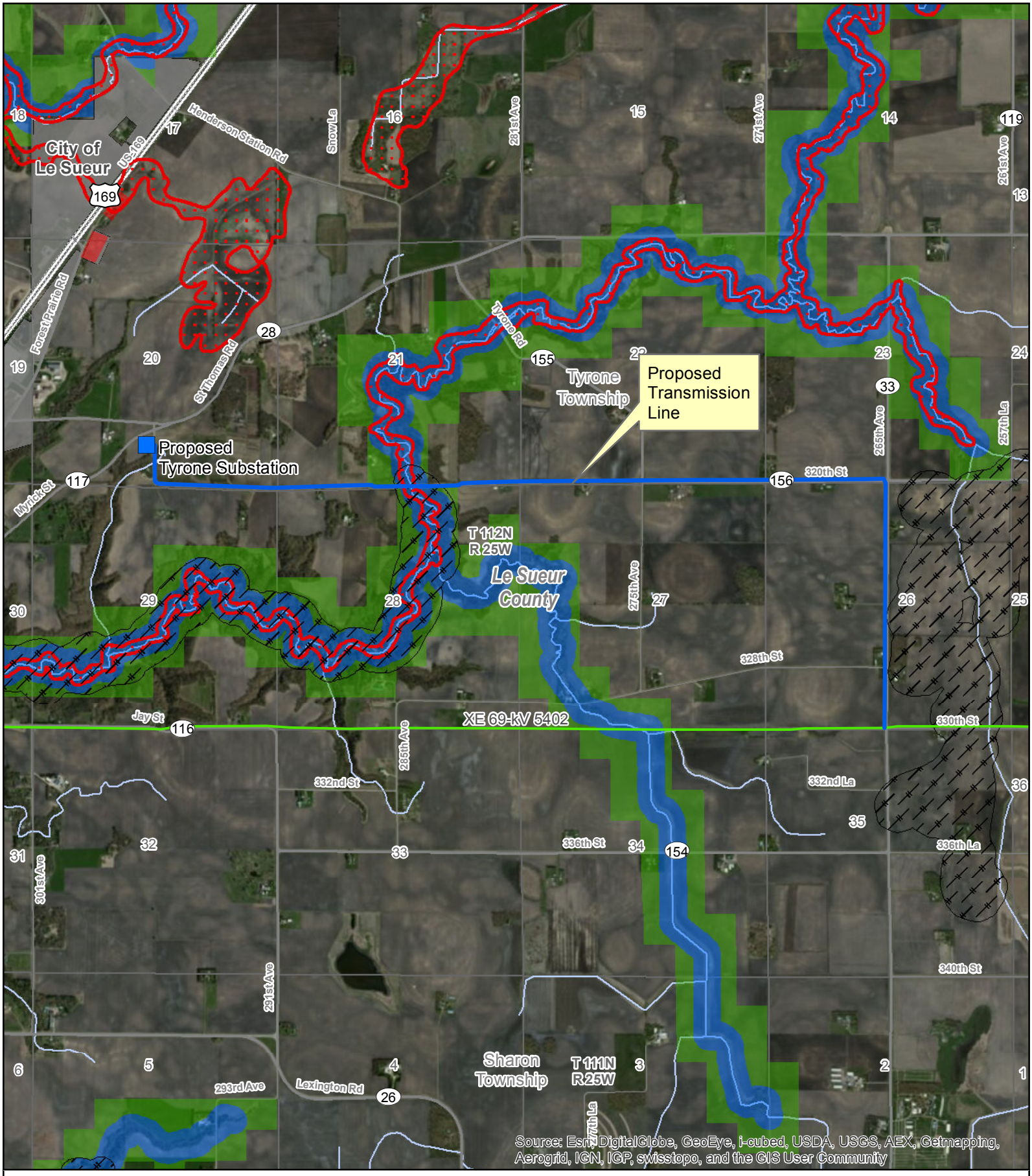
Tyrone 69 kV Transmission Line
Exhibit 8: Public Waters & Minor Watershed Map

0 0.5 1 Miles

N

GREAT RIVER ENERGY®
A Touchstone Energy Cooperative

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy. Aerial from ESRI Basemap service.



Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation
Xcel Energy
69 kV Transmission Line

Zoning Districts
Conservancy
General Business
Special Protection
Overlay Districts
Mineral Resources
FloodPlain
Flood Fringe

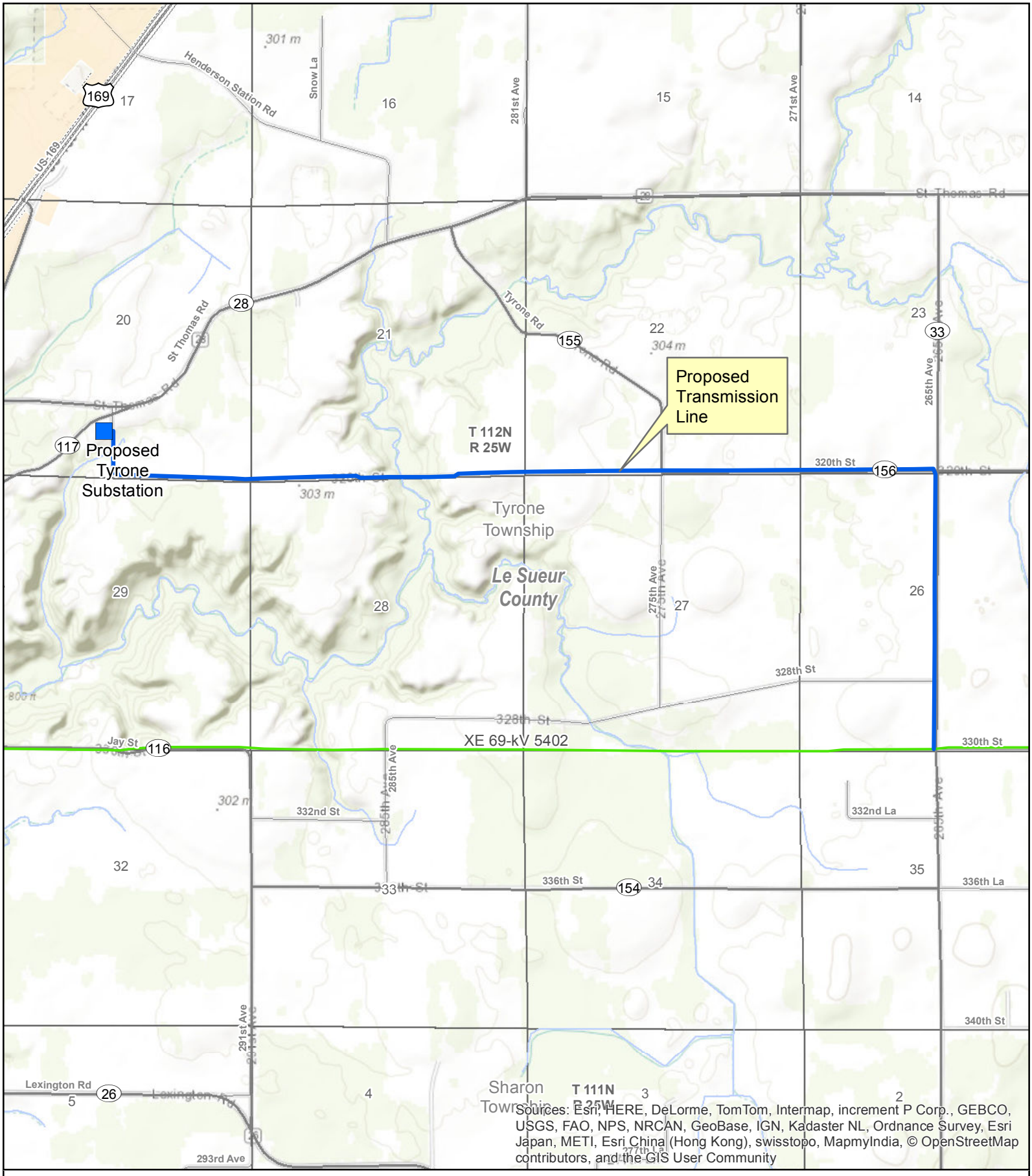
GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy. Aerial from ESRI Basemap service.
City of Mankato - Dept of Planning & Zoning, City of Le Sueur - Dept of Planning & Zoning

Tyrone 69 kV Transmission Line
Exhibit 9: Shoreland and Floodplain Map

0 0.5 1 Miles

N

GREAT RIVER ENERGY®
A Touchstone Energy Cooperative



Great River Energy
Proposed 69 kV Transmission Line
Minnesota Valley Electric Cooperative
Proposed Distribution Substation

Foreign Transmission Line
69 kV Transmission Line

Tyrone 69 kV Transmission Line
Exhibit 10: USGS Topographic Map

0 0.5 1 Miles

N

GREAT RIVER ENERGY®
A Touchstone Energy Cooperative

GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy

Appendix A

Stormwater Management Report

STORMWATER MANAGEMENT PLAN

TYRONE SUBSTATION
Tyrone Township, Le Sueur County, MN

CMI PROJECT NO.: 00145

PREPARED FOR:

Minnesota Valley Electric Cooperative
125 Minnesota Valley Electric Coop Dr
Jordan, MN 55352

Heartland Engineering Services
6800 Electric Drive
Rockford, MN 55373

PREPARED BY:

Civil Methods, Inc.
1551 Livingston Avenue, Ste. 104
West St. Paul, MN 55118

ENGINEER CERTIFICATION:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: David Poggi, PE

Signed: 

Date: 03-27-2015

Registration: MN No. 44573

Table of Contents

1. INTRODUCTION

The Tyrone Substation is proposed to be located on a new 7.85 acre parcel on the south half of the southwest quarter of Section 20, T112N, R25W, in Tyrone Township, Le Sueur County, MN. The project construction disturbance area is approximately 2.2 acres, and will include the addition of 0.38 acres of new gravel parking and drive areas, as well as a 0.59 acre fenced clear-aggregate pad area to contain the electrical equipment. Right-of-way and bluff setbacks as required by County Ordinance are indicated in the construction plans.

The new substation site will include a 160' x 160' fenced gravel pad area for the electrical equipment, as well as a small gravel parking area and access driveway off 320th Street. The project will include additional grading for drainage and screening, as well as the construction of a stormwater treatment and rate control area. No wetlands are present on the site.

This project must meet the drainage requirements of Section 18 of the Le Sueur County Zoning Ordinance, as well as the MPCA's NPDES General Construction Permit. However, the construction activity will add less than an acre of new impervious area to the site, and is therefore not required to meet the permanent stormwater management requirements of Section III of the Permit. This report summarizes the design calculations completed to meet County requirements; key drainage requirements include the following:

Le Sueur County Zoning Requirements – Section 18:

1) The proposed development shall not increase the runoff rate.
2) Preference shall be given to designs using surface drainage, vegetation and infiltration.

2. EXISTING SITE DESCRIPTION

The existing property is undeveloped and consisting primarily of agricultural field, as well as a wooded ravine along the southern and western boundary of the new parcel. The soils present at the site consist primarily of Lester loams of Hydrologic Soil Group (HSG) Type C, indicating low infiltration rates (additional soils information included in Appendix A).

The property drains to the east, south, and west into the ravines along the western and southern borders. The ravines combine into one near the southwest corner of the parcel, from which point it drains to the southwest. The road ditches along the eastern and northern boundaries bypass offsite runoff to the ravines, a pattern that will be maintained with the proposed site grading. See the figure in Appendix B for additional clarity of the existing and proposed drainage pattern at the site.

The property includes a bluff along the southern and western edge, as defined by the Le Sueur County Zoning Ordinance, requiring setbacks as required in Section 18. The top of the bluff has

been delineated based on the calculation described in the Section 18, and a structural setback of 50' has been established.

3. STORMWATER QUANTITY & QUALITY

3.1 STORMWATER QUANTITY

Stormwater discharge rates from the site will be mitigated with the dynamic storage and outlet configuration provided in the proposed infiltration basin. A culvert outlet and reinforced overflow will work together to restrict the discharge rate as necessary, as well as provide a stable emergency overflow.

To ensure conformance with the required design rainfall events, the system has been modeled with the HydroCAD modeling software using the TR-20 methodology and TP-40 design rainfall amounts for the area. The following table summarizes the model results, and detailed output is included in Appendix C.

Table 1: Flow Rate Comparison

Rainfall Event	Node S1ex Existing Q (cfs)	Node P1 Proposed Q (cfs)
2-Year, 2.8" Event	1.5	0.6
10-Year, 4.3" Event	3.5	1.5
100-Year, 6.1" Event	6.4	5.3

As indicated, the proposed stormwater management system adequately restricts the runoff discharge, maintaining or reducing the existing outflow rates for the design storms.

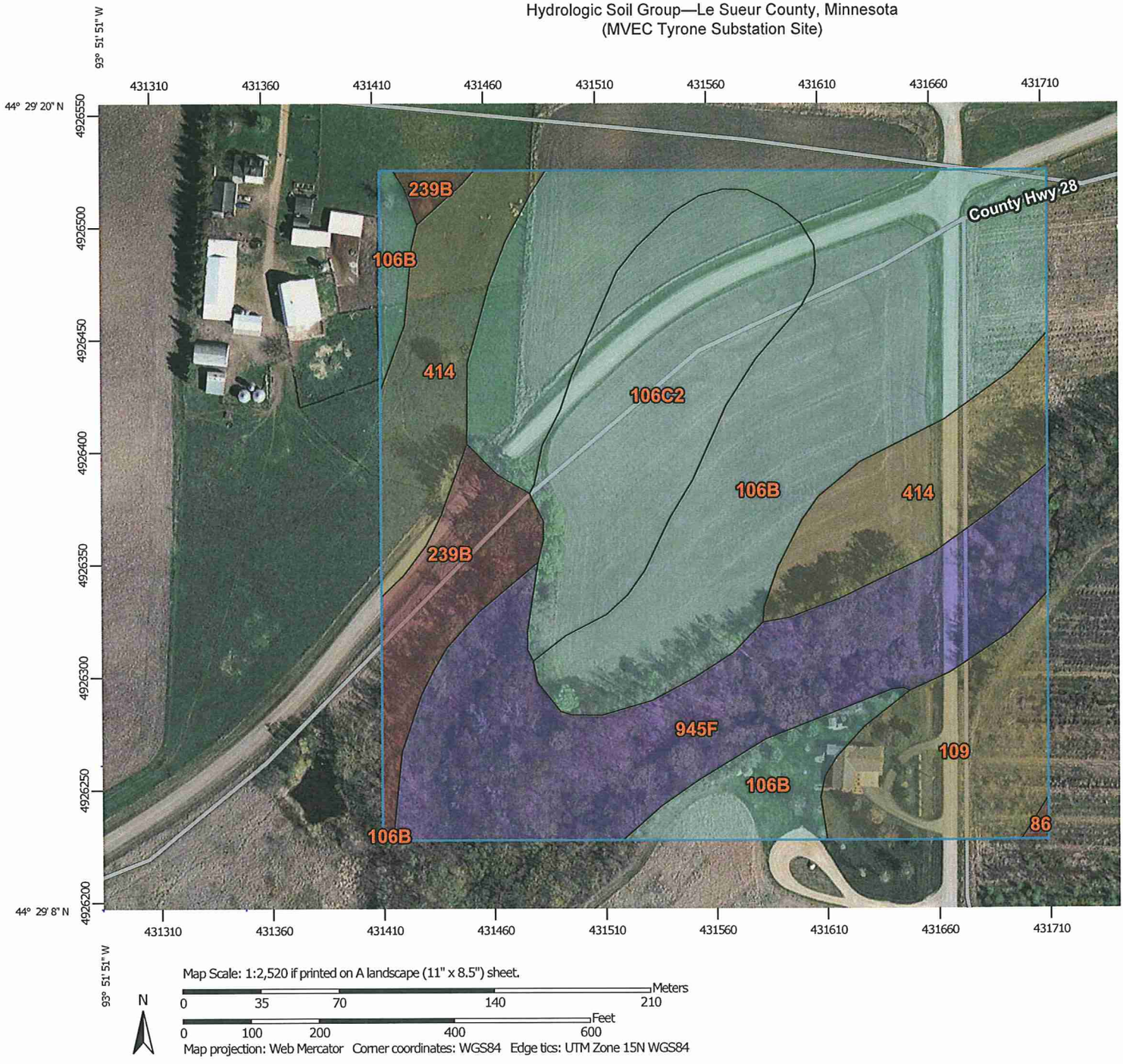
3.2 STORMWATER QUALITY

The basin will include an amended soil media to enhance basin function and vegetation survivability. The media will consist of a 12 inch deep section of sand/compost media (70%/30%) on top of a scarified subsoil base.

The infiltration basin has been sized to infiltrate the first flush, or ½" of rainfall, from all proposed gravel areas, including the porous pad area. The volume of water retained below the outlet culvert elevation is approximately 2,000 sq. ft.

Appendix A – Soils Information

Hydrologic Soil Group—Le Sueur County, Minnesota
(MVEC Tyrone Substation Site)



Map Scale: 1:2,520 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Le Sueur County, Minnesota
Survey Area Data: Version 12, Sep 16, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

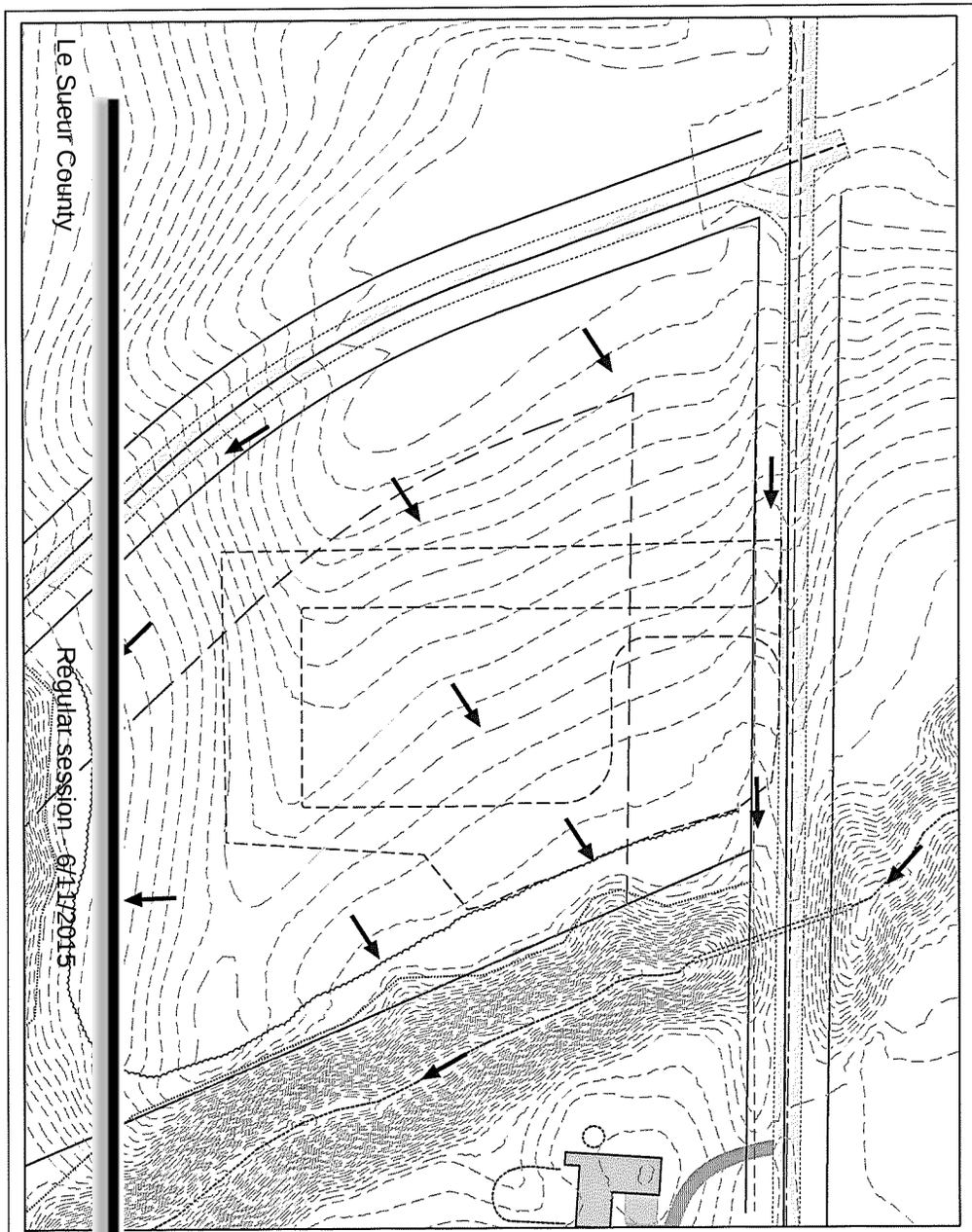
Date(s) aerial images were photographed: Mar 16, 2012—Apr 6, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

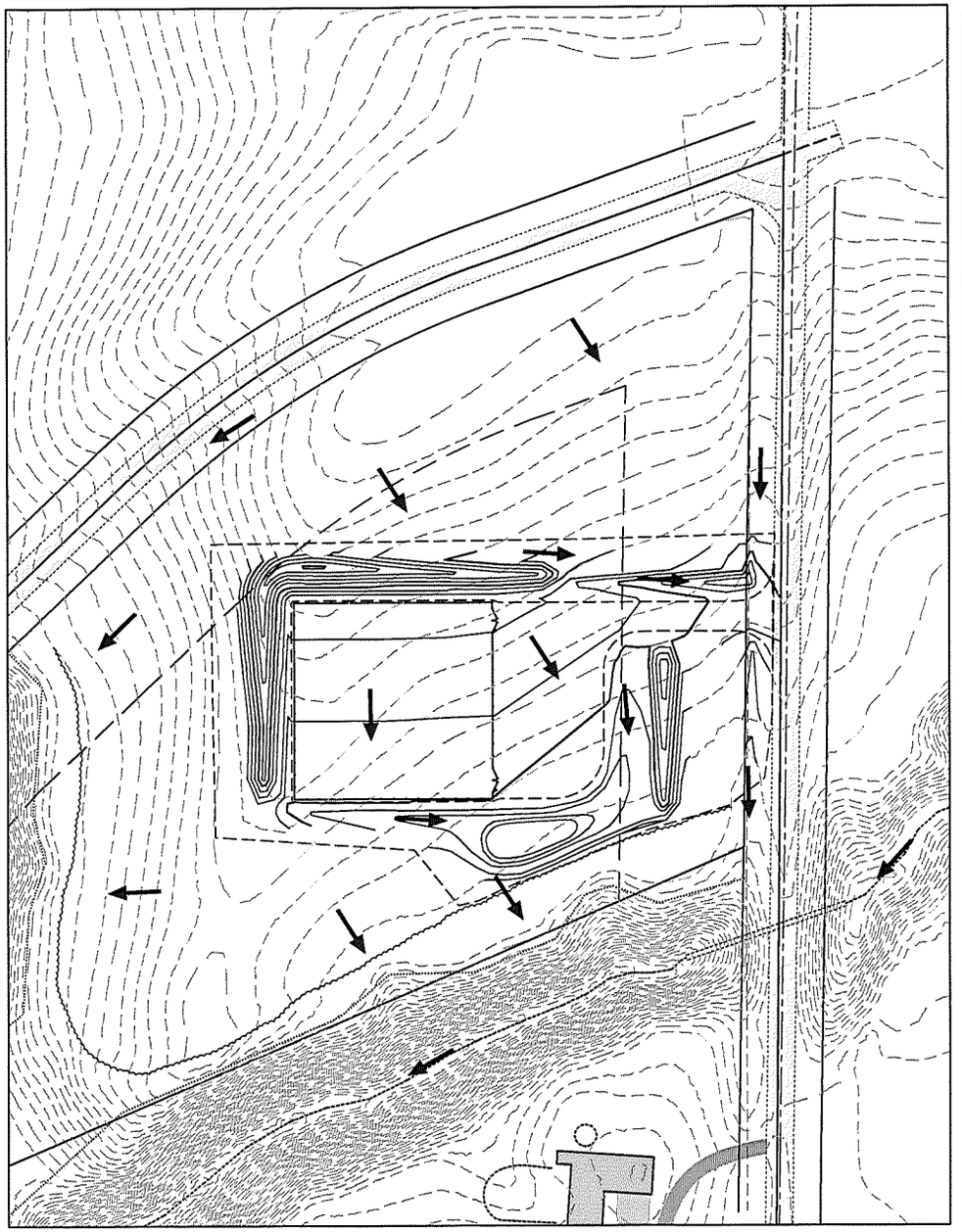
Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Le Sueur County, Minnesota (MN079)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
86	Canisteo clay loam	B/D	0.0	0.1%
106B	Lester loam, 2 to 6 percent slopes	C	8.3	37.3%
106C2	Lester loam, 6 to 10 percent slopes, moderately eroded	C	3.3	14.8%
109	Cordova clay loam	C/D	1.7	7.9%
239B	Le Sueur clay loam, 1 to 4 percent slopes	B/D	1.3	5.7%
414	Hamel clay loam	C/D	3.1	14.2%
945F	Lester-Storden loams, 18 to 40 percent slopes	B	4.4	20.0%
Totals for Area of Interest			**22.2**	**100.0%**

Appendix B – Drainage Diagram



EXISTING CONDITIONS



PROPOSED CONDITIONS

CIVIL METHODS, INC.
1551 Li gston Avenue, Suite 104
West S aul, MN 55118
763.21 713 | www.civilmethods.com

N
W E
S

0' 150'

TYRONE SUBSTATION
MINNESOTA VALLEY ELECTRIC COOPERATIVE

DRAINAGE DIAGRAM

FIGURE 1 OF 1

Appendix C – HydroCAD Output


S1ex
Area to Infiltration
S1pr
Area to Infiltration
P1
Infiltration Area
Subcat
Reach
Pond
Link
Routing Diagram for 0145_Final
Prepared by Civil Methods, Inc., Printed 3/31/2015
HydroCAD® 10.00-14 s/n 07283 © 2015 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1ex: Area to Runoff Area=63,150 sf 0.00% Impervious Runoff Depth>0.71"
Flow Length=160' Slope=0.0350 '/' Tc=13.5 min CN=74 Runoff=1.47 cfs 0.086 af

Subcatchment S1pr: Area to Runoff Area=63,150 sf 0.00% Impervious Runoff Depth>1.33"
Flow Length=160' Slope=0.0150 '/' Tc=5.3 min CN=85 Runoff=3.70 cfs 0.160 af

Pond P1: Infiltration Area Peak Elev=957.50' Storage=3,508 cf Inflow=3.70 cfs 0.160 af
Discarded=0.01 cfs 0.006 af Primary=0.56 cfs 0.103 af Secondary=0.00 cfs 0.000 af Outflow=0.57 cfs 0.108 af

Total Runoff Area = 2.899 ac Runoff Volume = 0.246 af Average Runoff Depth = 1.02"
100.00% Pervious = 2.899 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1ex: Area to Infiltration

Runoff = 1.47 cfs @ 12.07 hrs, Volume= 0.086 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.82"

	Area (sf)	CN	Description
*	25,600	74	Porous Aggregate Pad Area
*	17,750	74	Gravel surface, HSG C
	19,800	74	>75% Grass cover, Good, HSG C
	63,150	74	Weighted Average
	63,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	160	0.0350	0.20		**Sheet Flow, Grass/Ag** Cultivated: Residue>20% n= 0.170 P2= 2.80"

Summary for Subcatchment S1pr: Area to Infiltration

Runoff = 3.70 cfs @ 11.96 hrs, Volume= 0.160 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.82"

	Area (sf)	CN	Description
*	25,600	85	Porous Aggregate Pad Area
	17,750	96	Gravel surface, HSG C
	19,800	74	>75% Grass cover, Good, HSG C
	63,150	85	Weighted Average
	63,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	160	0.0150	0.50		**Sheet Flow, Gravel** n= 0.035 P2= 2.80"

Summary for Pond P1: Infiltration Area

Inflow Area =	1.450 ac,	0.00% Impervious,	Inflow Depth > 1.33"	for 2-Year event
Inflow =	3.70 cfs @	11.96 hrs, Volume=	0.160 af	
Outflow =	0.57 cfs @	12.19 hrs, Volume=	0.108 af,	Atten= 85%, Lag= 13.6 min
Discarded =	0.01 cfs @	11.95 hrs, Volume=	0.006 af	
Primary =	0.56 cfs @	12.19 hrs, Volume=	0.103 af	
Secondary =	0.00 cfs @	5.00 hrs, Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 957.50' @ 12.19 hrs Surf.Area= 3,907 sf Storage= 3,508 cf

Plug-Flow detention time= 143.1 min calculated for 0.108 af (67% of inflow)
Center-of-Mass det. time= 72.9 min (859.0 - 786.2)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	12,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
956.00	1,600	0	0
957.00	2,300	1,950	1,950
958.00	5,500	3,900	5,850
959.00	8,000	6,750	12,600

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.500 in/hr Exfiltration over Surface area from 956.00' - 957.00'** Excluded Surface area = 1,600 sf
#2	Primary	957.00'	**8.0" Round PVC Outlet Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 957.00' / 956.80' S= 0.0067 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#3	Secondary	958.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 1.00 8.00

Discarded OutFlow Max=0.01 cfs @ 11.95 hrs HW=957.14' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.56 cfs @ 12.19 hrs HW=957.50' (Free Discharge)
2=PVC Outlet Culvert (Barrel Controls 0.56 cfs @ 2.76 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=956.00' (Free Discharge)
3=Custom Weir/Orifice (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1ex: Area to Runoff Area=63,150 sf 0.00% Impervious Runoff Depth>1.62"
Flow Length=160' Slope=0.0350 '/' Tc=13.5 min CN=74 Runoff=3.47 cfs 0.196 af

Subcatchment S1pr: Area to Runoff Area=63,150 sf 0.00% Impervious Runoff Depth>2.50"
Flow Length=160' Slope=0.0150 '/' Tc=5.3 min CN=85 Runoff=6.76 cfs 0.302 af

Pond P1: Infiltration Area Peak Elev=958.12' Storage=6,514 cf Inflow=6.76 cfs 0.302 af
Discarded=0.01 cfs 0.006 af Primary=1.31 cfs 0.238 af Secondary=0.18 cfs 0.003 af Outflow=1.50 cfs 0.247 af

Total Runoff Area = 2.899 ac Runoff Volume = 0.498 af Average Runoff Depth = 2.06"
100.00% Pervious = 2.899 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1ex: Area to Infiltration

Runoff = 3.47 cfs @ 12.06 hrs, Volume= 0.196 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.25"

	Area (sf)	CN	Description
*	25,600	74	Porous Aggregate Pad Area
*	17,750	74	Gravel surface, HSG C
	19,800	74	>75% Grass cover, Good, HSG C
	63,150	74	Weighted Average
	63,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	160	0.0350	0.20		**Sheet Flow, Grass/Ag** Cultivated: Residue>20% n= 0.170 P2= 2.80"

Summary for Subcatchment S1pr: Area to Infiltration

Runoff = 6.76 cfs @ 11.96 hrs, Volume= 0.302 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.25"

	Area (sf)	CN	Description
*	25,600	85	Porous Aggregate Pad Area
	17,750	96	Gravel surface, HSG C
	19,800	74	>75% Grass cover, Good, HSG C
	63,150	85	Weighted Average
	63,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	160	0.0150	0.50		**Sheet Flow, Gravel** n= 0.035 P2= 2.80"

Summary for Pond P1: Infiltration Area

Inflow Area =	1.450 ac,	0.00% Impervious,	Inflow Depth > 2.50"	for 10-Year event
Inflow =	6.76 cfs @	11.96 hrs, Volume=	0.302 af	
Outflow =	1.50 cfs @	12.12 hrs, Volume=	0.247 af,	Atten= 78%, Lag= 9.8 min
Discarded =	0.01 cfs @	11.75 hrs, Volume=	0.006 af	
Primary =	1.31 cfs @	12.12 hrs, Volume=	0.238 af	
Secondary =	0.18 cfs @	12.12 hrs, Volume=	0.003 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 958.12' @ 12.12 hrs Surf.Area= 5,794 sf Storage= 6,514 cf

Plug-Flow detention time= 110.9 min calculated for 0.246 af (82% of inflow)
Center-of-Mass det. time= 60.1 min (832.3 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	12,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
956.00	1,600	0	0
957.00	2,300	1,950	1,950
958.00	5,500	3,900	5,850
959.00	8,000	6,750	12,600

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.500 in/hr Exfiltration over Surface area from 956.00' - 957.00'** Excluded Surface area = 1,600 sf
#2	Primary	957.00'	**8.0" Round PVC Outlet Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 957.00' / 956.80' S= 0.0067 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#3	Secondary	958.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 1.00 8.00

Discarded OutFlow Max=0.01 cfs @ 11.75 hrs HW=957.09' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.31 cfs @ 12.12 hrs HW=958.11' (Free Discharge)
↑**2=PVC Outlet Culvert** (Inlet Controls 1.31 cfs @ 3.75 fps)

Secondary OutFlow Max=0.16 cfs @ 12.12 hrs HW=958.11' (Free Discharge)
↑**3=Custom Weir/Orifice** (Weir Controls 0.16 cfs @ 1.04 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1ex: Area to Runoff Area=63,150 sf 0.00% Impervious Runoff Depth>3.00"
Flow Length=160' Slope=0.0350 '/' Tc=13.5 min CN=74 Runoff=6.37 cfs 0.362 af

Subcatchment S1pr: Area to Runoff Area=63,150 sf 0.00% Impervious Runoff Depth>4.10"
Flow Length=160' Slope=0.0150 '/' Tc=5.3 min CN=85 Runoff=10.76 cfs 0.495 af

Pond P1: Infiltration Area Peak Elev=958.57' Storage=9,371 cf Inflow=10.76 cfs 0.495 af
Discarded=0.01 cfs 0.007 af Primary=1.65 cfs 0.343 af Secondary=3.62 cfs 0.087 af Outflow=5.27 cfs 0.438 af

Total Runoff Area = 2.899 ac Runoff Volume = 0.857 af Average Runoff Depth = 3.55"
100.00% Pervious = 2.899 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1ex: Area to Infiltration

Runoff = 6.37 cfs @ 12.06 hrs, Volume= 0.362 af, Depth> 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.08"

	Area (sf)	CN	Description
*	25,600	74	Porous Aggregate Pad Area
*	17,750	74	Gravel surface, HSG C
	19,800	74	>75% Grass cover, Good, HSG C
	63,150	74	Weighted Average
	63,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	160	0.0350	0.20		**Sheet Flow, Grass/Ag** Cultivated: Residue>20% n= 0.170 P2= 2.80"

Summary for Subcatchment S1pr: Area to Infiltration

Runoff = 10.76 cfs @ 11.96 hrs, Volume= 0.495 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.08"

	Area (sf)	CN	Description
*	25,600	85	Porous Aggregate Pad Area
	17,750	96	Gravel surface, HSG C
	19,800	74	>75% Grass cover, Good, HSG C
	63,150	85	Weighted Average
	63,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	160	0.0150	0.50		**Sheet Flow, Gravel** n= 0.035 P2= 2.80"

Summary for Pond P1: Infiltration Area

Inflow Area =	1.450 ac,	0.00% Impervious,	Inflow Depth > 4.10"	for 100-Year event
Inflow =	10.76 cfs @	11.96 hrs, Volume=	0.495 af	
Outflow =	5.27 cfs @	12.06 hrs, Volume=	0.438 af,	Atten= 51%, Lag= 6.2 min
Discarded =	0.01 cfs @	11.00 hrs, Volume=	0.007 af	
Primary =	1.65 cfs @	12.06 hrs, Volume=	0.343 af	
Secondary =	3.62 cfs @	12.06 hrs, Volume=	0.087 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 958.57' @ 12.06 hrs Surf.Area= 6,918 sf Storage= 9,371 cf

Plug-Flow detention time= 90.2 min calculated for 0.437 af (88% of inflow)
Center-of-Mass det. time= 52.6 min (813.3 - 760.7)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	12,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
956.00	1,600	0	0
957.00	2,300	1,950	1,950
958.00	5,500	3,900	5,850
959.00	8,000	6,750	12,600

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.500 in/hr Exfiltration over Surface area from 956.00' - 957.00'** Excluded Surface area = 1,600 sf
#2	Primary	957.00'	**8.0" Round PVC Outlet Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 957.00' / 956.80' S= 0.0067 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#3	Secondary	958.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 1.00 8.00

Discarded OutFlow Max=0.01 cfs @ 11.00 hrs HW=957.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.64 cfs @ 12.06 hrs HW=958.56' (Free Discharge)
└**2=PVC Outlet Culvert** (Inlet Controls 1.64 cfs @ 4.70 fps)

Secondary OutFlow Max=3.52 cfs @ 12.06 hrs HW=958.56' (Free Discharge)
└**3=Custom Weir/Orifice** (Weir Controls 3.52 cfs @ 2.13 fps)

Appendix B

Cultural Resources Critical Issues Analysis

GREAT RIVER ENERGY®

12300 Elm Creek Boulevard • Maple Grove, Minnesota 55369-4718 • 763-445-5000 • Fax 763-445-5050 • greatriverenergy.com

24 April 2015

Ms. Sarah Beimers
Government Programs & Compliance
Minnesota Historical Society
345 Kellogg Blvd. West
St. Paul, MN 55102-1906

RE: Proposed Tyrone 115 kV Transmission Line
LeSueur County, Minnesota
T112N, R25W, Sections 20, 21, 22, 23 and 26

WO# 75311

Dear Ms. Beimers:

Great River Energy is proposing to construct a new four mile 69 kilovolt (kV) transmission line near LeSueur, Minnesota. The line is to support the proposed Minnesota Valley Electric Cooperative Tyrone Substation. This project is needed to serve existing and growing electrical demand in the region.

HDR, Inc. conducted a Critical Issues Analysis (see attached) on April 20, 2015 and recommends a Phase I archaeological reconnaissance survey of the project right of way. Great River Energy is requesting information on the possible effects of the proposed project on cultural and historic properties in the project area. A project description/map is included for your review. The proposed line is marked in blue.

We would appreciate receiving any written comments from your office by Friday, May 15, 2015. If you have any questions or concerns, please contact me at (763) 445-5215. If you wish to contact me by e-mail, my address is mparlow@grenergy.com.

Sincerely,

GREAT RIVER ENERGY

Marsha Parlow

Marsha Parlow
Transmission Permitting Analyst

Enclosure

S:\Legal Services\Environmental\Transmission\Projects\75311 Tyrone\Agency Letters\Tyrone MHS.doc

Memo

Date:	Monday, April 20, 2015
Project:	Tyrone Transmission Line Upgrade
To:	Marsha Parlow – Great River Energy Transmission Permitting Analyst
From:	Erika Eigenberger M.A. Andrew Kurth M.S.
Subject:	Great River Energy Tyrone Transmission Line Upgrade Project, Le Sueur County, Minnesota

Tyrone Transmission Line Upgrade Critical Issues Analysis

This memorandum presents the results of a Critical Issues Analysis (CIA) completed for the proposed Tyrone Transmission Line Upgrade Project (Project) in Le Sueur County, Minnesota. HDR was contacted by Great River Energy (GRE) to conduct a CIA that included literature and database searches for historic resources and providing recommendations for future Project cultural resource needs. The Project consists of the construction of approximately 4 miles of new transmission line, generally running parallel to 320th Street and 265th Avenue in Le Sueur County, Minnesota. The Project will include a single circuit 69kV transmission line. The new transmission line route will require a 70-foot wide right-of-way (ROW) that includes 35 feet on either side of the centerline. If construction activities were to occur outside of the identified ROW, those areas would also require cultural resource review and investigation.

The Project is located in Sections 20-23 and 26-27 of Township 112N, Range 25W in Tyrone Township (Figure 1). In order to adequately address resources that may be affected by Project components, Minnesota State Historic Preservation Office guidelines suggest reviewing a larger study area to establish a context and determine site density as it relates to the proposed project. Therefore, a larger Study Area was established. The Study Area for this Project is defined as the proposed transmission line route plus an additional one-mile buffer. The Study Area includes Sections 19-30 and 33-36 of Township 112N, Range 25W (Table 1 and Figure 1).

Table 1. Study Area Legal Description

County	Township	Range	Sections
Le Sueur	112N	25W	19-30 and 33-36

HDR staff conducted background research at the Minnesota State Historic Preservation Office (SHPO) and the Minnesota Historical Society (MHS) on April 1, 2015. Research focused on previously identified archaeological sites, architectural properties, and previously conducted archaeological surveys within the Study Area. In addition to the background research conducted at MHS and SHPO, HDR reviewed General Land Office (GLO) maps accessed online through the GLO Historic Map Retrieval System at http://www.mngeo.state.mn.us/glo/Index.htm.

The purpose of a CIA is to reveal potential issues and resources that may be encountered. This document presents the results of a cursory desktop analysis that was completed using files obtained from SHPO, MHS, and select web sources. The document provides a brief overview and is not meant to replace a literature search or field survey.

MINNESOTA REGULATORY FRAMEWORK

State laws and regulations that may potentially apply to the Project include: the Minnesota Historic Sites Act (MS 138.661-669); the Minnesota Field Archaeology Act (MS 138.31-138.42); and the Private Cemeteries Act (MS 307.08).

Minnesota Historic Sites Act (MS 138.661-669). The Minnesota Historic Sites Act requires state agencies to consult with the Minnesota Historical Society before undertaking or licensing projects that may affect properties on the State Historic Sites Network under the administration and control of the Minnesota Historical Society, or properties on the State or National Registers of Historic Places (NRHP).

Minnesota Field Archaeology Act (MS 138.31-138.42). The Minnesota Field Archaeology Act requires licenses to engage in archaeology on non-federal public land and requires state agencies to submit development plans to the State Archaeologist, The Minnesota Historical Society and the Minnesota Indian Affairs Council for review when there are known or suspected archaeological sites in the area.

Private Cemeteries Act (MS 307.08). This Act protects all human burials or skeletal remains located on public or private land.

BACKGROUND RESEARCH RESULTS

Previously Recorded Archaeological Sites
No previously recorded archaeological sites were identified within the Study Area.

Previously Recorded Architectural Properties
Three previously recorded architectural properties were located within the Study Area (Table 2, Figure 1). Properties consist of a school, a church, and a town hall. The church (LE-TYR-007) is listed on the NRHP. The school (LE-TYR-006) and the town hall (LE-TYR-008) have not been evaluated for the NRHP.

In addition, the exact location of the town hall (LE-TYR-008) is currently unknown, as no site map or precise locational information was available. Preliminary research suggests the property may be within or immediately adjacent to the proposed Project ROW, but may no longer be extant (Figure 1). The remaining two properties do not intersect the Project.

Table 2. Previously Recorded Architectural Properties within the Study Area

Property Number	County	Township	Range	Section	Property Type	NRHP Eligibility
LE-TYR-006	Le Sueur	112N	25W	20	School Building	Unevaluated
LE-TYR-007	Le Sueur	112N	25W	25	Church Building	Listed
LE-TYR-008*	Le Sueur	112N	25W	26	Town Hall Building	Unevaluated

*Exact location is unknown.

Previous Archaeological Surveys

Three archaeological surveys have been conducted within the Study Area (Table 3, Figure 1). All three surveys were Phase I – Reconnaissance surveys for the Minnesota Valley Rest Area, located in Section 19 of Township 112N, Range 25W. One prehistoric lithic scatter (21LE0043) was identified as part of rest area surveys, but is outside the Study Area. None of the previous surveys intersect the Project.

Table 3. Previous Archaeological Surveys within the Study Area

Report Number	Title	Author	Year
THY-88-01	The Minnesota Trunk Highway Archaeological Reconnaissance Study Annual Report – 1987	Peterson, Leslie, William Yourd, and Leroy Gonsior	1987
THY-90-01	The Minnesota Trunk Highway Archaeological Reconnaissance Study Annual Report - 1989	Peterson, Leslie, Thor A. Olmanson, and Wanda Watson Radford	1989
THY-91-01	The Minnesota Trunk Highway Archaeological Reconnaissance Study Annual Report - 1990	Peterson, Leslie, Thor A. Olmanson, and Wanda Watson Radford	1990

General Land Office Maps

Two features were identified within the Study Area on General Land Office (GLO) maps dating to 1856 (Table 4, Figure 2). Features include a homestead in the southwest quarter of Section 21 of Township 112N, Range 25W and a portion of the St. Paul Road, extending northeast by southwest through the northeast quarter of Section 20 of Township 112N, Range 25W. None of the depicted GLO features transect the Project.

Table 4. General Land Office Map Features within the Study Area

Feature Name	Feature Type	GLO Map Year
None	Homestead	1856
St. Paul Road	Road	1856

RECOMMENDATIONS

A review of the Study Area identified no previously identified archaeological sites, three previously identified architectural properties, three previous archaeological surveys, and two GLO map features. Of the three previously identified architectural properties, one is listed on the NRHP (LE-TYR-007) and two have not been evaluated (LE-TYR-006 and LE-TYR-008).

Although the exact location of property LE-TYR-008 is currently unknown, preliminary research suggests the property may be within or immediately adjacent to the proposed Project ROW. In addition, based on the initial review of available sources and aerial photographs, it appears as though property LE-TYR-008 may no longer be extant. However, if the property is indeed no longer extant, surface features (such as foundations) or subsurface remains (archaeological deposits) associated with the property may still be encountered.

The review of previously identified sites and surveys and the knowledge HDR cultural resource professionals have regarding the area's historical context suggest that additional, as yet undiscovered, sites may be present within the Study Area. The Study Area transects drainages, creeks, and streams, including the Prairie Forest Creek a tributary of the Minnesota River. The topography of the area includes rolling hills and uplands adjacent to water bodies. All these factors suggest the Study Area contains a moderate probability of containing additional intact archaeological sites, historic archaeological sites, and/or architectural properties.

Based on the summary of the data reviewed, HDR recommends a Phase I archaeological reconnaissance survey of the Project ROW. The scope and scale of this investigation should be determined after the Project route is well defined. If needed, evaluation of any newly identified archaeological resources impacted by the Project and associated potentially required mitigation will be determined on a case-by-case basis and discussed in an additional scope. In addition to the investigation for archaeological resources, affects on architectural properties may also need consideration as the Project construction could potentially impact adjacent properties. All work should be conducted in accordance with the *SHPO Manual for Archaeological Projects in Minnesota* (Minnesota State Historic Preservation Office 2005) and the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (National Park Service 1983).

REFERENCES CITED

Minnesota State Historic Preservation Office
2004 *SHPO Manual for Archaeological Projects in Minnesota.* Available online at: http://www.mnhs.org/shpo/survey/archsurvey.pdf.

National Park Service
1983 *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*. Current version available online at http://www.nps.gov/history/local-law/arch_stnds_9.htm.

United States
1887 *General Land Office Survey Maps.* Online versions available at: http://www.mngeo.state.mn.us/glo/index.html. Accessed April 2015.

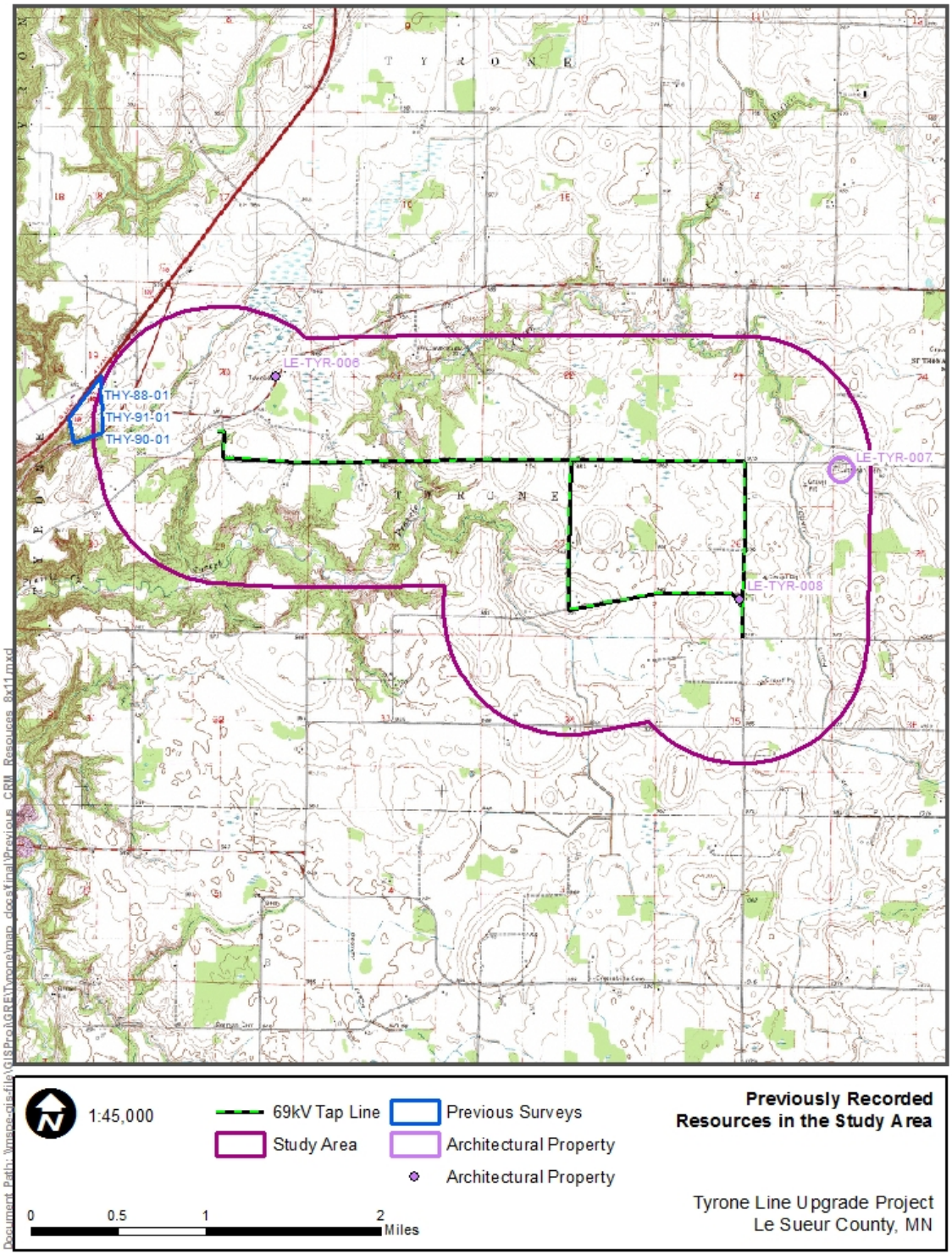


Figure 1. Previously Recorded Resources in the Study Area

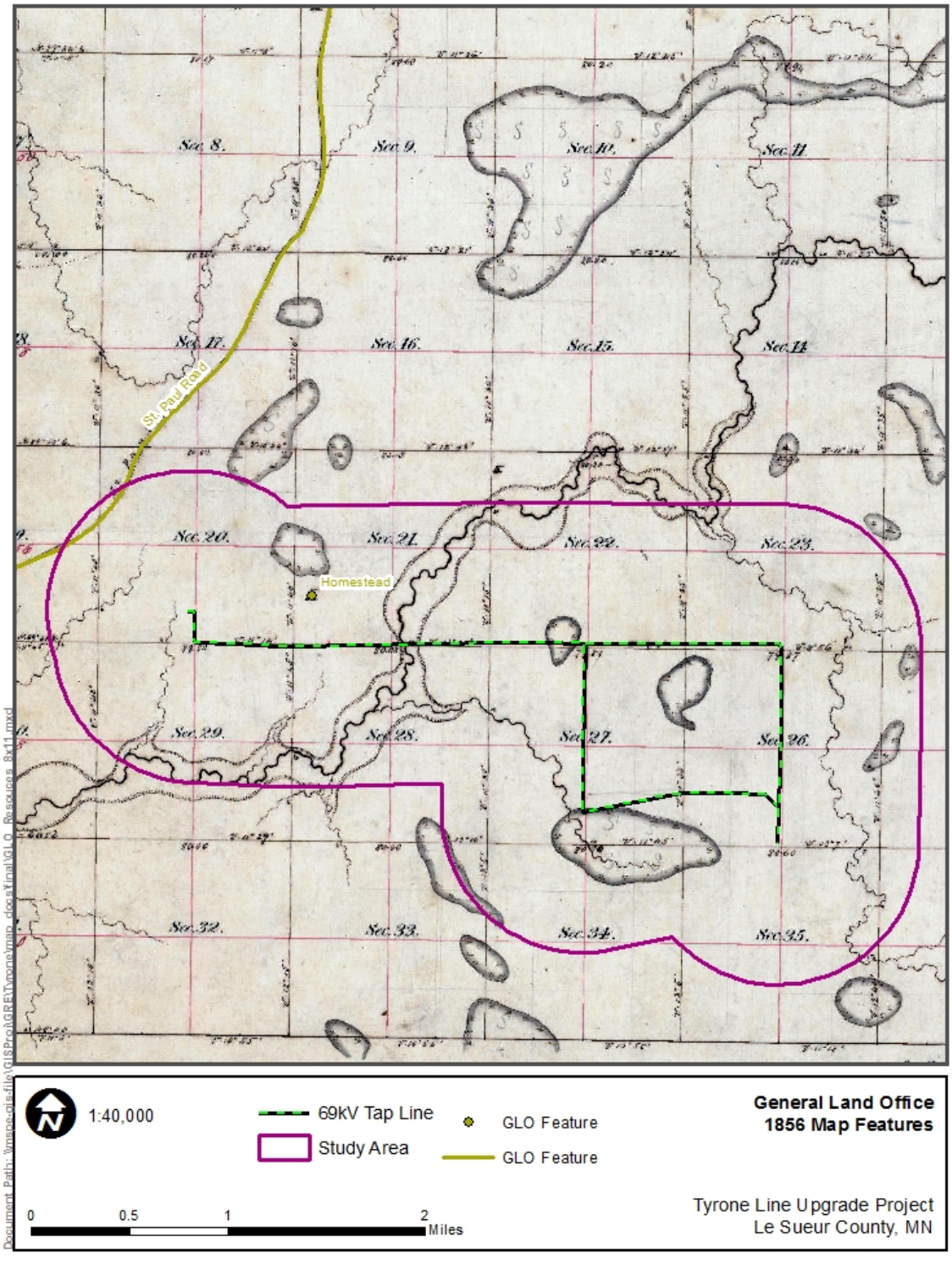


Figure 2. General Land Office 1856 Map Features

Citizens Against:

The 69 kV Electric Transmission Line ***and*** The Electrical Distribution Substation (Tyrone Substation).

(Photo taken in Le Sueur County, 320th Street)

Le Sueur County

Introduction

We, the citizens of Tyrone Township, are in ***OPPOSITION*** of:

- The proposed electrical distribution substation (Tyrone Substation) proposed by MN Valley Electric Co-op (MVEC)
- The proposed 69 kV electric transmission line proposed by Great River Energy (GRE).

Reasons for Opposition:

1. Land Use Goals:

The proposal does not fully align with the Land Use Goals and Policies adopted July 24, 2007 for Le Sueur County.

The Le Sueur County Land Use Goals and Policies (Adopted on July 24, 2007):

GOAL 1:

Le Sueur County contains some of the most productive agricultural soils in Minnesota and should adopt and enforce land use goals and policies that conserve and protect agricultural resources and uses.

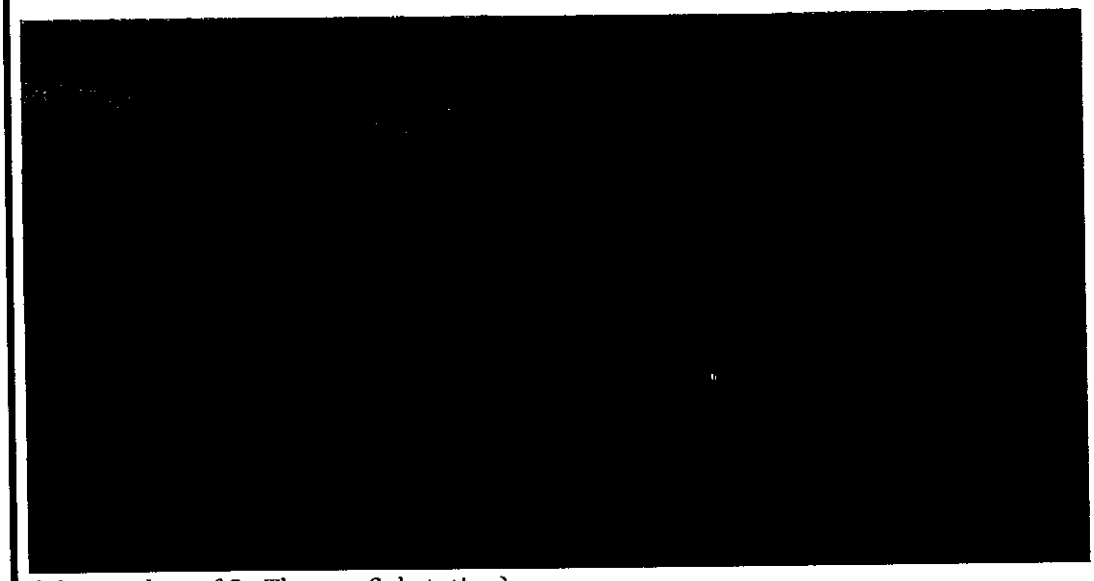
OBJECTIVE:

The County will protect the best of its agricultural land as a resource for long-term agricultural use.

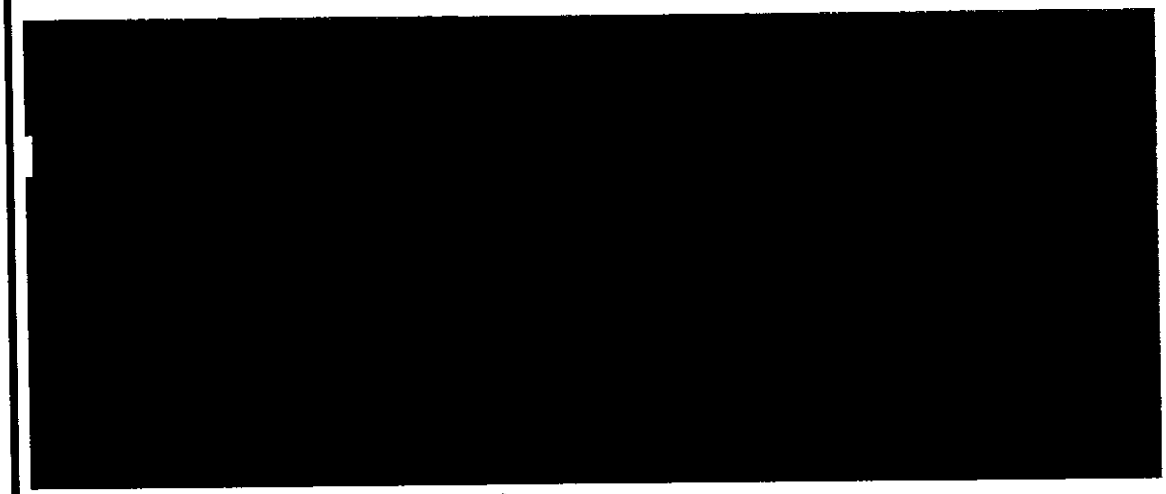
Findings that do not support the goal and objective:

The proposed Tyrone Substation is to be located approximately *five miles* from the St. Thomas Substation. The St. Thomas Substation is located *two miles* from the Sheas Lake Distribution Substation. If the substations were equally spaced, they would be 3.5 miles apart.

This would establish at least **three** substations within a *five-mile* area. A further upgrade to an already existing St. Thomas Substation, which is centrally located, would eliminate the need for additional infrastructure. During the two meetings conducted by the GRE and the MVEC in January 27, 2015 and March 12, 2015, alternate locations for the substation were not available for public observation. According to GRE, the Project will support the needs and requirements of the regional electric transmission system, including Le Sueur. However, Le Sueur is reliant on its own Municipal Utilities. In addition, Le Sueur added its own Bio Energy Plant in 2014. The North Highway 169 Industrial Park has been vacant since its purchase in October 2005.



(Photo taken of St. Thomas Substation)



(Photo taken of Sheas Lake Substation)

The information presented at the January 27, 2015 and March 12, 2015 meetings conducted by GRE and MVEC did not indicate a completed Cost Study on locating the substation and transmission lines in Tyrone Township. It also does not show a Benefit Analysis or criteria as to why the proposals would enhance Tyrone Township.

ADDITIONAL ENVIRONMENTAL CONCERNS AS FOUND IN THE LE SUEUR COUNTY ENVIRONMENTAL IMPACT STATEMENT (EIS) DATED MAY 4, 2015 WHICH NEED TO BE ADDRESSED:

- The Minnesota DNR Natural Heritage Information System (NHIS) updated in January 2015 identified rare species or natural communities within one mile of the Project. (P.13) This constitutes further studies of the area.
- The proposed Project is considered to have a moderate probability of containing intact archaeological sites, historic archaeological sites, and/or architectural properties. (P.29) This constitutes further studies of the area.
- Wildlife was not observed in the Project area during the field review on **March 12, 2015.** (P.13) The field review was severely impacted because the review was conducted in a time frame not consistent with correct wildlife observations.
- No known migration corridors or migratory resting areas exist within the project area. (P.14) There is a long-standing history of a migratory rest stop and nesting area on Myrick Street, with upward of 1,000 migratory waterfowl visiting the site at various times of the year. This was documented February 10, 2011 with the Minnesota Public Utilities Commission. (MN PUC)
- The majority of the Project area is mapped as Zone X, which is defined as outside the 500-Year Flood Zone. The exception in the Project area is Forest Prairie Creek, which is in Zone A, defined as a Special Flood Hazard Area inundated by the 100-Year Flood Zone. (P.16) Further examination of the Forest Prairie Creek area is needed.
- The project area is generally zoned as an Agricultural District, but part of the Project area falls within **Conservancy, Special Protections and Flood Fringe Overlay Districts** (DNR Public Water Forest Prairie Creek, P.31)
- There will be a total of seventeen homes that will be affected by the transmission lines. Of the seventeen homes, eight will be located approximately 50 to 130 feet from the transmission lines. (Google Earth)

2. Lack of Growth:

The substation is in anticipation of growth. The population growth rate of Le Sueur is lower than the state average rate of 7.81% and is much lower than the national average rate of 9.71%. According to CJ Siewert (2014), of the Le Sueur News-Herald, Single-family homes in Le Sueur were constructed at a healthy pace from 2002-07. During those six years, 68 homes were built with at least seven going up per year. The following six years proved to have a dramatic fall off. From 2008-2013, a paltry seven single-family unit homes were constructed in Le Sueur. There have been zero multi-family unit homes built since 2008.

3. Environmentally Flawed Project:

Environmentally, the project is severely flawed. Along 320th Street lies a deep, cavernous, highly erodible ravine. In 2014, the road on 320th Street leading thru the

ravine area was washed away. Discussion occurred as to whether the road would remain open or closed. The road and ravine were completely restructured starting on November 10, 2014. The total cost of renovation to Le Sueur County was $389,000.00. Out of which $10,000.00 was engineering costs and $10,000.00 was dirt work paid for by Tyrone Township. The ravine, as viewed today, does not have transmission lines. However, with the pole placement, vegetation will be removed and the area will again be subject to massive flooding from unexpected severe rain events such as those experienced in 2014. The eventual outcome is irreparable damage to the ravine and surrounding property. The loss of agricultural land and significant environmental and natural areas should be avoided. Additional, issues arise with long-standing wooded areas being disturbed within close proximity to homes on 265th.

4. Biodiversity Area

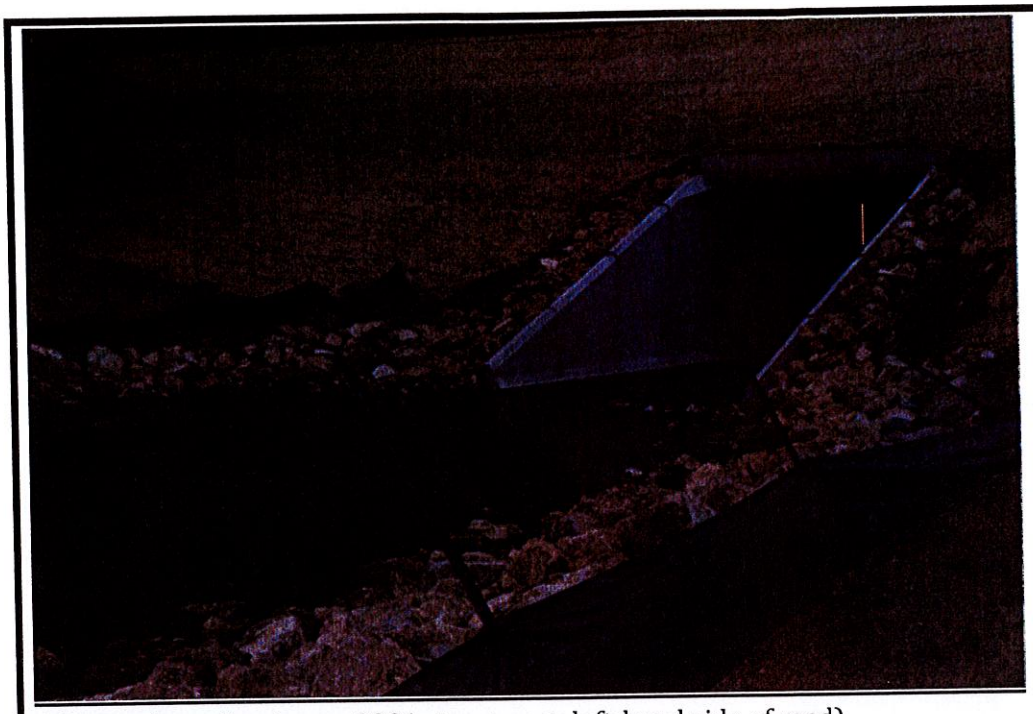
Following Myrick Street for 0.4 miles, heading directly east, along a field line and narrow woodland, a MCBS moderate biodiversity area is crossed connecting to 320th Street, which is the proposed Tyrone Substation site.

(Photo taken of proposed Tyrone Substation Site along 320th Street)

Additional Photos

(Photo taken of ravine erosion on 320th street, east, left-hand side of road)

(Photo taken of ravine on 320th street, east, right-hand side of road)



(Photo taken of ravine on 320th street, east, left-hand side of road)

(Photo taken of steep hill on 320th street)
The ravine crossing would drop 110 feet following the slope of the road, according to Goggle Earth.

Conclusion

The way the county and its communities respond to growth and transition will set the tone of community quality and livability for generations to come. The manner in which land is used, how open space and farmland is preserved, where infrastructure is provided, and the overall management of growth will be all determined by the current set of community leaders. All of us in some way or another will have our quality of life comprised. Whether it is the power line 50 feet from a garage door or so many other inequities, we will all bare the brunt of GRE and MVEC's need for greed when they come roaring through.

Citizens say, "Stop the power lines and substation and vote, No"!

What We Need to Know:

THE LANDOWNER'S COMPENSATION:
The landowner's compensation for easements, damages or inconvenience caused on farms and in woodlands should be based on the following factors:

- Compensation for access to the right-of-way and for signing the signing option.
- Compensation for the easement and right-of-way.
- Compensation for the presence of support structures.
- Compensation for temporary workspace.
- Compensation for time spent by the owner on certain jobs and assessing construction damage.
- Compensation for crop losses.
- Compensation for inconvenience caused by construction.
- Compensation for temporary easement.

****We would encourage everyone to drive the proposed route, and observe the vast obstacles that will be faced.

ADDITIONAL FINDINGS:

According to the website, Safespace (2015), some of the health risks of living near an electric substation/transmission lines are the following:

- Is there a safe living distance from or to the Power lines? Experts say as far as possible. Hundreds of studies worldwide have shown that living next to high voltage power lines and other parts of the power transmission network increases your risk of cancer and other health problems. The electrical power grid uses a "step down" system of distribution, highest near the generating station and substations, lowest at the end. The closer you are the more you are bombarded with dangerous electro-magnetic field or EMF. A magnetic field is part of the EMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!

- Your body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy. Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA. After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits.

- Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more.
- Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neurodegenerative disease.
- There is strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk.
- Dr. David Carpenter, Dean of the School of Public Health (SUNY) believes that up to 30% of all childhood cancers come from exposure to high voltage power lines.
- Even the Environmental Protection Agency (EPA) cautions citizens "there is reason for concern" and advised "prudent avoidance" of high voltage power lines.
- The California Department of Health studies cited dozens of other epidemiological studies specifically link high voltage power lines with:
    - Brain tumors
    - Leukemia
    - Birth defects
    - Lymphoma
    - Headaches
    - Fatigue
    - Insomnia
    - Prickling and/or burning skin
    - Rashes
    - Lou Gehrig's disease

Citizens Against:

Signatures of citizens **against** the 69 kV Electric Transmission Line and the Electrical Distribution Substation (Tyrone Substation)

Date	Name	Address	State	Zip Code
5/25/15	Bob Altman	301 Myrick St LeSueur	MN	56058
5/25/15	Theresa Altman	301 Myrick S LeSueur	MN	56058
5-25-15	Cindy EdBlom	323 MyRick St Lesueur	MN	56058
5-25-15	Andy Anderson	326 Myrick St	MN	56058
5-25-15	Michael Kalis	406 Myrick St.	MN	56058
5/25/15	Amber Kalis	400 MyrickSt	MN	56058
5/26/15	Ron Schultz	701 Elm CT LeSueur	MN	56058
5/26/15	Marie Schultz	701 Elm Ct LeSueur	MN	56058
5/26/15	Craig Zuerlein	28544 320th St Lesueur	MN	560585
5/26/15	Deb Meyer	27417 320th LeSueur	MN	56058
5/26/15	Kevin Meyer	27417 320th St	MN	56058
5/26/15	Greg Novak	27080 320th LeSueur	MN	56058
5/26/15	Joan Bardon	26881 320th St LeSueur	MN	56058
5/26/15	William Bardon	26881 320th St LeSueur MN	MN	56058
5/26/15	Diane Smith	32696 265th LeSueur Ave	MN	56058
5/26/15	[illegible]	32626 265th Avenue	MN	56058
5/27/15	Irene A Casey	31827 Tyrone Rd LeSueur, MN	MN	56058
5/27/15	Mary Michels	29119 ST. Thomas Rd	MN	56058

Citizens Against:

Signatures of citizens **against** the 69 kV Electric Transmission Line and the Electrical Distribution Substation (Tyrone Substation)

Date	Name	Address	State	Zip Code
5,25,15	[illegible]	30755 265 ave Le Sueur	Mn	56058
5,25,15	[illegible]	27343 328th St Lesueur	MN	56058
5,25,15	[illegible]	32459 275th Ave Lesueur MN.	MN	56058
5:25:15	[illegible]	27680-320th St Le Sueur MN	MN	56058
5-25-15	Ken Bobler	31730 Tyrone Le Sueur	MN	56058
5-25-15	Lisa Northrup	31302 Tyrone Rd Lesueur	MN	56058
2-25-15	Dale Weyl	30925 Henderson Stover Rd Henderson	MN	56044
5/25/15	[illegible]	P.O. Box 43 LeSueur	MN	56058
5/25/15	[illegible]	P.O Box 43 LeSueur, MN 56058	MN	56058
5/25-15	[illegible]	24401 320th St LeSueur MN	MN	56058
5/25-15	[illegible]	29271 St Thomas Rd 56098 Henderson	MN	56098
5-25-15	[illegible]	30522 271 Ave	MN	56044
5-25-15	Ron Bruns	30366 271 Ave Henderson Mn	MN	56044
5-25-15	LeRoy Weyl	29753-290 St Henderson	MN	56044
5-25-15	Paul [illegible]	27821 330th Stn Le Sueur	MN	56058
5-25-15	Marylou Roland	27821 320th St Lesueur	MN	56058
5-25-15	[illegible]	28097 320th St LeSueur	MN	56058
5-25-15	Martha May	28097 320th LeSueur	MN	56058

Minnesota Historical Society

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STATE HISTORIC PRESERVATION OFFICE

May 26, 2015

RECEIVED
JUN 01 2015

Marsha Parlow
Transmission Permitting Analyst
Great River Energy
12300 Elm Creek Blvd.
Maple Grove, MN 55369-4718

RE: Great River Energy – proposed Tyrone 69 kV Transmission Line
Tyrone Twp, Le Sueur County
SHPO Number: 2015-1851

Dear Ms. Parlow:

Thank you for the opportunity to comment on the above project. It has been reviewed pursuant to the responsibilities given to the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

Due to the nature and location of the proposed project, we agree with your consultant's recommendation that a Phase I archaeological survey be completed for the proposed project. The survey must meet the requirements of the Secretary of the Interior's Standards for Identification and Evaluation, and should include an evaluation of National Register eligibility for any properties that are identified. For a list of consultants who have expressed an interest in undertaking such surveys, please visit the website **preservationdirectory.mnhs.org**, and select "Archaeologists" in the "Search by Specialties" box. Also, we note that the German Evangelical Salem Church, which is listed in the National Register of Historic Places, is located within a half mile of the project area. Any effects of the project on this property should be determined and taken into account as planning for this project proceeds.

We will reconsider the need for archaeological survey if the project area can be documented as previously surveyed or disturbed. Any previous survey work must meet contemporary standards. **Note:** plowed areas and right-of-way are not automatically considered disturbed. Archaeological sites can remain intact beneath the plow zone and in undisturbed portions of the right-of-way.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36CFR800, procedures of the Advisory Council on Historic Preservation for the protection of historic properties. If this project is considered for federal assistance, or requires a federal license or permit, it should be submitted to our office by the responsible federal agency.

If you have any questions regarding our review of this project, please contact Kelly Gragg-Johnson at (651) 259-3455.

Sincerely,

Sarah J. Beimers

Sarah J. Beimers, Manager
Government Programs and Compliance

Minnesota Historical Society, 345 Kellogg Boulevard West, Saint Paul, Minnesota 55102
651-259-3000 • 888-727-8386 • www.mnhs.org

GREAT RIVER ENERGY®

12300 Elm Creek Boulevard • Maple Grove, Minnesota 55369-4718 • 763-445-5000 • Fax 763-445-5050 • greatriverenergy.com

24 April 2015

Ms. Sarah Beimers
Government Programs & Compliance
Minnesota Historical Society
345 Kellogg Blvd. West
St. Paul, MN 55102-1906

RE: Proposed Tyrone 115 kV Transmission Line
LeSueur County, Minnesota
T112N, R25W, Sections 20, 21, 22, 23 and 26

WO# 75311

Dear Ms. Beimers:

Great River Energy is proposing to construct a new four mile 69 kilovolt (kV) transmission line near LeSueur, Minnesota. The line is to support the proposed Minnesota Valley Electric Cooperative Tyrone Substation. This project is needed to serve existing and growing electrical demand in the region.

HDR, Inc. conducted a Critical Issues Analysis (see attached) on April 20, 2015 and recommends a Phase I archaeological reconnaissance survey of the project right of way. Great River Energy is requesting information on the possible effects of the proposed project on cultural and historic properties in the project area. A project description/map is included for your review. The proposed line is marked in blue.

We would appreciate receiving any written comments from your office by Friday, May 15, 2015. If you have any questions or concerns, please contact me at (763) 445-5215. If you wish to contact me by e-mail, my address is mparlow@grenergy.com.

Sincerely,

GREAT RIVER ENERGY

Marsha Parlow

Marsha Parlow
Transmission Permitting Analyst

Enclosure

S:\Legal Services\Environmental\Transmission\Projects\75311 Tyrone\Agency Letters\Tyrone MHS.doc

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
www.greatriverenergy.com

MINNESOTA VALLEY ELECTRIC CO-OP
125 Minnesota Valley Electric Dr.
Jordan, MN 55352
1-800-282-6832
www.mvec.net

Project Need:
Minnesota Valley Electric Co-op (MVEC) proposes to build a new electrical distribution substation (Tyrone Substation) south of the intersection of 320th Street and Myrick Street, on the west side of 320th Street. To provide electric service to the new Tyrone Substation, Great River Energy, power supplier to MVEC and 27 other Minnesota cooperatives, proposes to construct an approximately four mile long 69,000 volt (69 kV) electric transmission line between the new MVEC Tyrone Substation and Xcel Energy's existing 69 kV 5402 line, located near the intersection of 265th Avenue and 320th Street (see Project Map on back). The new substation and transmission line are needed to serve the existing and growing electrical demand in the area.

Typical 69 kV Transmission Line With Distribution Underbuild

Project Description
Great River Energy plans to build a 69 kV electric transmission line, the centerline of which will generally run parallel to 320th Street and 265th Avenue. However, existing structures and other construction considerations may, in some areas, move the centerline away from these roads. The new transmission line will require a right-of-way 35 feet wide on either side of the centerline. Easements will be needed within the existing road rights-of-way and partially on private property adjacent to the roadways. Property owners will be contacted by a GRE representative to discuss access and the acquisition of easements for the new transmission line. This new transmission line will be a single circuit configuration with MVEC distribution line underbuild on some segments of the line (see example photo at right). The poles will be primarily wood and will range in height from 70 - 85 feet above ground.

Trees
Removal of trees and vegetation will be necessary for safety and maintenance purposes along the transmission line right-of-way. A representative from Great River Energy will contact property owners along the transmission corridor before any tree work takes place.

Project Schedule:

Project contact and/or notifications ----------Fall/Winter 2014
Project Permitting ----------Winter 2014/2015
Transmission Line Build ----------Winter/Spring 2015/2016
Energization ----------June 2016

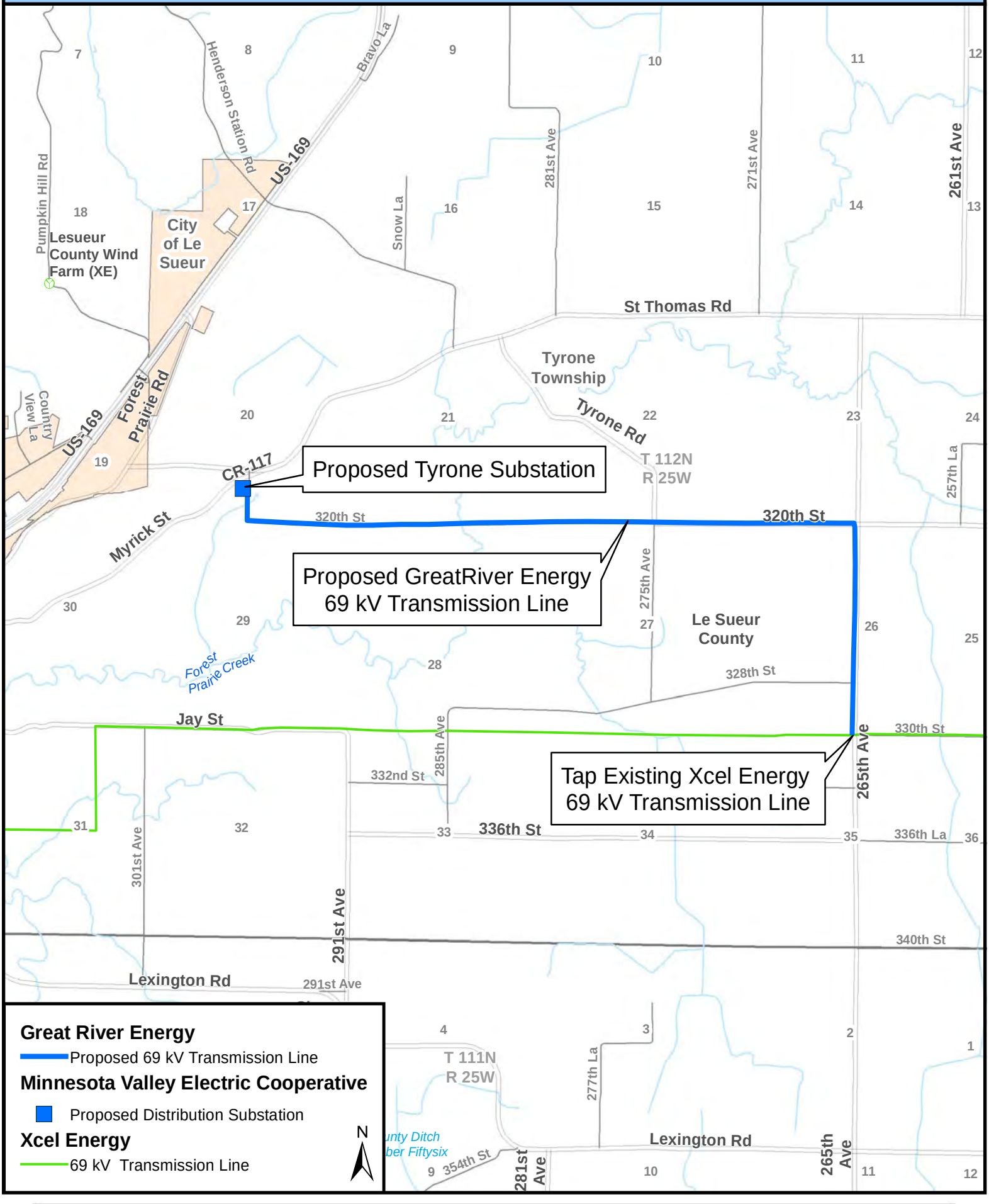
For project updates and information, visit greatriverenergy.com/tyrone or contact:

Great River Energy
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 1/5/2015

Proposed Project



Memo

Date:	Monday, April 20, 2015
Project:	Tyrone Transmission Line Upgrade
To:	Marsha Parlow – Great River Energy Transmission Permitting Analyst
From:	Erika Eigenberger M.A. Andrew Kurth M.S.
Subject:	Great River Energy Tyrone Transmission Line Upgrade Project, Le Sueur County, Minnesota

Tyrone Transmission Line Upgrade Critical Issues Analysis

This memorandum presents the results of a Critical Issues Analysis (CIA) completed for the proposed Tyrone Transmission Line Upgrade Project (Project) in Le Sueur County, Minnesota. HDR was contacted by Great River Energy (GRE) to conduct a CIA that included literature and database searches for historic resources and providing recommendations for future Project cultural resource needs. The Project consists of the construction of approximately 4 miles of new transmission line, generally running parallel to 320th Street and 265th Avenue in Le Sueur County, Minnesota. The Project will include a single circuit 69kV transmission line. The new transmission line route will require a 70-foot wide right-of-way (ROW) that includes 35 feet on either side of the centerline. If construction activities were to occur outside of the identified ROW, those areas would also require cultural resource review and investigation.

The Project is located in Sections 20-23 and 26-27 of Township 112N, Range 25W in Tyrone Township (Figure 1). In order to adequately address resources that may be affected by Project components, Minnesota State Historic Preservation Office guidelines suggest reviewing a larger study area to establish a context and determine site density as it relates to the proposed project. Therefore, a larger Study Area was established. The Study Area for this Project is defined as the proposed transmission line route plus an additional one-mile buffer. The Study Area includes Sections 19-30 and 33-36 of Township 112N, Range 25W (Table 1 and Figure 1).

Table 1. Study Area Legal Description

County	Township	Range	Sections
Le Sueur	112N	25W	19-30 and 33-36

HDR staff conducted background research at the Minnesota State Historic Preservation Office (SHPO) and the Minnesota Historical Society (MHS) on April 1, 2015. Research focused on previously identified archaeological sites, architectural properties, and previously conducted archaeological surveys within the Study Area. In addition to the background research conducted at MHS and SHPO, HDR reviewed General Land Office (GLO) maps accessed online through the GLO Historic Map Retrieval System at http://www.mngeo.state.mn.us/glo/Index.htm.

The purpose of a CIA is to reveal potential issues and resources that may be encountered. This document presents the results of a cursory desktop analysis that was completed using files obtained from SHPO, MHS, and select web sources. The document provides a brief overview and is not meant to replace a literature search or field survey.

MINNESOTA REGULATORY FRAMEWORK

State laws and regulations that may potentially apply to the Project include: the Minnesota Historic Sites Act (MS 138.661-669); the Minnesota Field Archaeology Act (MS 138.31-138.42); and the Private Cemeteries Act (MS 307.08).

Minnesota Historic Sites Act (MS 138.661-669). The Minnesota Historic Sites Act requires state agencies to consult with the Minnesota Historical Society before undertaking or licensing projects that may affect properties on the State Historic Sites Network under the administration and control of the Minnesota Historical Society, or properties on the State or National Registers of Historic Places (NRHP).

Minnesota Field Archaeology Act (MS 138.31-138.42). The Minnesota Field Archaeology Act requires licenses to engage in archaeology on non-federal public land and requires state agencies to submit development plans to the State Archaeologist, The Minnesota Historical Society and the Minnesota Indian Affairs Council for review when there are known or suspected archaeological sites in the area.

Private Cemeteries Act (MS 307.08). This Act protects all human burials or skeletal remains located on public or private land.

BACKGROUND RESEARCH RESULTS

Previously Recorded Archaeological Sites
No previously recorded archaeological sites were identified within the Study Area.

Previously Recorded Architectural Properties
Three previously recorded architectural properties were located within the Study Area (Table 2, Figure 1). Properties consist of a school, a church, and a town hall. The church (LE-TYR-007) is listed on the NRHP. The school (LE-TYR-006) and the town hall (LE-TYR-008) have not been evaluated for the NRHP.

In addition, the exact location of the town hall (LE-TYR-008) is currently unknown, as no site map or precise locational information was available. Preliminary research suggests the property may be within or immediately adjacent to the proposed Project ROW, but may no longer be extant (Figure 1). The remaining two properties do not intersect the Project.

Table 2. Previously Recorded Architectural Properties within the Study Area

Property Number	County	Township	Range	Section	Property Type	NRHP Eligibility
LE-TYR-006	Le Sueur	112N	25W	20	School Building	Unevaluated
LE-TYR-007	Le Sueur	112N	25W	25	Church Building	Listed
LE-TYR-008*	Le Sueur	112N	25W	26	Town Hall Building	Unevaluated

*Exact location is unknown.

Previous Archaeological Surveys

Three archaeological surveys have been conducted within the Study Area (Table 3, Figure 1). All three surveys were Phase I – Reconnaissance surveys for the Minnesota Valley Rest Area, located in Section 19 of Township 112N, Range 25W. One prehistoric lithic scatter (21LE0043) was identified as part of rest area surveys, but is outside the Study Area. None of the previous surveys intersect the Project.

Table 3. Previous Archaeological Surveys within the Study Area

Report Number	Title	Author	Year
THY-88-01	The Minnesota Trunk Highway Archaeological Reconnaissance Study Annual Report – 1987	Peterson, Leslie, William Yourd, and Leroy Gonsior	1987
THY-90-01	The Minnesota Trunk Highway Archaeological Reconnaissance Study Annual Report - 1989	Peterson, Leslie, Thor A. Olmanson, and Wanda Watson Radford	1989
THY-91-01	The Minnesota Trunk Highway Archaeological Reconnaissance Study Annual Report - 1990	Peterson, Leslie, Thor A. Olmanson, and Wanda Watson Radford	1990

General Land Office Maps

Two features were identified within the Study Area on General Land Office (GLO) maps dating to 1856 (Table 4, Figure 2). Features include a homestead in the southwest quarter of Section 21 of Township 112N, Range 25W and a portion of the St. Paul Road, extending northeast by southwest through the northeast quarter of Section 20 of Township 112N, Range 25W. None of the depicted GLO features transect the Project.

Table 4. General Land Office Map Features within the Study Area

Feature Name	Feature Type	GLO Map Year
None	Homestead	1856
St. Paul Road	Road	1856

RECOMMENDATIONS

A review of the Study Area identified no previously identified archaeological sites, three previously identified architectural properties, three previous archaeological surveys, and two GLO map features. Of the three previously identified architectural properties, one is listed on the NRHP (LE-TYR-007) and two have not been evaluated (LE-TYR-006 and LE-TYR-008).

Although the exact location of property LE-TYR-008 is currently unknown, preliminary research suggests the property may be within or immediately adjacent to the proposed Project ROW. In addition, based on the initial review of available sources and aerial photographs, it appears as though property LE-TYR-008 may no longer be extant. However, if the property is indeed no longer extant, surface features (such as foundations) or subsurface remains (archaeological deposits) associated with the property may still be encountered.

The review of previously identified sites and surveys and the knowledge HDR cultural resource professionals have regarding the area's historical context suggest that additional, as yet undiscovered, sites may be present within the Study Area. The Study Area transects drainages, creeks, and streams, including the Prairie Forest Creek a tributary of the Minnesota River. The topography of the area includes rolling hills and uplands adjacent to water bodies. All these factors suggest the Study Area contains a moderate probability of containing additional intact archaeological sites, historic archaeological sites, and/or architectural properties.

Based on the summary of the data reviewed, HDR recommends a Phase I archaeological reconnaissance survey of the Project ROW. The scope and scale of this investigation should be determined after the Project route is well defined. If needed, evaluation of any newly identified archaeological resources impacted by the Project and associated potentially required mitigation will be determined on a case-by-case basis and discussed in an additional scope. In addition to the investigation for archaeological resources, affects on architectural properties may also need consideration as the Project construction could potentially impact adjacent properties. All work should be conducted in accordance with the *SHPO Manual for Archaeological Projects in Minnesota* (Minnesota State Historic Preservation Office 2005) and the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (National Park Service 1983).

REFERENCES CITED

Minnesota State Historic Preservation Office
2004 *SHPO Manual for Archaeological Projects in Minnesota.* Available online at: http://www.mnhs.org/shpo/survey/archsurvey.pdf.

National Park Service
1983 *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*. Current version available online at http://www.nps.gov/history/local-law/arch_stnds_9.htm.

United States
1887 *General Land Office Survey Maps.* Online versions available at: http://www.mngeo.state.mn.us/glo/index.html. Accessed April 2015.

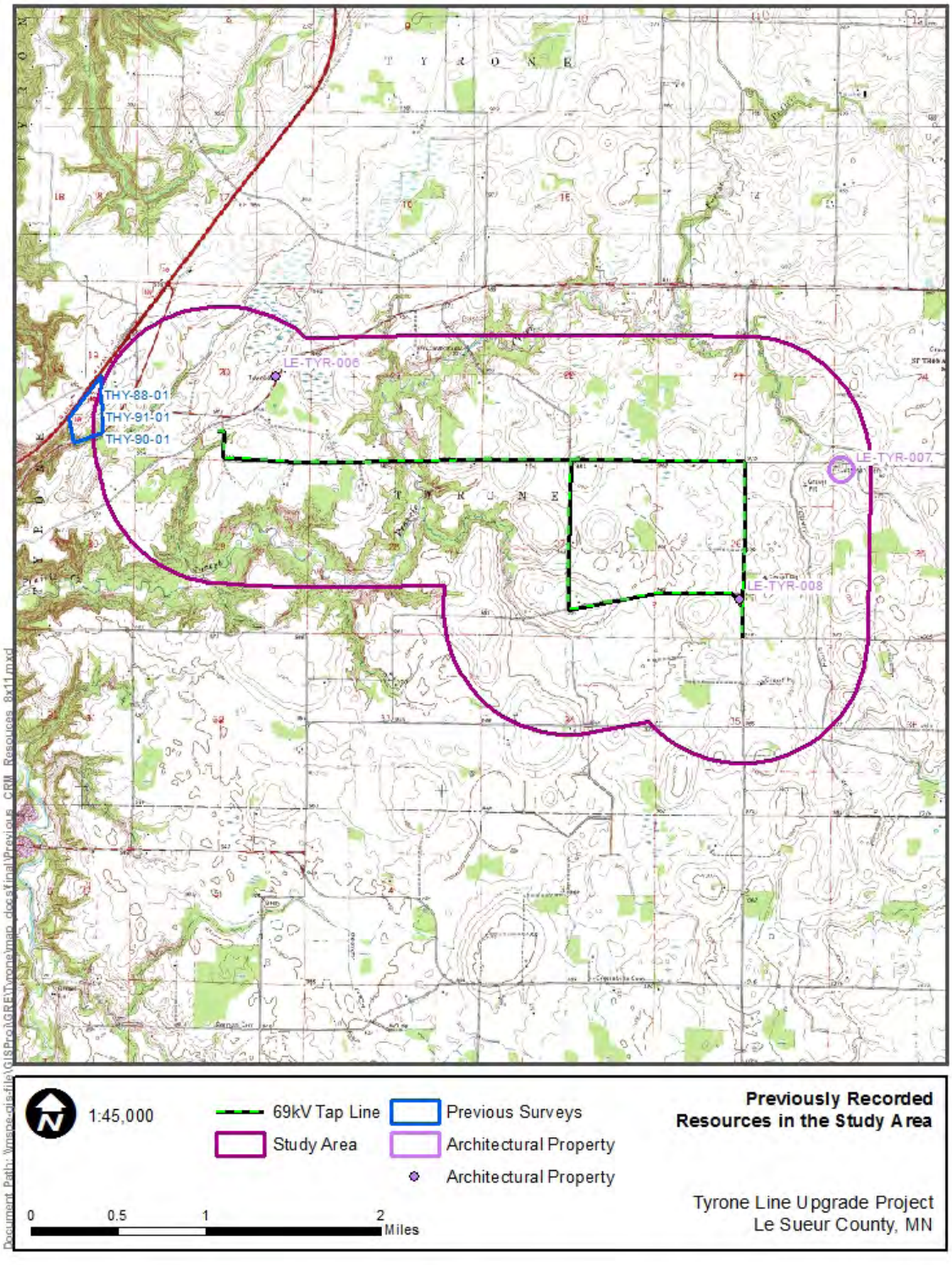


Figure 1. Previously Recorded Resources in the Study Area

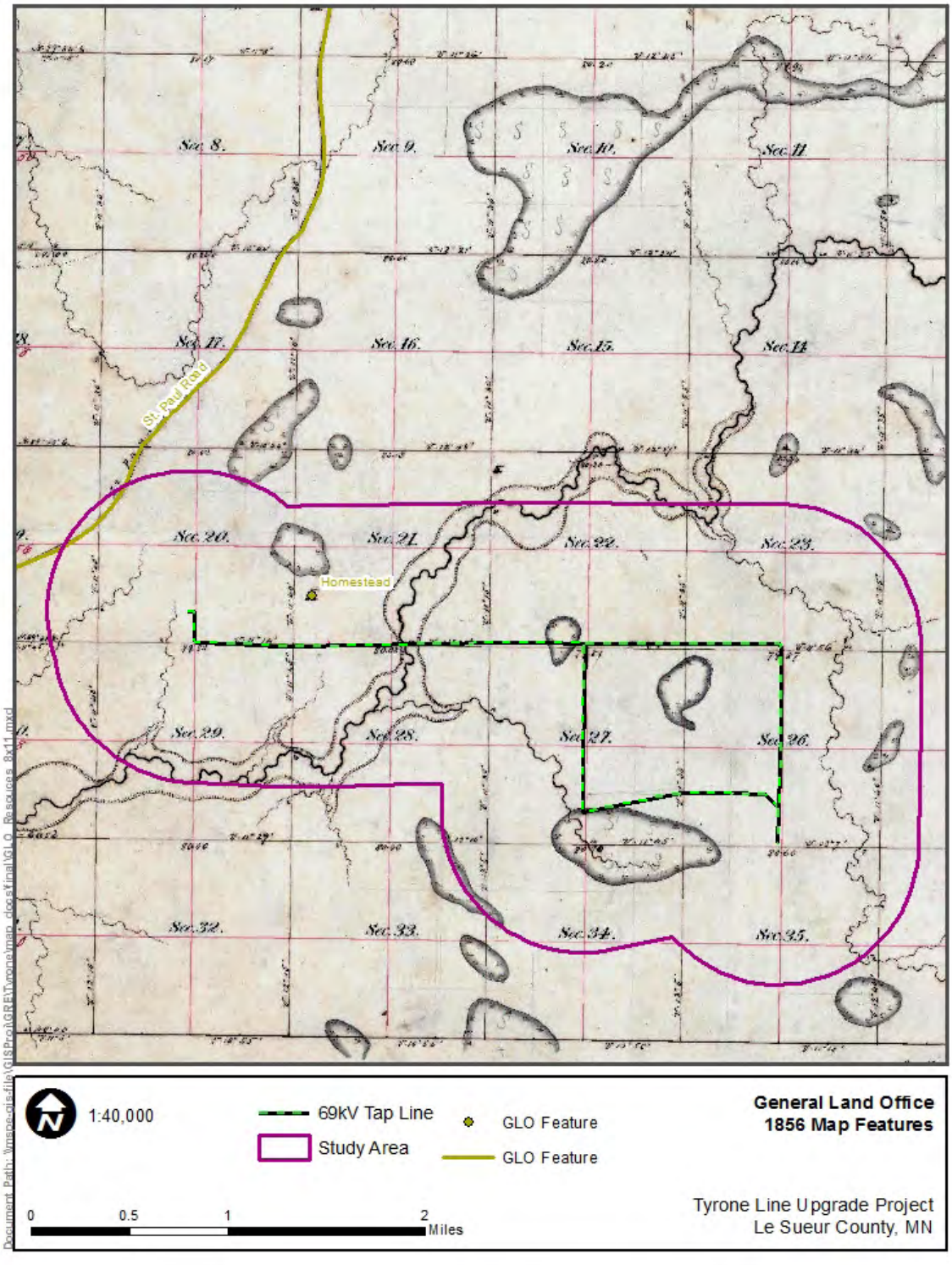


Figure 2. General Land Office 1856 Map Features

Parlow, Marsha GRE-MG

From: Jaka, Jonathan [jonathan_jaka@fws.gov]
Sent: Friday, April 17, 2015 11:02 AM
To: Parlow, Marsha GRE-MG
Cc: Andrew Horton
Subject: Re: FWS Review: Proposed Tyrone 69 KV Project
Attachments: 75311 Tyrone FWS.pdf

Dear Ms. Parlow,

I apologize for the confusion. The project description I was reviewing had both LeSeur and Meeker Counties listed and I did not notice until after I sent you a response. To confirm, I have reviewed a project proposal for the **69kV** Tyrone Transmission Upgrade in **Le Sueur County**, Minnesota.

LeSueur	Northern long-eared bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.

There is one known northern long-eared bat hibernacula in Le Sueur County, Minnesota. The hibernacula is located approximately 15 miles from the project's action area.

Please note that the northern long-eared bat, which has been listed as Threatened with an Interim 4(d) Rule under the Endangered Species Act, may be present in Le Sueur County. Any tree removal that may occur during the species' active season (April 1-September 30) has the potential to take the northern long-eared bat. We recommend that any tree removal at this location be conducted outside the the summer roost period for the species. Between the months of October 1st and March 30th, we would not anticipate the northern long-eared bat to be present in the action area.

Under the Interim 4(d) Rule, any incidental take would not be prohibited provided the project can be defined as "Routine Maintenance" or "Limited Expansion of Existing Rights-of-way and Transmission Corridors." In order to be considered "Limted Expansion" the expansion must be "...of a corridor or ROW by up to 100 feet (30 m) from the edge of an existing cleared corridor or ROW..." Incidental take will not be prohibited provided the following conservation measures are adhered to, the activity must: 1) occur more than 0.25 mile (0.4 kilometer) from a known, occupied hibernacula; 2) avoid cutting or destroying known, occupied roost trees during the pup season (June 1–July 31); and avoid clearcuts (and similar harvest methods, e.g., seed tree, shelterwood, and coppice) within 0.25 mile (0.4 kilometer) of known, occupied roost trees during the pup season (June 1–July 31). Please refer to the Threatened with an Interim 4(d) Listing Rule for additional information regarding the the northern long-eared bat Threatened designation and Interim 4(d) Rule exemptions.
http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/FRnlebFinalListing02April2015.pdf

Additionally, Under the Migratory Bird Treaty Act of 1918, as amended, it is unlawful to take, capture, kill, or possess migratory birds, their nests, eggs, and young. If migratory birds are known to nest on any structures or habitat which may be disturbed by project construction, activities (e.g., tree removal) should begin and be completed before the initiation of the breeding season for those species or after breeding has concluded. Generally, we recommend that any habitat disturbance occur before May 1 or after August 30 to minimize potential impacts to migratory birds, but please be aware that some species may initiate nesting before May 1.

If project plans change, additional information on listed or proposed species becomes available, or new species are listed that may be affected by the project, our office should be contacted. This concludes our technical assistance review of the proposed action at the above location. If you have any further endangered species questions, please contact Andrew Horton at andrew_horton@fws.gov or (612) 725-3548 x2208.

Again, I apologize for the confusion with regard to the project location.

Thank you,

On Fri, Apr 17, 2015 at 10:10 AM, Parlow, Marsha GRE-MG <mparlow@grenergy.com> wrote:

Hi Jonathan,

Can you look at this again? This says Meeker County. Our Tyrone project is in Le Sueur County.

Marsha Parlow

Transmission Permitting Analyst

Environmental Services

Great River Energy

12300 Elm Creek Boulevard

Maple Grove, MN 55369

Direct: 763-445-5215 | Fax: 763-445-5246 | Cell: 612-345-1212

WWW.GreatRiverEnergy.com

** Please consider the environment before you print this e-mail.*

From: Jaka, Jonathan [mailto:jonathan_jaka@fws.gov]
Sent: Friday, April 17, 2015 9:44 AM
To: Parlow, Marsha GRE-MG
Cc: Andrew Horton
Subject: FWS Review: Proposed Tyrone 69 KV Project

Dear Ms. Parlow,

I have reviewed your project proposal for Tyrone Transmission Upgrade in Meeker County, Minnesota. For the county listed, the following species may occur:

Meeker	Northern long-eared bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.

We have no known records for federally listed or proposed species and/or designated or proposed critical habitat within the action area.

Please note that the northern long-eared bat, which has been listed as Threatened with an Interim 4(d) Rule under the Endangered Species Act, may be present in Meeker County. Any tree removal that may occur during the species' active season (April 1-September 30) has the potential to take the northern long-eared bat. We recommend that any tree removal at this location be conducted outside the the summer roost period for the species. Between the months of October 1st and March 30th, we would not anticipate the northern long-eared bat to be present in the action area.

Under the Interim 4(d) Rule, any incidental take would not be prohibited provided the project can be defined as "Routine Maintenance" or "Limited Expansion of Existing Rights-of-way and Transmission Corridors." In order to be considered "Limted Expansion" the expansion must be "...of a corridor or ROW by up to 100 feet (30 m) from the edge of an existing cleared corridor or ROW..." Incidental take will not be prohibited provided the following conservation measures are adhered to, the activity must: 1) occur more than 0.25 mile (0.4 kilometer) from a known, occupied hibernacula; 2) avoid cutting or destroying known, occupied roost trees during the pup season (June 1–July 31); and avoid clearcuts (and similar harvest methods, e.g., seed tree, shelterwood, and coppice) within 0.25 mile (0.4 kilometer) of known, occupied roost trees during the pup season (June 1–July 31). Please refer to Threatened with an Interim 4(d) Listing Rule for additional information regarding the the northern long-eared bat Threatened designation and Interim 4(d) Rule exemptions.
http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/FRnlebFinalListing02April2015.pdf

Additionally, Under the Migratory Bird Treaty Act of 1918, as amended, it is unlawful to take, capture, kill, or possess migratory birds, their nests, eggs, and young. If migratory birds are known to nest on any structures or habitat which may be disturbed by project construction, activities (e.g., tree removal) should begin and be completed before the initiation of the breeding season for those species or after breeding has concluded. Generally, we recommend that any habitat disturbance occur before May 1 or after August 30 to minimize potential impacts to migratory birds, but please be aware that some species may initiate nesting before May 1.

If project plans change, additional information on listed or proposed species becomes available, or new species are listed that may be affected by the project, our office should be contacted. This concludes our technical assistance review of the proposed action at the above location. If you have any further endangered species questions, please contact Andrew Horton at andrew_horton@fws.gov or (612) 725-3548 x2208.

Thank you,

--

Jonathan JaKa

Pathways Student (Biologist)

Midwest Region

U.S. Fish and Wildlife Service

5600 American Blvd. West, Suite 990

Bloomington, MN 55437-1458

Telephone: 612-713-5318

jonathan_jaka@fws.gov

--
Jonathan JaKa
Pathways Student (Biologist)
Midwest Region
U.S. Fish and Wildlife Service
5600 American Blvd. West, Suite 990
Bloomington, MN 55437-1458

Telephone: 612-713-5318
jonathan_jaka@fws.gov

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14 January 2015

Mr. Andrew Horton, Fish and Wildlife Biologist
United States Department of the Interior
Twin Cities Field Office
4101 American Boulevard East
Bloomington, MN 55425-1665

RE: Proposed Tyrone 115 kV Transmission Line
LeSueur County, Minnesota
T112N, R25W, Sections 20, 21, 22, 23 and 26

WO# 75311

Dear Mr. Horton:

Great River Energy is proposing to construct a new four mile 69 kilovolt (kV) transmission line near LeSueur, Minnesota. The line is to support the proposed Minnesota Valley Electric Cooperative Tyrone Substation. This project is needed to serve existing and growing electrical demand in the region.

The Fish and Wildlife Service website (http://www.fws.gov/Midwest/Endangered/LISTS/minnesot-cty.html) indicates that Northern Long Eared Bat *(Myotis septentrionalis*) is proposed to be listed on the threatened and endangered list for Meeker County, Minnesota. Great River Energy is requesting concurrence or information on the possible effects of the proposed project on any listed or proposed threatened or endangered species and designated or proposed critical habitat that may be present in the project area. A project description has been included for your review. The proposed line is marked in blue.

We would appreciate receiving any written comments from your office by Monday, February 16 2015. If you have any questions about this proposed project, please contact me at (763) 445-5215. If you wish to respond by e-mail, my address is mparlow@grenergy.com. Thank you for your cooperation and assistance.

Sincerely,

GREAT RIVER ENERGY

Marsha Parlow

Marsha Parlow
Transmission Permitting Analyst

Enclosure

S:\Legal Services\Environmental\Transmission\Projects\75311 Tyrone\Agency Letters\Tyrone FWS.doc

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
www.greatriverenergy.com

MINNESOTA VALLEY ELECTRIC CO-OP
125 Minnesota Valley Electric Dr.
Jordan, MN 55352
1-800-282-6832
www.mvec.net

Project Need:
Minnesota Valley Electric Co-op (MVEC) proposes to build a new electrical distribution substation (Tyrone Substation) south of the intersection of 320th Street and Myrick Street, on the west side of 320th Street. To provide electric service to the new Tyrone Substation, Great River Energy, power supplier to MVEC and 27 other Minnesota cooperatives, proposes to construct an approximately four mile long 69,000 volt (69 kV) electric transmission line between the new MVEC Tyrone Substation and Xcel Energy's existing 69 kV 5402 line, located near the intersection of 265th Avenue and 320th Street (see Project Map on back). The new substation and transmission line are needed to serve the existing and growing electrical demand in the area.

Typical 69 kV Transmission Line With Distribution Underbuild

Project Description
Great River Energy plans to build a 69 kV electric transmission line, the centerline of which will generally run parallel to 320th Street and 265th Avenue. However, existing structures and other construction considerations may, in some areas, move the centerline away from these roads. The new transmission line will require a right-of-way 35 feet wide on either side of the centerline. Easements will be needed within the existing road rights-of-way and partially on private property adjacent to the roadways. Property owners will be contacted by a GRE representative to discuss access and the acquisition of easements for the new transmission line. This new transmission line will be a single circuit configuration with MVEC distribution line underbuild on some segments of the line (see example photo at right). The poles will be primarily wood and will range in height from 70 - 85 feet above ground.

Trees
Removal of trees and vegetation will be necessary for safety and maintenance purposes along the transmission line right-of-way. A representative from Great River Energy will contact property owners along the transmission corridor before any tree work takes place.

Project Schedule:

Project contact and/or notifications ----------Fall/Winter 2014
Project Permitting ----------Winter 2014/2015
Transmission Line Build ----------Winter/Spring 2015/2016
Energization ----------June 2016

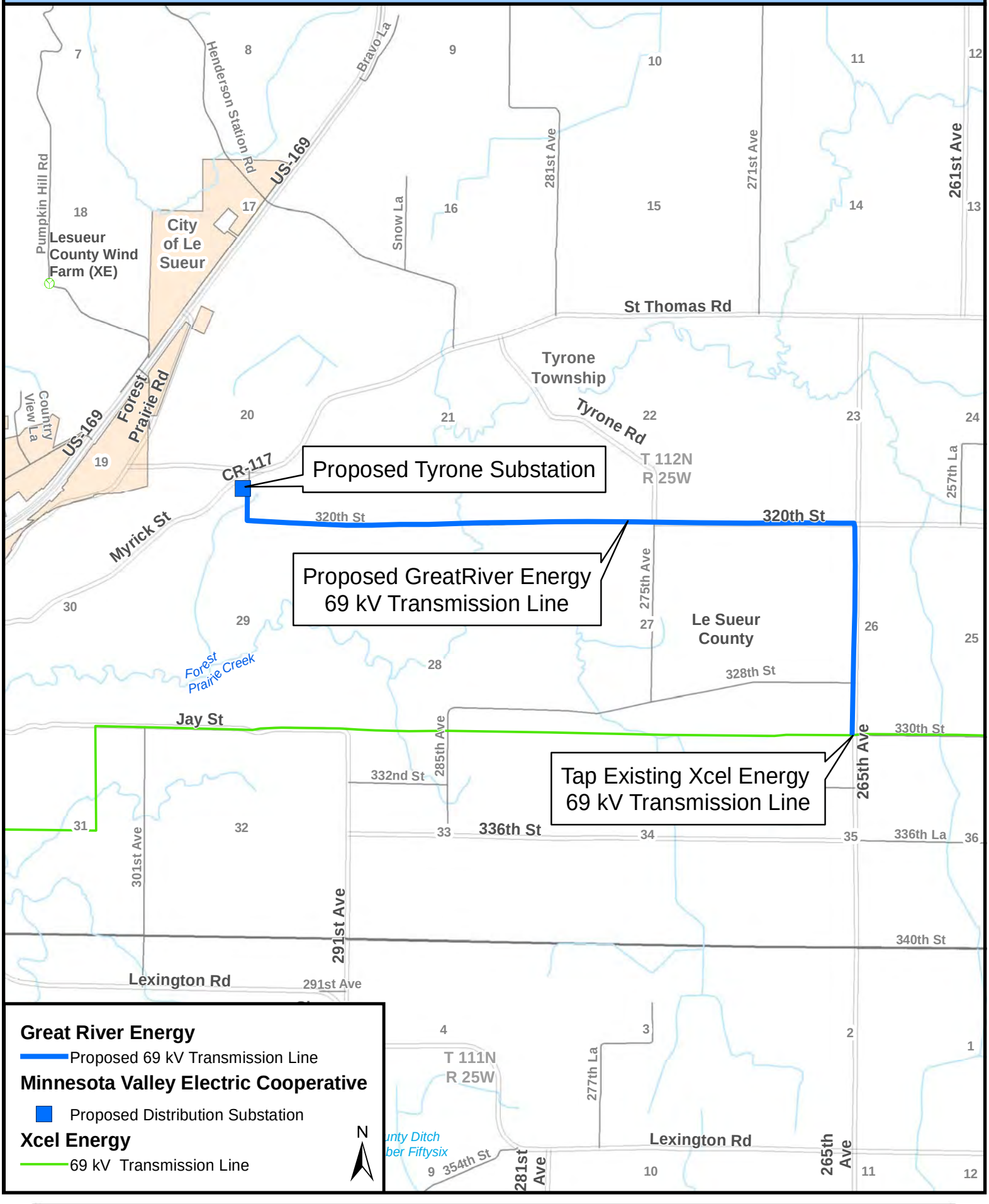
For project updates and information, visit greatriverenergy.com/tyrone or contact:

Great River Energy
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 1/5/2015

Proposed Project



Parlow, Marsha GRE-MG

From: Conklin, Brian (DOT) [brian.conklin@state.mn.us]
Sent: Monday, March 23, 2015 8:00 AM
To: Parlow, Marsha GRE-MG
Cc: Boerner, Daniel (DOT); Baker, Harris (DOT)
Subject: FW: google earth sketch of powerline ... RE: DOT Review: Proposed Tyrone 69 KV Project
Attachments: power-line-le-sueur.kmz; 75311 Tyrone MNDO.PDF

Good Morning Marsha,

Thank you for your enquiry into the impact the power line construction may have on the LeSueur Airport. From the description and drawings that you've provided, it appears to have no impact on the LeSueur Airport. Any construction with in 20,000ft. of an airport that penetrates the 100:1 surface is subject to FAA reporting requirements (7460-1). The closest that the power line construction appears to come to the LeSueur Airport is around 22,000ft. and is therefore not required to file a report with the FAA. I'm attaching a link to the Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) at the FAA website for future use.

https://oeaaa.faa.gov/oeaaa/external/portal.jsp

We appreciate that you include MnDOT Aeronautics in any pre-planning of construction projects near airports.

If you have any other questions or comments, please call or email any time.

Sincerely,

Brian Conklin
South Region Airport Specialist
Office of Aeronautics
222 East Plato Blvd.
St.Paul, MN 55107-1618
e-mail: brian.conklin@state.mn.us
Tel. 651-234-7247
Fax. 651-296-9089

From: Boerner, Daniel (DOT)
Sent: Friday, March 20, 2015 3:59 PM
To: Conklin, Brian (DOT)
Subject: google earth sketch of powerline ... RE: DOT Review: Proposed Tyrone 69 KV Project

Hi Brian,

I sketched up the proposed power-line in Google Earth. It is attached. The line never gets closer than 20,000 feet from the airport. Looks like it is not an issue for the airport.

Dan

From: Parlow, Marsha GRE-MG [mailto:mparlow@GREnergy.com]
Sent: Friday, March 20, 2015 3:35 PM
To: Conklin, Brian (DOT)

Cc: Boerner, Daniel (DOT)
Subject: DOT Review: Proposed Tyrone 69 KV Project

Hello,

My apologies, I think I may have sent this to the wrong contact. Is there a chance someone could review this and get back to me as soon as they can?

Marsha Parlow
Transmission Permitting Analyst
Environmental Services
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369
Direct: 763-445-5215 | Fax: 763-445-5246 | Cell: 612-345-1212
WWW.GreatRiverEnergy.com

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14 January 2015

Mr. Dan Boerner
Office of Aeronautics
Minnesota Department of Transportation
222 E. Plato Blvd.
St. Paul, MN 55107-1618

RE: Proposed Tyrone 115 kV Transmission Line
LeSueur County, Minnesota
T112N, R25W, Sections 20, 21, 22, 23 and 26

WO# 75311

Dear Mr. Boerner:

Great River Energy is proposing to construct a new four mile 69 kilovolt (kV) transmission line near LeSueur, Minnesota. The line is to support the proposed Minnesota Valley Electric Cooperative Tyrone Substation. This project is needed to serve existing and growing electrical demand in the region.

The transmission line will be constructed with wood single poles that will generally range between 75 to 80 feet in height. Elevations in the project area range from 951 feet (SW ¼ SE ¼ of Section 20, T112N, R25W) to 990 feet (SE ¼ SW ¼ and SW ¼ SE ¼ of Section 21, T112N, R25W). Great River Energy is requesting information on the possible effects of the proposed project on airports or airstrips in the project area.

From my research, I find that the closest public airport to the project is the Le Sueur Municipal Airport (3.6 nm SW) and the closest private airport is the Minnesota Valley Health Center Heliport (3.1 nm SW). A project description is enclosed for your information. The proposed line is marked in blue.

We would appreciate receiving any written comments from your office by Monday, February 16, 2015. If you have any questions about this proposed project, please contact me at (763) 445-5215. If you wish to respond by e-mail, my address is mparlow@GREnergy.com. Thank you for your cooperation and assistance.

Sincerely,

GREAT RIVER ENERGY

Marsha Parlow

Marsha Parlow
Transmission Permitting Analyst

Enclosure

S:\Legal Services\Environmental\Transmission\Projects\75311 Tyrone\Agency Letters\Tyrone MNDO.doc

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
www.greatriverenergy.com

MINNESOTA VALLEY ELECTRIC CO-OP
125 Minnesota Valley Electric Dr.
Jordan, MN 55352
1-800-282-6832
www.mvec.net

Project Need:
Minnesota Valley Electric Co-op (MVEC) proposes to build a new electrical distribution substation (Tyrone Substation) south of the intersection of 320th Street and Myrick Street, on the west side of 320th Street. To provide electric service to the new Tyrone Substation, Great River Energy, power supplier to MVEC and 27 other Minnesota cooperatives, proposes to construct an approximately four mile long 69,000 volt (69 kV) electric transmission line between the new MVEC Tyrone Substation and Xcel Energy's existing 69 kV 5402 line, located near the intersection of 265th Avenue and 320th Street (see Project Map on back). The new substation and transmission line are needed to serve the existing and growing electrical demand in the area.

Typical 69 kV Transmission Line With Distribution Underbuild

Project Description
Great River Energy plans to build a 69 kV electric transmission line, the centerline of which will generally run parallel to 320th Street and 265th Avenue. However, existing structures and other construction considerations may, in some areas, move the centerline away from these roads. The new transmission line will require a right-of-way 35 feet wide on either side of the centerline. Easements will be needed within the existing road rights-of-way and partially on private property adjacent to the roadways. Property owners will be contacted by a GRE representative to discuss access and the acquisition of easements for the new transmission line. This new transmission line will be a single circuit configuration with MVEC distribution line underbuild on some segments of the line (see example photo at right). The poles will be primarily wood and will range in height from 70 - 85 feet above ground.

Trees
Removal of trees and vegetation will be necessary for safety and maintenance purposes along the transmission line right-of-way. A representative from Great River Energy will contact property owners along the transmission corridor before any tree work takes place.

Project Schedule:

Project contact and/or notifications ----------Fall/Winter 2014
Project Permitting ----------Winter 2014/2015
Transmission Line Build ----------Winter/Spring 2015/2016
Energization ----------June 2016

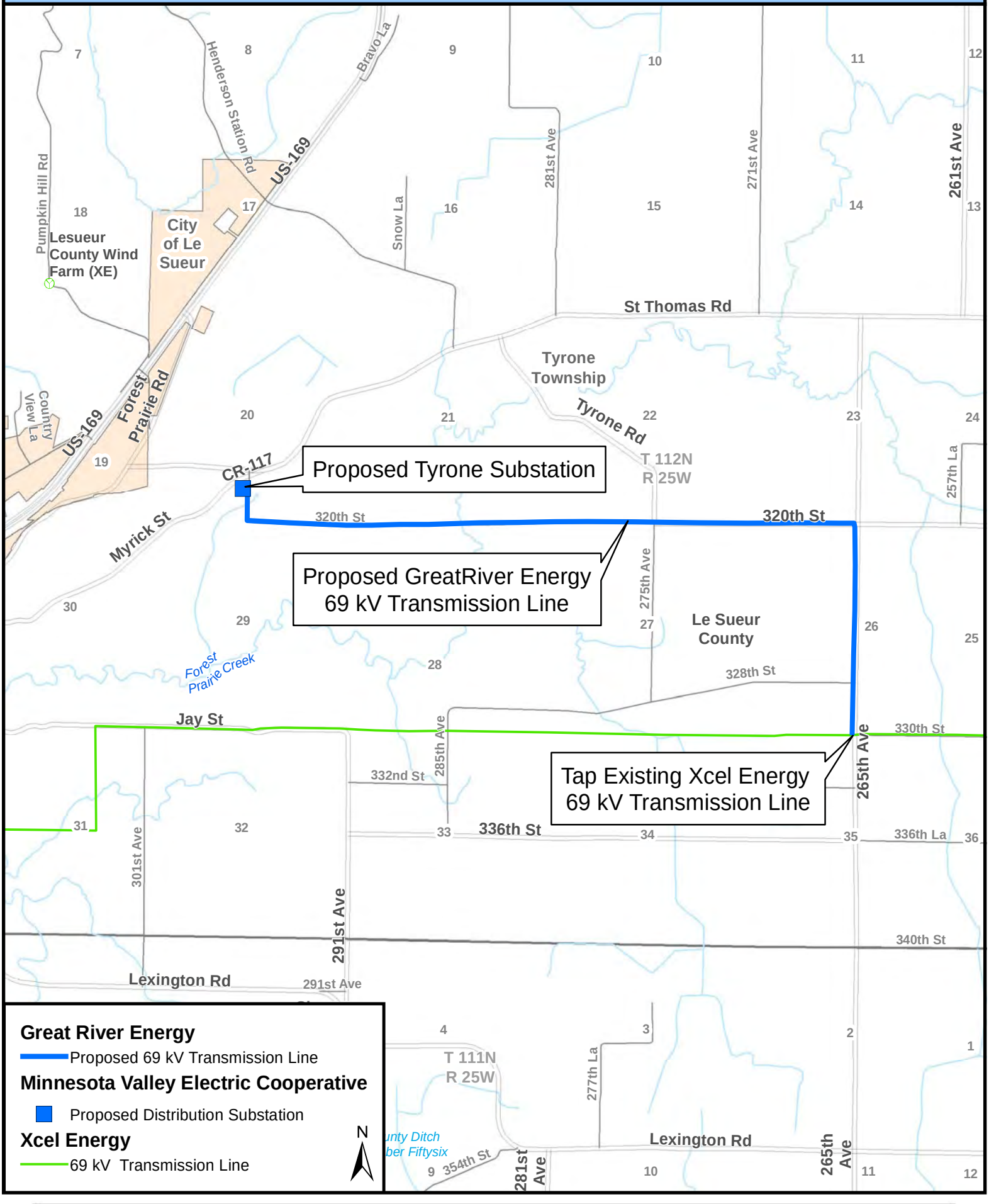
For project updates and information, visit greatriverenergy.com/tyrone or contact:

Great River Energy
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 1/5/2015

Proposed Project



Minnesota Department of Natural Resources
Division of Ecological and Water Resources, Box 25
500 Lafayette Road
St. Paul, Minnesota 55155-4025
Phone: (651) 259-5091 E-mail: samantha.bump@state.mn.us

March 18, 2015 **Correspondence # ERDB 20150235**

Ms. Marsha Parlow
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369-4718

RE: Natural Heritage Review of the proposed Tyrone Transmission Upgrade,
T112N R25W Sections 20-23 & 26-29; LeSueur County

Dear Ms. Parlow,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, please visit the Rare Species Guide at http://www.dnr.state.mn.us/rsg/index.html for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following **rare features *may* be adversely affected** by the proposed project:

- The western foxsnake (*Pantherophis ramspotti*), a Species in Greatest Conservation Need as identified in Minnesota's State Wildlife Action Plan (http://www.dnr.state.mn.us/cwcs/index.html), has been documented in the vicinity of the proposed project and may be encountered on site. For more information about these rare snakes please visit http://www.dnr.state.mn.us/snapshots/snakes_turtles/foxsnake.html. Given the presence of these rare snakes, I recommend that the use of erosion control mesh, if any, be limited to wildlife-friendly materials (see enclosed fact sheet). If snakes are encountered, they should be moved out of harm's way if in imminent danger. Otherwise they should be left undisturbed.

- Please include a copy of this letter in any DNR license or permit application.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. **If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.**

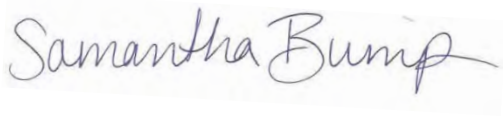
For environmental review purposes, the results of this Natural Heritage Review are valid for one

year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. To determine whether there are other natural resource concerns associated with the proposed project, please contact your DNR Regional Environmental Assessment Ecologist (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,



Samantha Bump
Natural Heritage Review Specialist

enc: Wildlife Friendly Erosion Control

cc: Kevin Mixon

Wildlife Friendly Erosion Control

Wildlife entanglement in, and death from, plastic netting and other man-made plastic materials has been documented in birds (Johnson, 1990; Fuller-Perrine and Tobin, 1993), fish (Johnson, 1990), mammals (Derraik, 2002), and reptiles (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Yet the use of these materials continues in many cases, without consideration for wildlife impacts. Plastic netting is frequently used for erosion control during construction and landscape projects and can negatively impact terrestrial and aquatic wildlife populations as well as snag in maintenance machinery resulting in costly repairs and delays. However, wildlife friendly erosion control materials do exist, and are sold by several large erosion control material companies. Below are a few key considerations before starting a project.

Know Your Options

- Remember to consult with local natural resource authorities (DNR, USFWS, etc.) before starting a project. They can help you identify sensitive areas and rare species.
- When erosion control is necessary, select products with biodegradable netting (natural fiber, biodegradable polyesters, etc.).
- DO NOT use products that require UV-light to biodegrade (also called, "photodegradable"). These do not biodegrade properly when shaded by vegetation.
- Use netting with rectangular shaped mesh (not square mesh).
- Use netting with flexible (non-welded) mesh.

Woven 100% natural fiber erosion control materials being utilized along a central Minnesota stream. ©MN DNR, Nick Proulx

Fish trapped and killed by welded-plastic square erosion control mesh improperly placed along a small central Minnesota stream. Photo courtesy of Ben Lowe.

Know the Landscape

- It is especially important to use wildlife friendly erosion control around:
  - Areas with threatened or endangered species.
  - Wetlands, rivers, lakes, and other watercourses.
  - Habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.).
  - Areas with threatened or endangered species.
- Use erosion mesh wisely, not all areas with disturbed ground necessitate its use. Do not use plastic mesh unless it is specifically required. Other erosion control options exist (open weave textile (OWT), rolled erosion control products (RECPs) with woven natural fiber netting).

WFEC Fact-sheet – MN DNR 2013 (acc.)

Protect Wildlife

- Avoid photodegradable erosion control materials where possible.
- Use only biodegradable materials (typically made from natural fibers), preferably those that will biodegrade under a variety of conditions.
- Wildlife friendly erosion control material costs are often similar to conventional plastic netting.

Plains Gartersnake trapped and killed by welded-plastic square erosion control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

A small vole that was strangled and killed by plastic erosion control material with welded and square mesh. Photo taken in southern Minnesota and provided courtesy of Tom Jessen.

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.

Derraik, J.G.B. 2002. The pollution of the marine environment by plastic debris: a aeview. Marine Pollution Bulletin 44:842-852.

Fuller-Perrine, L.D., and M.E. Tobin. 1993. A method for applying and removing bird-exclusion netting in commercial vineyards. Wildlife Society Bulletin 21:47-51.

Johnson, S.W. 1990. Distribution, abundance, and source of entanglement debris and other plastics on Alaskan beaches, 1982-1988. Proceedings of the Second International Conference on Marine Debris 331-348.

Kapfer, J. M., and R. A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.

Minnesota DEPARTMENT OF NATURAL RESOURCES

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12300 Elm Creek Boulevard • Maple Grove, Minnesota 55369-4718 • 763-445-5000 • Fax 763-445-5050 • greatriverenergy.com

15 January 2015

Ms. Lisa Joyal
Minnesota Department of Natural Resources
Natural Heritage and Nongame Research Program
500 Lafayette Road, Box 25
St. Paul, MN 55155

RE: Proposed Tyrone 115 kV Transmission Line
LeSueur County, Minnesota
T112N, R25W, Sections 20, 21, 22, 23 and 26

WO# 75311

Dear Ms. Joyal:

Great River Energy is proposing to construct a new 69 kilovolt (kV) transmission line near LeSueur, Minnesota. The approximately four mile line is to support the proposed Minnesota Valley Electric Cooperative Tyrone Substation. This project is needed to serve existing and growing electrical demand in the region.

The DNR Rare Features map indicates there are eight features of interest in the vicinity of the project area including, Western Foxsnake (*Pantherophis ramspotti*), two biodiversity (below and moderate) sites, and five plant communities (Oak, Maple, Elm, Basswood, Black Ash Bitternut Hickory Forests). Also, the DNR Public Waters Inventory (PWI) maps indicate that the proposed transmission line affects one public waterbody. However, Great River Energy believes that construction and timing of construction can keep the impact on these features to a minimum.

Great River Energy is requesting concurrence of its interpretation of the rare features in the vicinity and the possible effects of the new transmission line and substation on wetlands, threatened and endangered species, and other important state natural resources that occur in the project area. A project description, PWI map, rare features map, Data Request Form and shape files are enclosed for your information. The proposed line is marked in blue.

We would appreciate receiving any written comments from your office by Monday, February 16, 2015. If you have any questions about this proposed project, please contact me at (763) 445-5215. If you wish to respond by e-mail, my address is mparlow@grenergy.com. Thank you for your cooperation and assistance.

Sincerely,

GREAT RIVER ENERGY
Marsha Parlow

Marsha Parlow
Transmission Permitting Analyst

Enclosures

S:\Legal Services\Environmental\Transmission\Projects\75311 Tyrone\Agency Letters\Tyrone DNR.doc

NO STAPLES PLEASE

Minnesota DEPARTMENT OF NATURAL RESOURCES

2012	For Agency Use Only:		
	Received _____ Due _____ Inv _____	#Sec _____	Contact Rqsted? _____
	Search Radius _____mi. L / I / D EM Map'd _____	#EOs _____	Survey Rqsted? _____
	NoR / NoF / NoE / Std / Sub Let _____ Log out _____	#Com _____	
		Related ERDB# _____	

NATURAL HERITAGE INFORMATION SYSTEM (NHIS) DATA REQUEST FORM

Please read the instructions on page 3 before filling out the form. Thank you!

WHO IS REQUESTING THE INFORMATION?

Mr. ■ Ms.

Name and Title: Marsha Parlow, Transmission Permitting Analyst

Agency/Company: Great River Energy

Mailing Address: 12300 Elm Creek Blvd (Street) Maple Grove (City) MN (State) 55369 (Zip Code)

Phone: 763-445-5215 e-mail: mparlow@grenergy.com

Responses will be sent via email. If you prefer US Mail check here: ☐

THIS INFORMATION IS BEING REQUESTED FOR A:

☐ Federal EA ☐ State EAW ☐ PUC Site or Route Application ☐ Watershed Plan ☐ BER

☐ Federal EIS ☐ State EIS ☑ Local Government Permit ☐ Research Project

☐ NEPA Checklist ☐ Other (describe) _____

☐ Check here if this project is funded through any of the following grant programs: Lessard-Sams Outdoor Heritage Council (L-SOHC), Conservation Partners Legacy (CPL), or Legislative-Citizen Commission on Minnesota Resources (LCCMR).

INFORMATION WE NEED FROM YOU:

1) **Enclose a map** of the project boundary/area of interest (topographic maps or aerial photos are preferred).

2) Please **provide a GIS shapefile*** (NAD 83, UTM Zone 15N) of the project boundary/area of interest.

3) List the following locational information* (attach additional sheets if necessary):

For Agency Use: TRS Confirmed ☐

For Agency Use: Region / MCBS Status	County	Township #	Range #	Section(s) (please list **all** sections)
	LeSueur	112	25	20, 21, 22, 23, 26, 27, 28 and 29

4) Please provide the following information (attach additional sheets if necessary):

Project Name: Tyrone Transmission Upgrade

Project Proposer: Great River Energy

Description of Project (including types of disturbance anticipated from the project):

See attached factsheet.

* Please see the instructions on page 3.

Describe the existing land use of the project site. What types of land cover / habitat will be impacted by the proposed project?

Road right of way with trees and open upland areas.

List any waterbodies (e.g., rivers, intermittent streams, lakes, wetlands) that may be affected by the proposed project, and discuss how they may be impacted (e.g., dewatering, discharge, riverbed disturbance).

One public waterbody (Forest Prairie Creek) will be spanned. Tall growing trees will be removed in the newly acquired transmission right of way.

Does the project have the potential to affect any groundwater resources (e.g., groundwater appropriation, change in recharge, or contamination)?

No

To your knowledge, has the project undergone a previous Natural Heritage review? If so, please list the correspondence #: ERDB # _____. How does this request differ from the previous request (e.g., change in scope, change in boundary, project being revived, project expansion, different phase)?

Not Applicable

To your knowledge, have any native plant community or rare species surveys been conducted within the site? If so, please list:

None

List any DNR Permits or Licenses that you will be applying for or have already applied for as part of this project:

An application for a water crossing license on the Forest Prairie Creek.

INFORMATION WE PROVIDE TO YOU:

1) The response will include a Natural Heritage letter. If applicable, the letter will discuss potential effects to rare features.

☐ Check here if you are interested in a list of rare features in the vicinity of the area of interest but you do **not** need a review of potential effects to rare features. Please list the reason a review is not needed:

_____

2) Depending on the results of the query or review, the response may include an Index Report of known aggregation sites and known occurrences of federally and state-listed plants and animals* within an approximate one-mile radius of the project boundary/area of interest. The Index Report and Natural Heritage letter can be included in any public environmental review document.

3) A Detailed Report that contains more information on each occurrence may also be requested. Please note that the Detailed Report may contain specific location information that is protected under *Minnesota Statutes*, section 84.0872, subd. 2, and, as such, the Detailed Report may not be included in any public document (e.g., an EAW).

☐ Check here if you would like to request a Detailed Report. Please note that if the results of the review are 'No Effects' or a standard comment, a Detailed Report may not be available.

FEES / TURNAROUND TIME

There is a fee* for this service. Requests generally take **3-4 weeks** from date of receipt to process, and are processed in the order received.

I have read the entire form and instructions, and the information supplied above is complete and accurate. I understand that material supplied to me from the Natural Heritage Information System is copyrighted and that I am not permitted to reproduce or publish any of this copyrighted material without prior written permission from the DNR. Further, if permission to publish is given, I understand that I must credit the Minnesota Division of Ecological and Water Resources, Minnesota Department of Natural Resources, as the source of the material.

Signature **(required)** Marsha Parlow	Note: Digital signatures representing the name of a person shall be sufficient to show that such person has signed this document.

Mail or email completed form to:

Lisa Joyal, Endangered Species Review Coordinator
Division of Ecological and Water Resources
Minnesota Department of Natural Resources
500 Lafayette Road, Box 25
St. Paul, Minnesota 55155
Review.NHIS@state.mn.us

Form is available at
http://files.dnr.state.mn.us/eco/nhnrp/nhis_data_request.pdf

Revised March 2, 2012

* Please see the instructions on page 3.

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
www.greatriverenergy.com

MINNESOTA VALLEY ELECTRIC CO-OP
125 Minnesota Valley Electric Dr.
Jordan, MN 55352
1-800-282-6832
www.mvec.net

Project Need:
Minnesota Valley Electric Co-op (MVEC) proposes to build a new electrical distribution substation (Tyrone Substation) south of the intersection of 320th Street and Myrick Street, on the west side of 320th Street. To provide electric service to the new Tyrone Substation, Great River Energy, power supplier to MVEC and 27 other Minnesota cooperatives, proposes to construct an approximately four mile long 69,000 volt (69 kV) electric transmission line between the new MVEC Tyrone Substation and Xcel Energy's existing 69 kV 5402 line, located near the intersection of 265th Avenue and 320th Street (see Project Map on back). The new substation and transmission line are needed to serve the existing and growing electrical demand in the area.

Typical 69 kV Transmission Line With Distribution Underbuild

Project Description
Great River Energy plans to build a 69 kV electric transmission line, the centerline of which will generally run parallel to 320th Street and 265th Avenue. However, existing structures and other construction considerations may, in some areas, move the centerline away from these roads. The new transmission line will require a right-of-way 35 feet wide on either side of the centerline. Easements will be needed within the existing road rights-of-way and partially on private property adjacent to the roadways. Property owners will be contacted by a GRE representative to discuss access and the acquisition of easements for the new transmission line. This new transmission line will be a single circuit configuration with MVEC distribution line underbuild on some segments of the line (see example photo at right). The poles will be primarily wood and will range in height from 70 - 85 feet above ground.

Trees
Removal of trees and vegetation will be necessary for safety and maintenance purposes along the transmission line right-of-way. A representative from Great River Energy will contact property owners along the transmission corridor before any tree work takes place.

Project Schedule:

Project contact and/or notifications ----------Fall/Winter 2014
Project Permitting ----------Winter 2014/2015
Transmission Line Build ----------Winter/Spring 2015/2016
Energization ----------June 2016

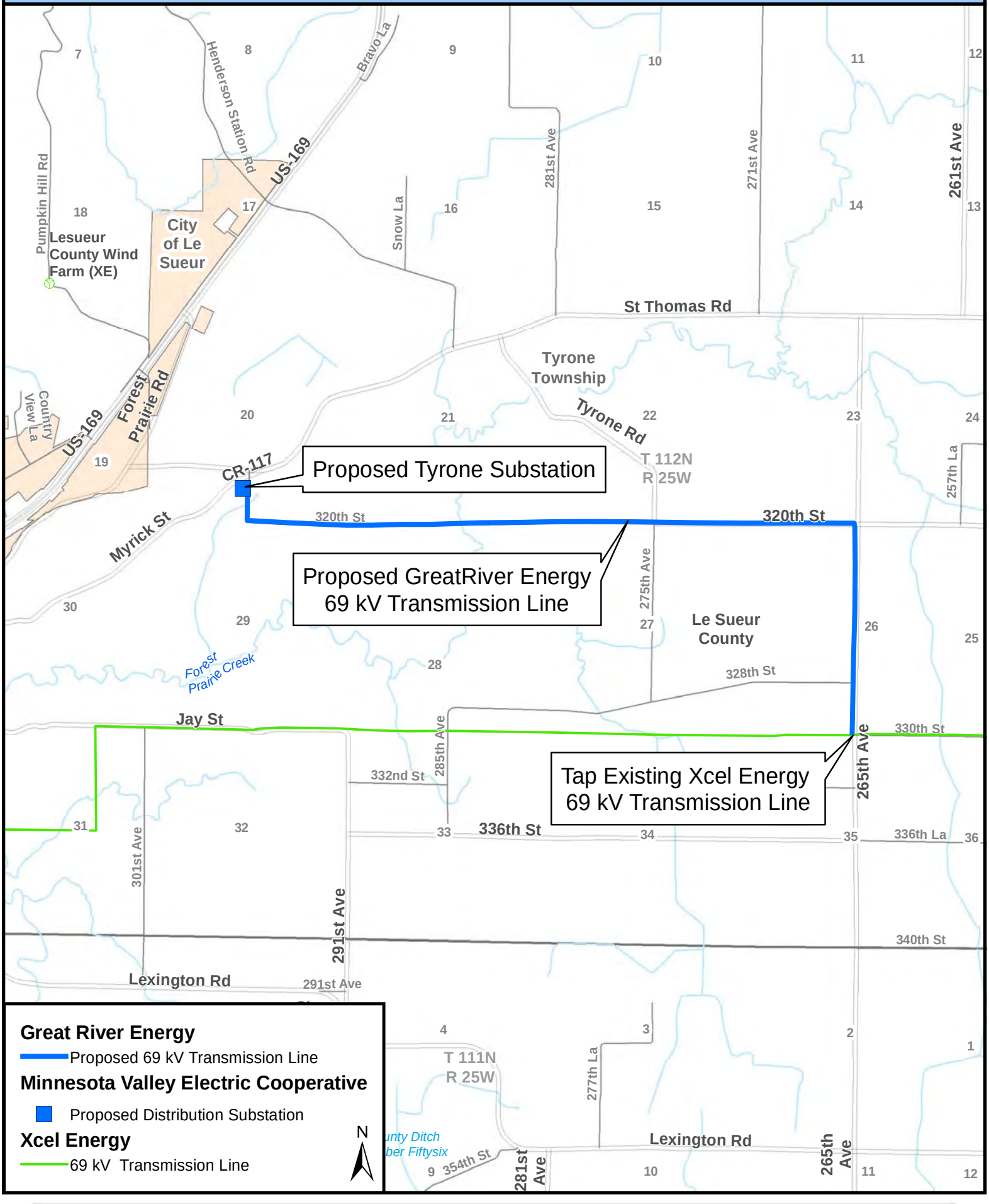
For project updates and information, visit greatriverenergy.com/tyrone or contact:

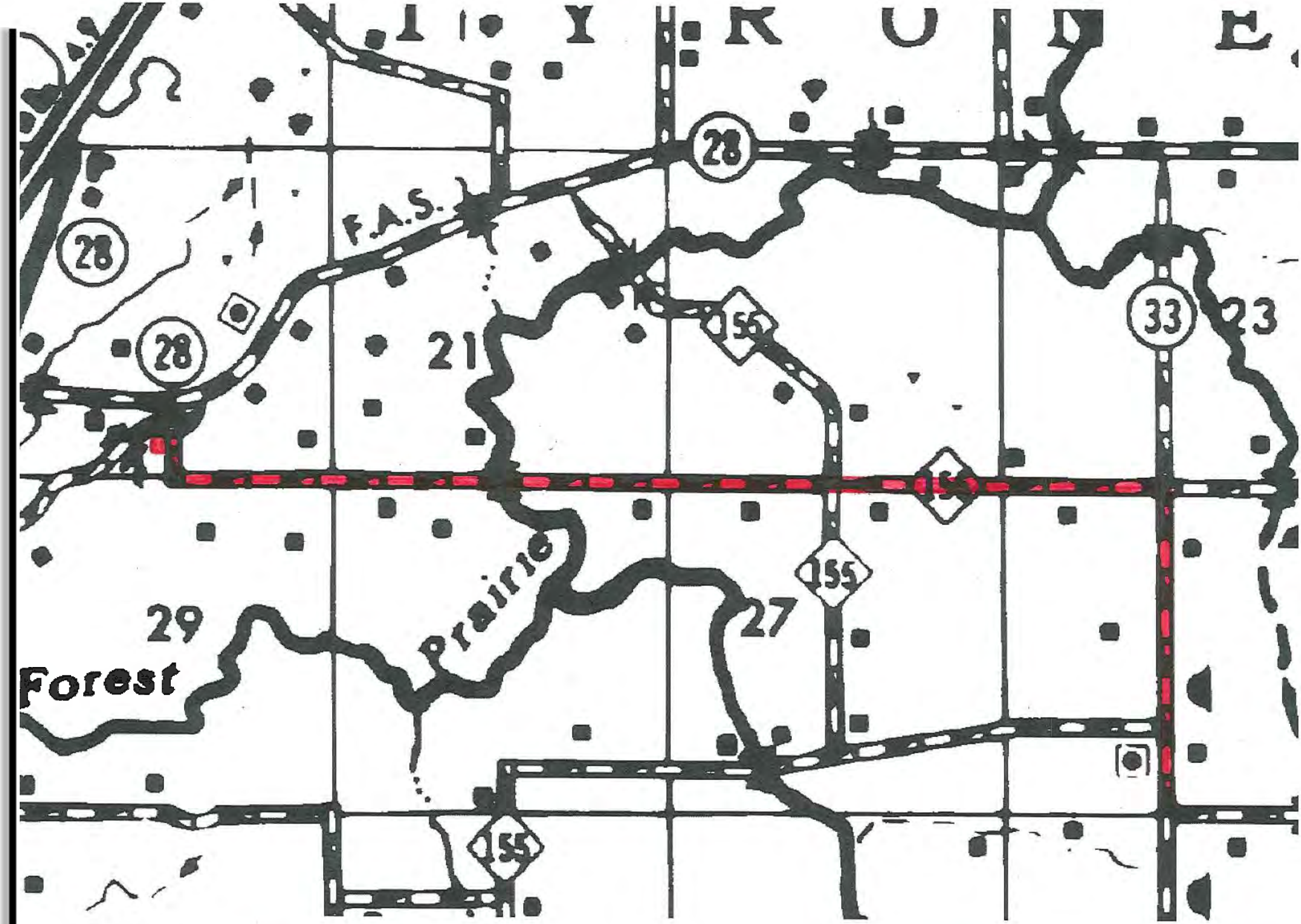
Great River Energy
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 1/5/2015

Proposed Project

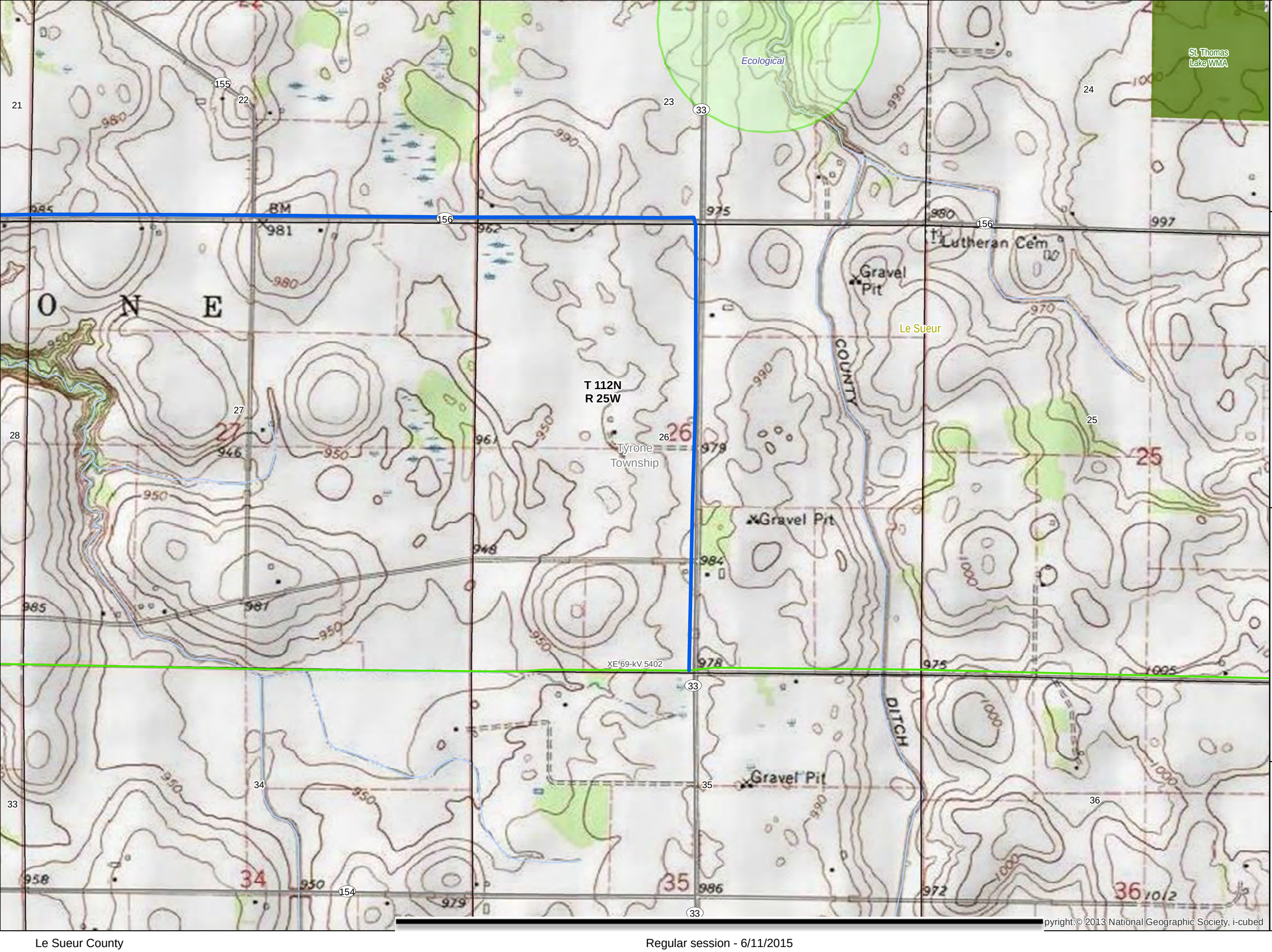




Forest Prairie Creek

Tyrone Substation

SWSE of Section 21, T112 R25 Lesueur County



GREAT RIVER ENERGY®

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Great River Energy

Proposed 69 kV Transmission Line

Minnesota Valley Electric Cooperativ

Proposed Distribution Substation

Xcel Energy

Existing 69 kV Transmission Line

Rare Natural Feature (NHIS)

Protection Status

Not listed

MN Wildlife Management Areas

Updated: 1/14/2015

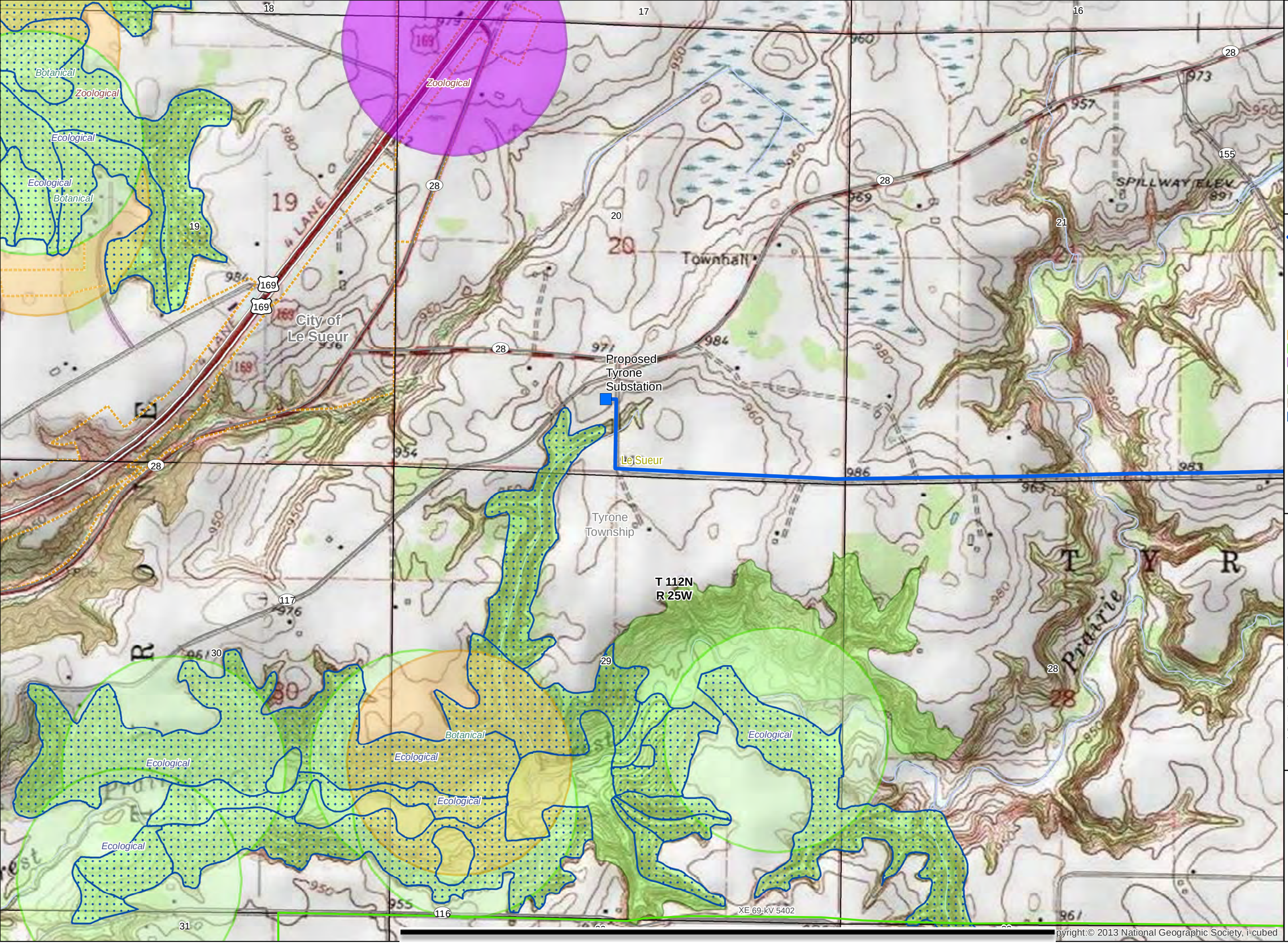
Data Sources vary between MNDOT, MNDNR, MNGEO and Great River Energy
Rare Features Heritage data from MNDNR
Topo scaned image maps from the United States Geological Survey (USGS)
ESRI Basemap service
Map Projection:
UTM, NAD83, Zone15, Meters

N

0 250 500 750 1,000 Feet

Tyrone 69 kV Transmission Tap Line Project Map 1

Rare Features



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Great River Energy

Proposed 69 kV Transmission Line

Minnesota Valley Electric Cooperativ

Proposed Distribution Substation

Xcel Energy

Existing 69 kV Transmission Line

Rare Natural Feature (NHIS)

Protection Status

Special Concern

Not listed

Watchlist

Sites of Biodiversity Significance

Moderate

Below

MN Native Plant Community

Updated: 1/14/2015

Data Sources vary between MNDOT, MNDNR, MNGEO and Great River Energy
Rare Features Heritage data from MNDNR
Topo scaned image maps from the United States Geological Survey (USGS)
ESRI Basemap service
Map Projection:
UTM, NAD83, Zone15, Meters

"Copyright (2014), State of Minnesota, Department of Natural Resources. Rare features data included here were provided by the Division of Ecological Resources, Minnesota Department of Natural Resources (DNR), and were current as of (12-10-2014). These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present."

N

0 250 500 750 1,000 Feet

Tyrone 69 kV Transmission Tap Line Project Map 2

Rare Features

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 FIFTH STREET EAST, SUITE 700
ST. PAUL MINNESOTA 55101-1678

01/20/2015

REPLY TO
ATTENTION OF
Operations
Regulatory (MVP-2015-00178-DAS)

THIS IS NOT A PERMIT

Marsha Parlow
Great River Energy
12300 Elm Creek Blvd
Maple Grove, MN 55369

Dear Ms. Parlow:

We have received your submittal described below. You may contact the Project Manager with questions regarding the evaluation process. The Project Manager may request additional information necessary to evaluate your submittal.

File Number: MVP-2015-00178-DAS

Applicant: Great River Energy

Project Name: Great River Energy / Tyrone Transmission Line

Received Date: 01/20/2015

Project Manager: David Studenski
U.S. Army Corps of Engineers
LaCrescent Field Office
1114 South Oak Street
LaCrescent, Minnesota 55947-1338
651-290-5902

Additional information about the St. Paul District Regulatory Program can be found on our web site at http://www.mvp.usace.army.mil/missions/regulatory.

Please note that initiating work in waters of the United States prior to receiving Department of the Army authorization could constitute a violation of Federal law. If you have any questions, please contact the Project Manager.

Thank you.

U.S. Army Corps of Engineers
St. Paul District
Regulatory Branch

GREAT RIVER ENERGY®

12300 Elm Creek Boulevard • Maple Grove, Minnesota 55369-4718 • 763-445-5000 • Fax 763-445-5050 • greatriverenergy.com

14 January 2015

Ms. Sarah E. Wingert
US Army Corps of Engineers
St. Paul District Office
180 5th Street East, Suite 700
St. Paul, MN 55101-1678

RE: Proposed Tyrone 115 kV Transmission Line
LeSueur County, Minnesota
T112N, R25W, Sections 20, 21, 22, 23 and 26

WO# 75311

Dear Ms. Wingert:

Great River Energy is proposing to construct a new four mile 69 kilovolt (kV) transmission line near LeSueur, Minnesota. The line is to support the proposed Minnesota Valley Electric Cooperative Tyrone Substation. This project is needed to serve existing and growing electrical demand in the region.

Great River Energy is requesting information on the possible effects of the proposed project on floodplains, wetlands, and other important natural resources that occur in the project area. The transmission line will span one DNR public water. There are no wetlands in the vicinity of the project (see enclosed map). A project description and NWI map has been included for your review. The proposed line is marked in blue.

Great River Energy is requesting concurrence of its interpretation of the possible effects of the proposed transmission project on wetlands that occur in the project area. We would appreciate receiving any written comments from your office by Monday, February 16, 2015. If you have any questions about this proposed project, please contact me at (763) 445-5215. If you wish to respond by e-mail, my address is mparlow@grenergy.com. Thank you for your cooperation and assistance.

Sincerely,

GREAT RIVER ENERGY

Marsha Parlow

Marsha Parlow
Transmission Permitting Analyst

Enclosure

S:\Legal Services\Environmental\Transmission\Projects\75311 Tyrone\Agency Letters\Tyrone ACE.doc

Tyrone Transmission Upgrade

GREAT RIVER ENERGY
12300 Elm Creek Boulevard
Maple Grove, MN 55369
1-888-521-0130
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MINNESOTA VALLEY ELECTRIC CO-OP
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Project Need:
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Energization ----------June 2016

For project updates and information, visit greatriverenergy.com/tyrone or contact:

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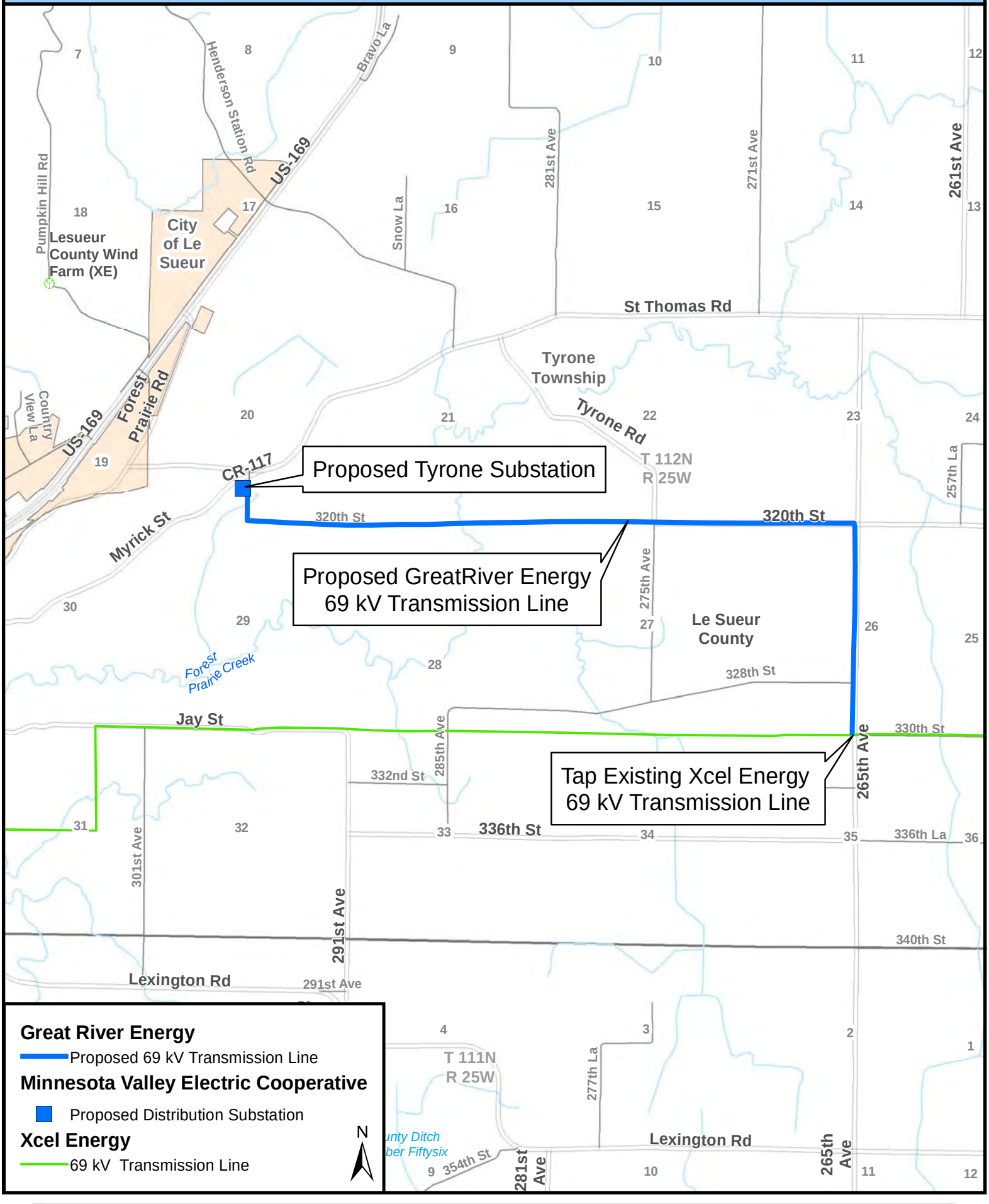
Peter Schaub
Sr. Field Representative
763-445-5976
pschaub@grenergy.com

Minnesota Valley Electric Co-op
Ron Jabs
Community Relations & Operation Support
952-492-8244
rjabs@mvec.net

Date last revised: 1/5/2015

Proposed Project



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Great River Energy

Proposed 69 kV Transmission Line

Minnesota Valley Electric Cooperative

Proposed Distribution Substation

Xcel Energy

Existing 69 kV Transmission

NWI Wetlands

Freshwater Emergent Wetland

Freshwater Pond

MN Public Watercourse

Updated: 1/14/2015

Data Sources vary between MNDOT, MNDNR, MNGEO and Great River Energy

Aerial Imagery form: ESRI World Imagery Basemap service

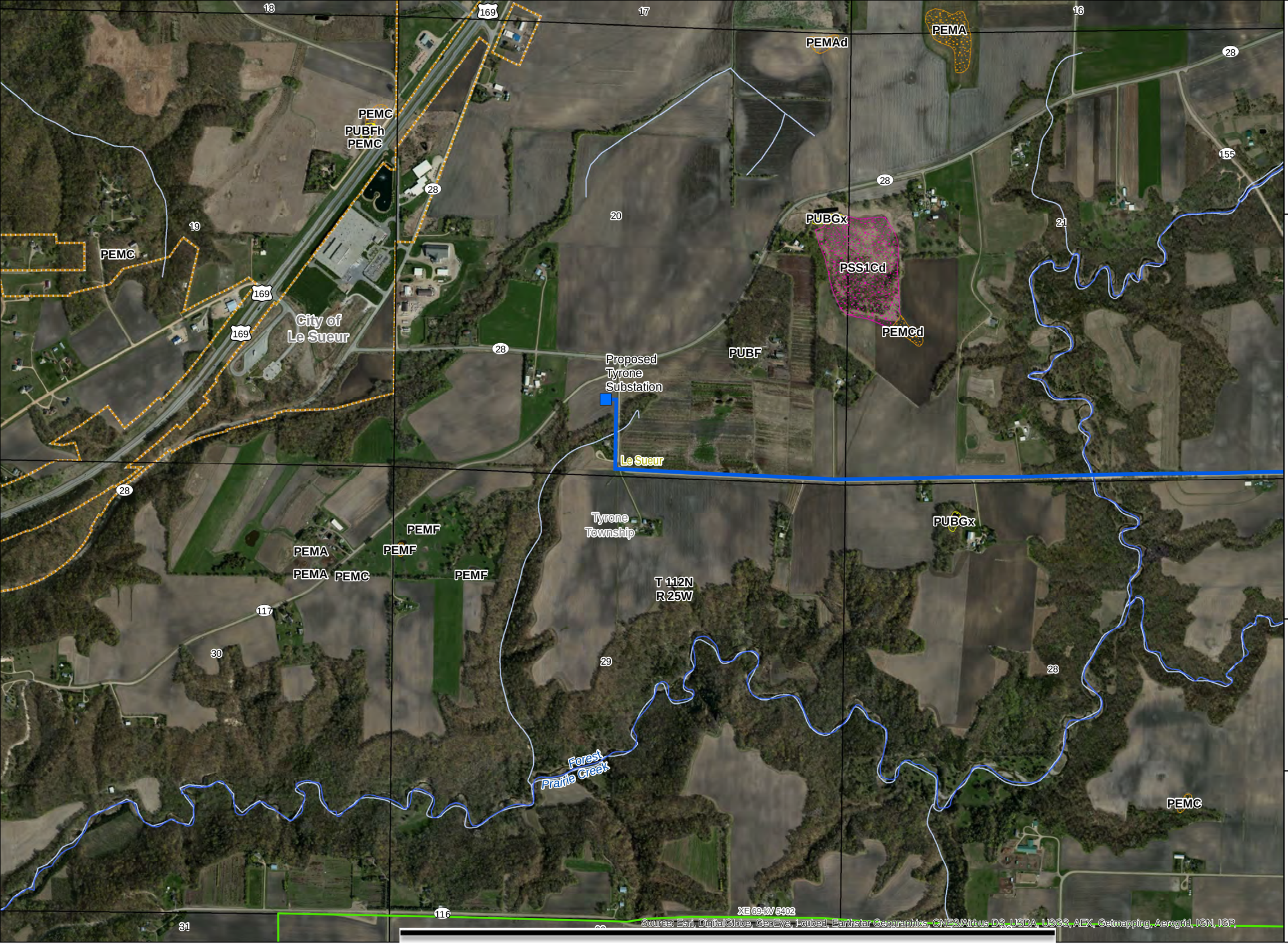
Map Projection: UTM, NAD83, Zone15, Meters

0 250 500 750 1,000 Feet

N

Tyrone 69 kV Transmission Tap Line Project Map 1

NWI Wetlands and Hydrologic Features



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NWI Wetlands

Freshwater Emergent Wetland

Freshwater Forested/

Freshwater Pond

MN Public Watercourse

Updated: 1/14/2015

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Aerial Imagery form:
ESRI World Imagery
Basemap service

Map Projection:
UTM, NAD83, Zone15, Meters

0 250 500 750 1,000 Feet

N

Tyrone 69 kV Transmission Tap Line Project Map 2

NWI Wetlands and Hydrologic Features