Fredrikson & BYRON, P.A.

November 22, 2022

VIA ELECTRONIC FILING

Mr. Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

Re: In the Matter of the Application of Great River Energy for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County, MN
MPUC Docket No. ET2/TL-22-235

Dear Mr. Seuffert:

Great River Energy submits this supplemental filing with attachments concerning its Application for a Route Permit ("Application") to rebuild the existing 69-kilovolt ("kV") ST-WW transmission line to 115-kV (the "Project").

This supplemental filing has been e-filed today through www.edockets.state.mn.us. A copy of this filing is also being served upon the persons on the Official Service List of record. Please let me know if you have any questions regarding this filing.

Sincerely,

FREDRIKSON & BYRON, P.A.

/s/ Haley L. Waller Pitts

Haley L. Waller Pitts
Direct Dial: 612.492.7443
Email: hwallerpitts@fredlaw.com

Enclosures

CERTIFICATE OF SERVICE

In the Matter of the Application of Great River Energy for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County, MN

MPUC Docket No. ET2/TL-22-235

Breann Jurek certifies that on the 22nd day of November 2022, she e-filed on behalf of Great River Energy true and correct copies of the following documents:

1. Great River Energy's Pre-Scoping Supplemental Filing with Attachments A-F; and

2. Certificate of Service.

A copy has also been served on the individuals listed on the attached service lists.

Executed on: November 22, 2022

Signed: /s/ Breann L. Jurek

Fredrikson & Byron, P.A.
200 South Sixth Street
Suite 4000
Minneapolis, MN 55401

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_22-235_TL-22-235
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_22-235_TL-22-235
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_22-235_TL-22-235
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_22-235_TL-22-235
Mark	Strohfus	mstrohfus@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_22-235_TL-22-235

STATE OF MINNESOTA
BEFORE THE
PUBLIC UTILITIES COMMISSION

Katie Sieben	Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
Joseph K. Sullivan	Commissioner
John A. Tuma	Commissioner

In the Matter of the Application of Great River Energy for a Route Permit to Rebuild the Existing 69kV ST-WW Transmission Line to 115kV in Stearns County, Minnesota

MPUC Docket No. ET2/TL-22-235

GREAT RIVER ENERGY'S SUPPLEMENTAL FILING

INTRODUCTION

Great River Energy submits this supplemental filing concerning its Application for a Route Permit ("Application") to rebuild the existing 69-kilovolt ("kV") ST-WW transmission line to 115-kV (the "Project"). As described further in the Application, the Project is an approximately 3.2-mile rebuild of an existing line that will complete Great River Energy's upgrade of the St. Joseph area to a 115-kV transmission system and loop that system. The Project is expected to cost approximately $6.4 million and is located in St. Joseph Township, the City of St. Joseph, and St. Wendell Township in Stearns County, Minnesota.

On November 21, 2022, the Minnesota Public Utilities Commission ("Commission") issued an order accepting the Application as complete. To assist the Department of Commerce, Energy Environmental Review and Analysis ("EERA") in forthcoming scoping and preparation of the environmental assessment ("EA"), the Commission also required Great River Energy to submit certain supplemental information concerning the Project at least ten days in advance of the public information meeting. Specifically, the order states:

> [Great River Energy] must file additional information identified by the EERA in its September 9, 2022, initial comments. The filing must include, in lieu of preliminary pole placement and a visual simulation, the range of number of poles for each structure type under consideration, including dead end structures. [Great River Energy] must also include in the filing graphic representations comparing existing structures to proposed structures.[1]

The order also describes, in relevant part, the additional information identified by EERA which Great River Energy would submit:

- File an explanation of land rights and easements and any potential conflicts with other planned infrastructure projects, specifically those identified by the City of St. Cloud.
- Coordinate with the Department of Transportation on potential impacts of the Project on proposed transportation projects and road rights-of-way.
- Coordinate with the Department of Natural Resources on potential impacts of the Project on natural resources and timing of submission of the DNR Natural Heritage Information System review.
- Coordinate with the City of St. Cloud regarding pole placement, substation expansion, and right-of-way concerns.
- File additional discussion of the existing pipeline in the area, potential impacts, avoidance, and mitigation.
- File information on climate adaptation and resiliency for the proposed Project.
- File additional information as needed to prepare the EA, such as describing dead end structures, including the height range for the vegetation removal clear zone, and referencing which equations were used to calculate greenhouse gas emissions.[2]

This filing (including its attachments) includes that supplemental information.[3]

[1] Order Finding Application Complete and Referring the Matter for Summary Proceedings (Nov. 21, 2022), ordering ¶ 2.

[2] *Id.* at pp. 2-3.

[3] The public information meetings are scheduled for December 7 and 8, 2022. Accordingly, this supplemental filing is timely submitted.

SUPPLEMENTAL INFORMATION

I. Additional information concerning structures.

Great River Energy and EERA agreed that Great River Energy would provide "the range of number of poles of each structure type under consideration, including dead end structures" and "graphic representations comparing existing structures to proposed structures."[4]

Range of number of poles of each structure type. Great River Energy provides revised version of Table 4-1 from the Application, updated with a column that identifies the range of potential number of poles for each structure type, including dead-end structures. It is anticipated that the number of monopoles and H-Frame structures for the Project will be approximately the same number as the current line (or potentially fewer) and the new poles will be taller. The Project may require several additional dead-end structures.

Structure Type	Material	Approximate Height Above Ground (feet)	Structure Base Diameter (inches)	Span Between Distances (feet)	Potential number of poles
Monopole with horizontal post or braced post	Wood, steel or ductile iron	70 - 90	18 - 36	300 – 400	38 - 49
H-Frame	Wood, steel or ductile iron	40 - 60	18 - 60	300 - 400	1
Dead-end	Wood, steel	70 - 90	18 - 60	300 - 400	6 - 10

For purposes of comparison, there are currently a total of 61 structures on the existing transmission line, approximately 45 with distribution underbuild. The pole types/numbers are as follows:

- 48 monopole wood structures with horizontal post;
- One H-frame structure; and

[4] Order Finding Application Complete and Referring the Matter for Summary Proceedings (Nov. 21, 2022), ordering ¶ 2.

- Six monopole wood dead-end structures. Three of these have switches incorporated.

Graphic representation. A graphic depicting existing structures, which are approximately 55-65 feet aboveground, as compared to structures for the Project, which are anticipated to be approximately 70-90 feet aboveground, is included as **Attachment A**. The graphic depicts dead-end structures. This graphic further includes a 30-foot home and a six-foot person for reference. Photographs of similar dead-end structures are also included in Attachment A.[5]

Structure locations – procedures and considerations. Good landowner relations are paramount to Great River Energy, and to facilitate good relations, it works cooperatively with landowners before, during, and after the permitting process regarding easements, rights-of-way, structure locations, and right-of-way restoration. More detail regarding Great River Energy's activities at each stage of this process is provided in the paragraphs below.

Pre-application: Initial landowner engagement typically begins with a pre-application open house. A study area for the Project is identified and all landowners within that area receive mailed notice of the open house, and Great River Energy also typically publishes notice in one or more local newspaper (as it did here). For this Project, the study area included all parcels within and immediately adjacent to the proposed route. Great River Energy incorporates what it learns during pre-application coordination into a proposed project and application. Here, the only concern raised at the open house was landowners requesting confirmation that the proposed route would be on the west side of 73rd Avenue. This was already what Great River Energy was proposing and is reflected in the Application.

[5] During its review of a draft of this filing, EERA requested these photographs, so Great River Energy has included them with this filing.

During Commission permitting process: Throughout the entire process, landowners have access to Great River Energy staff and are encouraged to contact staff with any questions or concerns. To the extent specific issues are raised during scoping or elsewhere in the Commission process, Great River Energy may reach out to landowners individually to better understand their concerns. As the Commission and EERA are aware, landowners within and adjacent to any routes receive multiple notices of a project during the route proceeding.

Post-application: Once the Commission issues a route permit identifying a route for a project, as required by the Commission's rules, Great River Energy provides landowners with notice of and a copy of the route permit. Great River Energy engineers then create a preliminary design[6] for the transmission line that is specific to the route approved by the Commission and begins reaching out to landowners regarding land rights needed for a project. A utility locate is also requested to determine any significant conflicts. Depending on site-specific conditions, soil boring may need to be collected to determine whether any areas are unsuitable for structures and/or whether special design measures will be needed. Great River Energy engineers review the utility locate and geotechnical information and make any revisions necessary. Great River Energy then stakes proposed structure locations so that landowners can visualize where a structure is proposed to be located. Great River Energy staff may meet with landowners on-site to discuss the preliminary structure locations and any specific concerns.[7]

[6] Engineers use computer software and best industry practices to meet or exceed the requirements of the National Electrical Safety Code and Great River Energy's design criteria (*see* Application at 4-5). Each individual structure is designed to withstand all expected meteorological and construction related loads. Preliminary structure locations are selected to be consistent with current and known planned land use, not inhibit traffic flow, and not directly obstruct a landowner's views.

[7] As noted here, Great River Energy initiates landowner conversations concerning specific structure locations after a route is identified by the Commission because, at that time, there is more certainty concerning a project's specific route. As described previously, however, landowners have the opportunity to provide comments concerning structure locations prior to Application submittal and during the routing proceeding, and Great River Energy would, of course, coordinate with landowners in response to any comments.

Factors which may ultimately affect structure locations include, but are not limited to: underground utilities; soil analysis; drain tile; landowner plantings/garden; picture windows; driveways; natural resources issues (wetlands, habitat, etc.); and, any known future development plans. Great River Energy subsequently modifies the design and draft easement documents, as appropriate, including exhibit documents and compensation offers. Landowners and Great River Energy then proceed with concluding easement negotiations.

II. Easements, land rights, and the City of St. Cloud.

Existing easements. Great River Energy has land rights for the existing 69-kV line which the Project will replace. In general, the current maintained right-of-way is approximately 70 feet.

Land rights which may be needed for the Project. Because the Project will be 115 kV (as compared to the existing 69-kV line), and because some adjustments to the centerline may be required due to landowner preferences or other constraints (including a potential road project, as discussed further below), it is possible that Great River Energy will need to acquire additional land rights for the Project. In general, shifts from the current alignment are likely to require the acquisition of additional land rights. Specifically, for example, if the Project's route is shifted to accommodate the potential future road project described in the next paragraph, Great River Energy will need to acquire additional land rights. Great River Energy will know what additional land rights may be needed after a route permit is issued.

Impact of City of St. Cloud road project on easements and land rights. On September 8, 2022, the City of St. Cloud submitted comments requesting that the Project's alignment "account for the future widening of 73rd Avenue North and its potential future extension south of Westwood Parkway." The City of St. Cloud explained that 73rd Avenue North currently has a 66-foot right-of-way and that the Project design and alignment "should account for a westerly right of way expansion from 66 feet to 100 feet." Although Great River Energy has an existing transmission

line adjacent to this road and engaged in substantial pre-Application coordination with the City of St. Joseph (in which much of the road project would occur), Great River Energy was not previously aware of this potential road project and reached out to the cities of St. Cloud and St. Joseph ("Cities") for additional information. Based on that coordination, Great River Energy understands that, until recently, the road project was the lowest ranked of six alternatives under consideration. More recently, however, the Cities have been more focused on expansion of 73rd Avenue North (separate from extending that road southward), and the Cities hope to conduct this work in the next five years, although there currently are no detailed design plans or a budget. In response to questions from Great River Energy, the City of St. Joseph indicated that it would begin working on preliminary designs for the road project, and the Cities and Great River Energy agreed to further discuss the road and transmission line projects after preliminary designs are available. Documentation concerning coordination with the Cities is included as **Attachment B**, and **Attachment C** is a map depicting a potential expanded route width that was sent to the Cities on November 11, 2022, with a request for comments. Great River Energy will continue regular coordination with the Cities and will provide any additional information concerning the potential timing and scope of the road project throughout development of the EA if/when it becomes available.

III. Minnesota Department of Transportation ("MnDOT").

Great River Energy has engaged in further coordination with MnDOT and confirmed that the Project will not impact MnDOT facilities. Correspondence documenting this coordination is included as **Attachment D**.

IV. Minnesota Department of Natural Resources ("MDNR").

Great River Energy has coordinated with MDNR to gain a better understanding of the agency's new Natural Heritage Inventory System ("NHIS") process. As a result of that

coordination, Great River Energy submitted a "final" NHIS request through MDNR's tool. The results of that request are consistent with the documentation filed with the Application, and the "final" request is included as **Attachment E**.

V. City of St. Cloud.

As discussed in Section II and related attachments, Great River Energy has coordinated with the City of St. Cloud. Great River Energy will continue such coordination, including the City of St. Joseph, as the Project proceeds.

VI. Existing pipeline in the area, potential impacts, avoidance, and mitigation.

Great River Energy has cooperated and coordinated with pipeline owners on numerous projects. When a transmission line crosses a pipeline, review and approval of the crossing design by the pipeline company typically includes a review of Great River Energy's design details. For this Project, there is a natural gas pipeline approximately 0.2 miles south of the intersection of 73rd Avenue and Mullen Road that will be spanned by the Project (and is currently spanned by the existing line). However, if the Cities widen 73rd Avenue, the location where the transmission line crosses the pipeline will need to shift west or east. The location of the pipeline crossing is uncertain without a road design from the Cities and is further complicated by the gas company's existing pumping station, which is approximately 0.2 miles south of the intersection of 73rd Avenue and Mullen Road (See **Attachment C**). As discussed in Section II above, Great River Energy is continuing coordination regarding the road project and will provide any further information throughout EA development.

Regardless of the existence or location of any road project, consistent with standard practices on other projects, Great River Energy will identify the specific locations of pipelines and other existing utilities during survey activities. After the route permit decision and when the preliminary design is complete, Great River Energy will engage more specifically with the pipeline

owner regarding a crossing. No structure locations will be placed on or near existing utilities, including the natural gas pipeline. Other than this avoidance, no other specific minimization or mitigation measures are anticipated. Mitigation is typically only an issue when a transmission line parallels a pipeline—not for a routine crossing like the one contemplated for the Project.

VII. Climate adaptation and resiliency proposed for the Project.

As discussed in more detail below, Great River Energy considers climate adaption and resiliency in its development and design of facilities, generally. For this Project, Great River Energy evaluated the Project area for extreme weather events. Great River Energy concluded that no specific climate resiliency measures are warranted here which would necessitate deviation from its typical 115-kV design standards; those design standards already contemplate the type of extreme weather events in the Project area. Great River Energy's conclusion was based on the operating history of the existing line; Great River Energy has not experienced flooding or other significant extreme weather events with respect to the existing line.

Great River Energy also assessed outages associated with freezing rain conditions. This assessment determined that freezing rain triggers more frequent galloping of transmission lines south of Interstate 94, which can result in a line fault or cause structures to fail. As a result of this assessment, Great River Energy considers twisted-pair conductors located south of Interstate 94 to reduce galloping. Because here, the Project is located north of Interstate 94, twisted-pair conductors are not planned to be used.

Overall, the Project itself is intended to improve reliability and resiliency in the area.[8] In addition, as explained in the Application:

> Great River Energy is actively assessing risks to the reliable operation of its transmission system from the potential impacts of climate change (extreme weather events such as high winds and

[8] Application at 1-9.

> excessive rainfall) and is working on opportunities to mitigate those risks. Over the last three years, Great River Energy has invested over $67M in transmission resiliency improvement projects.[9]

Further, one of the primary impacts of climate change to the Great River Energy transmission system is the potential for electrification to increase the transmission load beyond the existing system capacities. Electrification is a key strategy for reducing greenhouse gas emissions, especially within Minnesota and neighboring states. Electrification is driving the surge in electric cars, and this trend is expected to continue and increase over time. Whereas the 69-kV system could serve the load of the past, more capacity is needed and will be needed in the future to support electrification. The 115-kV voltage level also has proven to be more reliable and provides the capacity to address the upcoming load shift expected not only from growth in population but to accommodate the use of new technologies today that eventually will be standard technologies in the future.

VIII. Additional information as needed to prepare the EA, such as describing dead-end structures, including the height range for the vegetation removal clear zone, and referencing which equations were used to calculate greenhouse gas emissions.

Additional information as needed to prepare the EA. Great River Energy will coordinate with EERA regarding its preparation of the EA, as Great River Energy has done in prior projects. Great River Energy provides the information below specifically requested by EERA.

Describing dead-end structures. A dead-end structure is used to change direction and/or wire tension in a transmission line. Dead-end structures are also used as a "storm structure" to limit the number of structures damaged by a cascading effect due to higher line tensions when a pole is knocked down by a storm. Anticipated locations of dead-end structures were shown in Appendix B of the Application.[10] Additional information regarding the potential specifications for the dead-

[9] Application at 7-23.
[10] Application at 4-4; Appendix B (showing anticipated dead-end structure locations on map series).

end structures is included in the revised Table 4-1 in Section I, above. Potential dead-end structures—both illustrations and photographs—are also depicted on **Attachment A**.

Height range for vegetation removal clear zone. For construction, the entire width of the right-of-way is initially cleared of woody species (*i.e.*, trees and shrubs). During operations, Great River Energy will employ wire/border zone vegetation management, in which "[t]he area below the outer conductors plus 10 to 15 feet (the 'wire zone' or 'clear zone') is cleared [and maintained free] of all shrubs and trees to ensure maintenance trucks can access the line and no vegetation interferes with the safe operation of the transmission line."[11] Typical non-woody vegetation may be mowed during routine maintenance. Figure 6-1 in the Application depicts Great River Energy's standard operations and maintenance tree removal practices.

Equations used to calculate greenhouse gas emissions. Great River Energy used methodologies consistent with calculating emissions as discussed by the U.S. Environmental Protection Agency in its *Compilation of Air Emission Factors*, in conjunction with the emission factors identified in 40 CFR Part 98, Tables A-1, C-1, and C-2.[12] Great River Energy has provided EERA with a live version of its calculation spreadsheet (with formulae intact) (*see* **Attachment F**). this spreadsheet was pasted as a static image into the Application as Table 7-6.

More specifically, Great River Energy notes that 40 CFR Part 98 does not cover mobile emissions sources (like sources for this Project). However, consistent with that methodology, Great River Energy used 40 CFR § 98.33 Equation C-1 and, using the applicable fuel's emission factor (Tables C-1 and C-2), multiplied by the estimated fuel consumption during Project construction. Appropriate conversion factors (Table A-2) were applied, and global warming potentials were calculated in accordance with Table A-1. Referring to Table 7-6 in the Application:

[11] Application at 6-16.
[12] *See* Application at 7-22 fn.40.

- The "total estimated fuel use values" is based upon an estimate of per-day fuel use, each multiplied by an assumed five day work week, four weeks per month, and nine months of construction.

- The "heating value" and CO2 emission factor values for No. 1 and No. 2 distillate fuel oils are from 40 CFR Part 98, Table C-1

    - To calculate total CO2 emissions, the estimated total fuel use, heating value, and CO2 emission factor were multiplied together.

- The CH4 and N2O factors are from 40 CFR Part 98, Table C-2 (the "fuel gas" row).

    - To calculate total CH4 and N2O emissions, the total fuel use, heating value, and emission factors were multiplied together.

- The global warming potential values are from 40 CFR Part 98, Table A-1.

CONCLUSION

Great River Energy appreciates consideration of this Supplemental Filing by the Commission and EERA and looks forward to further developing the record as this process proceeds.

Dated: November 22, 2022

Respectfully submitted,

/s/ Haley Waller Pitts

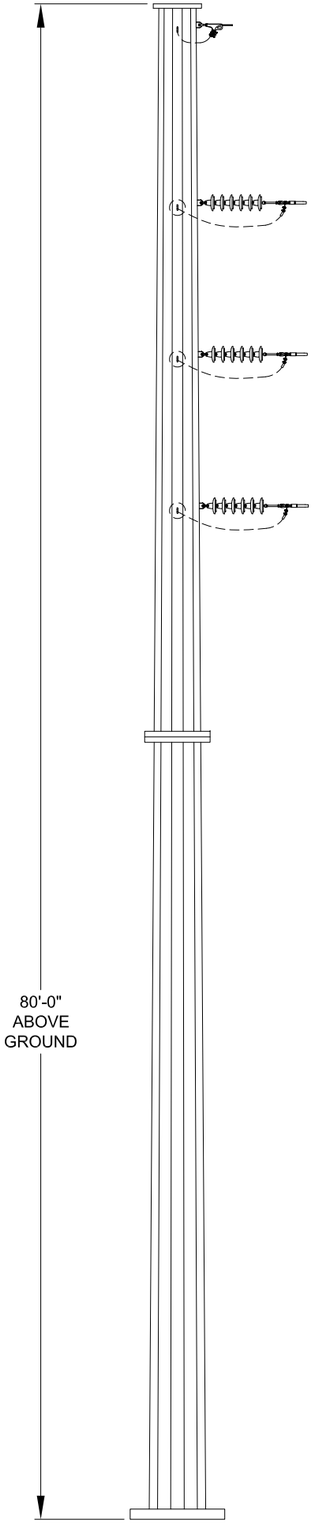
Haley Waller Pitts (# 0393470)
FREDRIKSON & BYRON, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402-1425
Telephone: (612) 492-7000
Fax: (612) 492-7077

Attorneys for Great River Energy

ATTACHMENT A

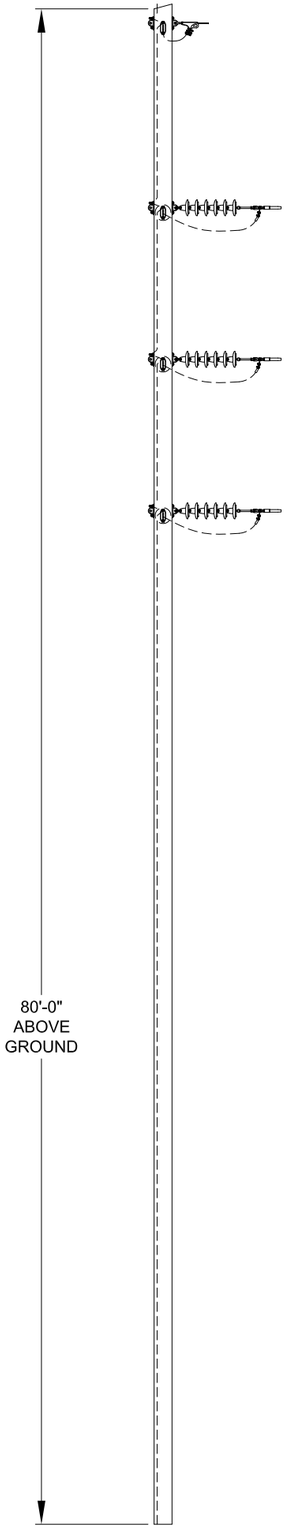
Attachment A

TYPICAL 115 kV
STEEL DEADEND STRUCTURE



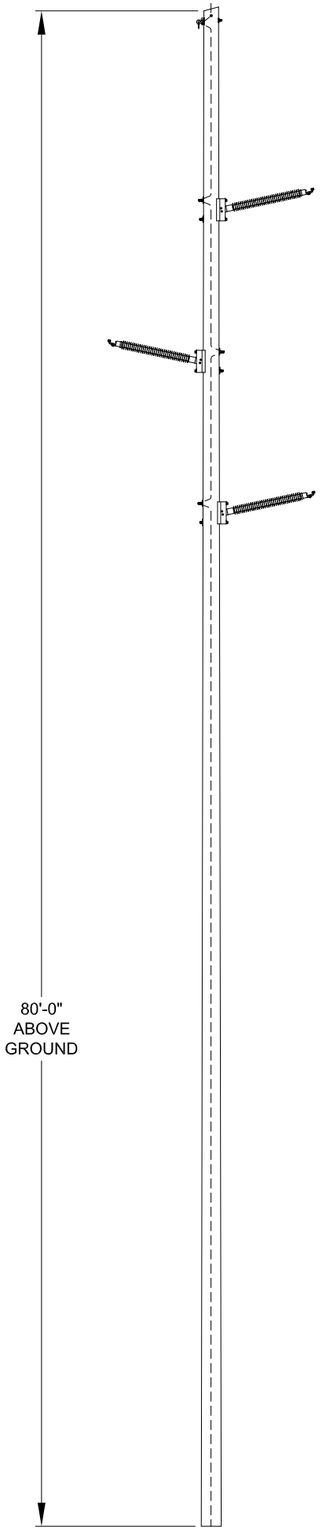
70'-90' AGL

TYPICAL 115 kV
DEADEND STRUCTURE



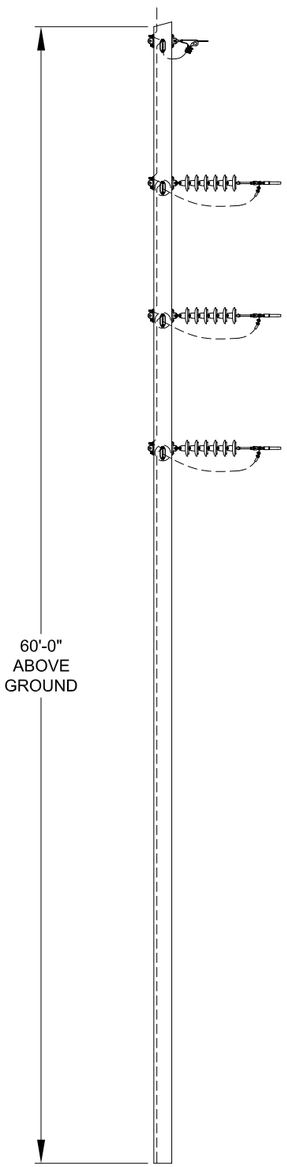
70'-90' AGL

TYPICAL 115 kV
TANGENT STRUCTURE



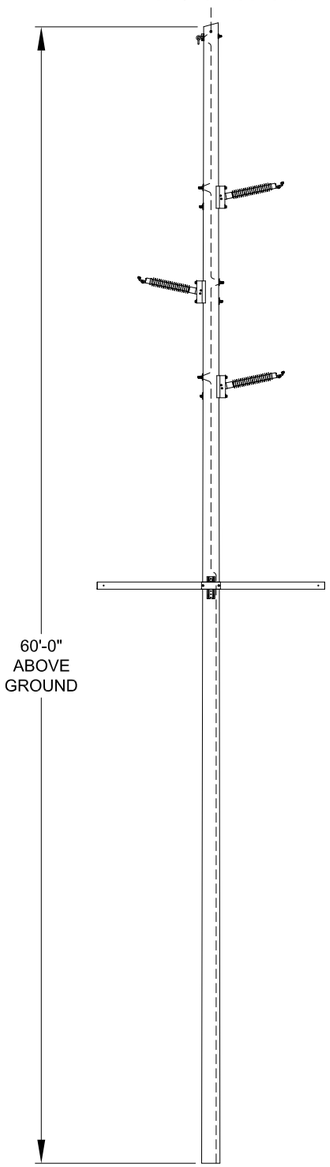
70'-90' AGL

TYPICAL EXISTING 69 kV
DEADEND STRUCTURE

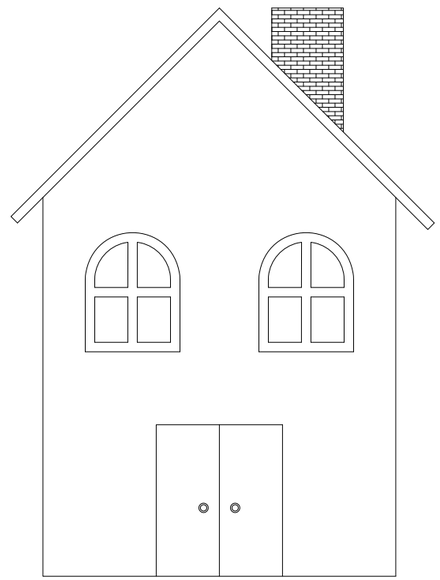


55'-65' AGL

TYPICAL EXISTING 69 kV
TANGENT STRUCTURE



55'-65' AGL



30' BUILDING

6' PERSON

Attachment A


tury Link
MTL
Trucking | Logistics | Warehousing

Attachment A

ATTACHMENT B

Attachment B

From: Matt Glaesman
To: Strohfus, Mark GRE-MG
Cc: Nate Keller; Aukee, Dale GRE-MG
Subject: RE: Expansion and Extension of 73rd Ave
Date: Monday, September 26, 2022 10:28:01 AM
Attachments: image001.png

This email was sent by an external sender. Opening attachments or clicking links from untrusted sources may cause damage to you and Great River Energy.
Good Morning Mark – Your assessment is fair. The concepts have been planned, but have not been scheduled in our Capital Improvement Plans.

However, Nate and I are faced with increasing interest in both residential (yellow attached) and commercial/industrial (purple attached) development in the area. The Westwood Parkway area is fully developed leading to inevitable utility and roadway connections in the highlighted area in the next 5 years. Municipal utilities exist to the edge of these sites now.

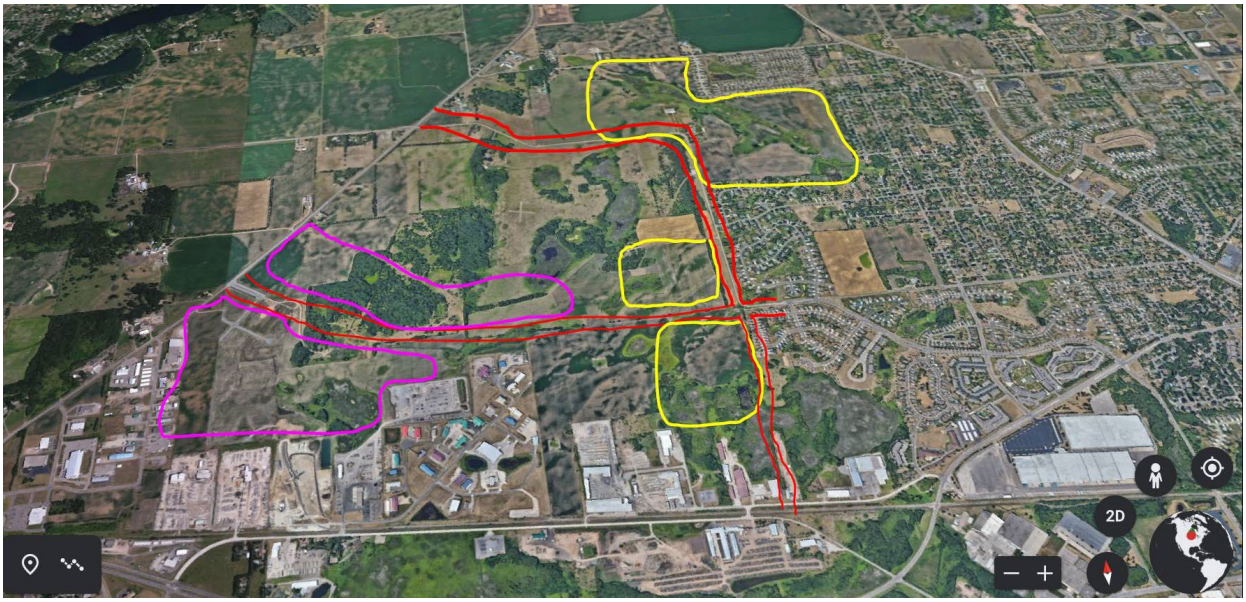
Westwood Parkway in St. Cloud is currently a 120 foot right of way, which is the Land Development Code standard for an Urban Parkway or Rural Minor Arterial. Continuation of this width is appropriate given St Joseph's planned industrial use on the west end of the corridor.

The existing plats north of Westwood Parkway dedicated 40 feet east of the 73rd Avenue North centerline. A total right of way width of 80 or 100 feet is appropriate in this area, meaning that another 40- 60 feet would be dedicated west of the centerline for the anticipated movements in the area. If the West Metro Corridor improvements do place the beltway on this alignment the 100 foot right of way or more would be required.

Might be easier to talk about this if you all, Nate, and I wanted to schedule a virtual meeting.

Thanks!

Matt



From: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>
Sent: Monday, September 26, 2022 9:34 AM
To: Matt Glaesman <Matt.Glaesman@ci.stcloud.mn.us>
Cc: Nate Keller <nkeller@cityofstjoseph.com>; Aukee, Dale GRE-MG <DAukee@GREnergy.com>
Subject: RE: Expansion and Extension of 73rd Ave

The Sender "Strohfus, Mark GRE-MG" <MStrohfu@GREnergy.com> is external to the St. Cloud email system. Use caution when replying and opening attachments/hyperlinks. St. Cloud IT Dept.

Matt,

Thanks for this information. I've dug into the documents and see that the 73rd Ave expansion and extension alternative (C2) is ranked the lowest alternative, but a decision on the north segment has been tabled for further studies. Can you provide any more updates on the north segment?

Great River Energy would appreciate any further information you have regarding the timing and selection of the north segment. If you need anything further from us so that our existing and planned facilities are incorporated into any further studies or analysis, please let me know.

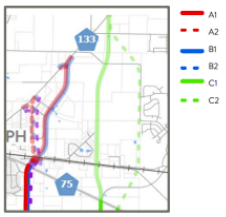
Southwest Beltline Corridor Study Final Report (stcloudapo.org), Dec 2021
PDF pg 15 of 283:

NORTH SEGMENT

In the north segment, the A2/B2 alternative, shown by the red & blue dashed lines ranked highest. This alignment is the shortest distance and therefore the lowest cost to construct and provides the most transportation benefit. The following are a few key items to note about the alternatives:

- **C1 and C2 would require construction of more miles of new roadway**
- **C2 is closer to existing established residential neighborhoods which the City of St. Cloud did not find desirable**
- **C1 and C2 had significantly more impacts to existing wetland and aquatic resources**
- **All alignment alternatives cross the Northern Lines Railway (NLR) rail line, however C1 and C2 cross the NLR rail line east of where a transload facility is planned which potentially may mean increased rail traffic in the future**

Evaluation Criteria	A1/B1	A2/B2	C1	C2
Transportation				
Property/Land Use				
Environmental				
Economic				
Multimodal				
Total				



PDF pg 19 of 283 Figure "NOTE: NO FINAL RECOMMENDATION WAS DETERMINED FOR THE BELTLINE SEGMENT BETWEEN CSAH 75 AND CSAH 133. ADDITIONAL EVALUATION WILL BE NEEDED IN THE FUTURE".

Thanks,
Mark Strohfus
Transmission Permitting, Project Manager
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369-4718
Tel: 763-445-5210 | Cell: 612-961-9820
MStrohfus@GREnergy.com

From: Matt Glaesman <Matt.Glaesman@ci.stcloud.mn.us>
Sent: Thursday, September 22, 2022 2:37 PM
To: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>
Cc: Aukee, Dale GRE-MG <DAukee@GREnergy.com>
Subject: RE: Expansion and Extension of 73rd Ave

Hello Mark -

Thanks for following up regarding our comments.

The concept of a west-east and north-south connection along 73rd Avenue South appears in several St. Cloud APO and area cities' planning and zoning documents over the past 20 years. Pages from these documents are attached showing the potential corridor.

More regarding the recent studies specifically looking at the Southwest Beltline alternatives can be found at: https://stcloudapo.org/documents-resources/urban-belt-line-corridor-plans/

Let me know if you have any other questions or would like to schedule a time to discuss in more detail.

Have a great day!

Matt

From: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>
Sent: Thursday, September 22, 2022 10:14 AM
To: Matt Glaesman <Matt.Glaesman@ci.stcloud.mn.us>
Cc: Aukee, Dale GRE-MG <DAukee@GREnergy.com>
Subject: Expansion and Extension of 73rd Ave
Importance: High

Hello Matt,

I'm interested in more information on St. Cloud's plans to expand and extend 73rd Ave, which you mention in your filing (attached) to the PUC Docket for our plan to upgrade our existing 69-kV transmission in St. Joseph to 115 kV. Your comments state:

> "The adopted St. Cloud Comprehensive Plan designates Westwood Parkway and County Road 134 as Minor Collector roadways which should be connected by 73rd Avenue North in similar design and capacity. The City of St. Cloud's Land Development Code requires a 100 foot right of way for Minor Collector roadways. 73rd Avenue North currently exists within a 66 foot right of way. The transmission line design and alignment should account for a westerly right of way expansion from 66 feet to 100 feet so as to avoid purchase and/or condemnation of easements on existing residential parcels east of the corridor."

I've searched St. Clouds web page and can only find the 2015 Comprehensive Plan (https://www.ci.stcloud.mn.us/DocumentCenter/View/10429/2015-Comprehensive-Plan---Chapter-7---Transportation--Mobility?bidId=), but I cannot find any reference to Westwood Parkway or 73rd Ave. Please send me the appropriate document(s) that you refer to in your comments. We are also interested in any additional information such as maps, detailed plans, schedule, budgets and funding.

Once we have a chance to review these documents, we'd like to have a conversation with you.

Feel free to contact me with any comments or questions on this matter or Great River Energy's transmission line project.

Sincerely,
Mark Strohfus
Transmission Permitting, Project Manager
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369-4718
Tel: 763-445-5210 | Cell: 612-961-9820
MStrohfus@GREnergy.com

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NOTICE TO RECIPIENT: The information contained in this message from Great River Energy and any attachments are confidential and intended only for the named recipient(s). If you have received this message in error, you are prohibited from copying, distributing or using the information. Please contact the sender immediately by return email and delete the original message.

CITY OF ST. JOSEPH

www.cityofstjoseph.com

November 1st, 2022

Mark Strohfus and Dale Aukee
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369-4718

RE: Great River Energy Power line

Sent via email to: mstrohfu@grenergy.com and daukee@grenergy.com

Dear Mr. Strohfus and Mr. Aukee,

The city of St. Joseph is providing this letter as a way to communicate our comments on the proposed Power line project. The city of St. Joseph and St. Cloud both hold a common position regarding future road right of way needs in the corridor area and have discussed these needs jointly.

Specifically, the city of St. Joseph has the following comments:

- Within the city's transportation plan we identify Mullen Rd/73rd Ave as an existing and future Community/Major Collector road.
- Westwood Parkway is identified as a Minor Arterial.
- Our Transportation plan identifies three different geometric configurations (see exhibit A) for Collector geometry/right of way and would consider 80 to 100 feet of ROW dedication.
- For Minor Arterials like Westwood Parkway our Transportation Plan identifies three geometric options with 120-150 feet for right of way dedication for a 4-lane urban, divided road.

Please let us know if you have any questions or would like to discuss these comments more.

Sincerely,

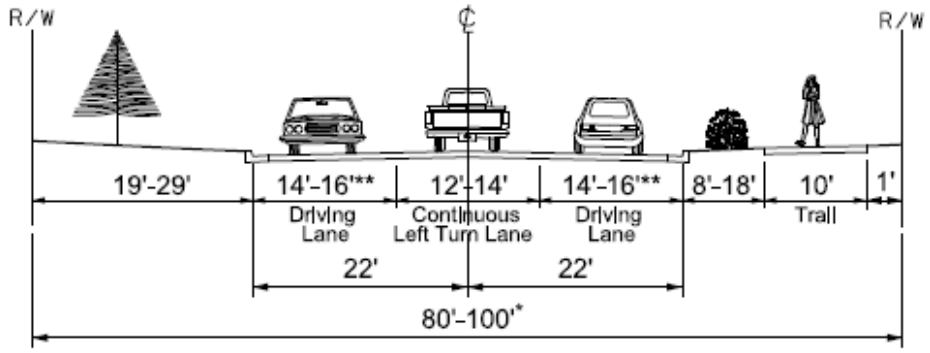
Nate Keller
Nate Keller
Community Development Director
nkeller@cityofstjoseph.com

Enclosed: Exhibit A – Geometric Configurations from St. Joseph Transportation Plan

CITY OF ST. JOSEPH

www.cityofstjoseph.com

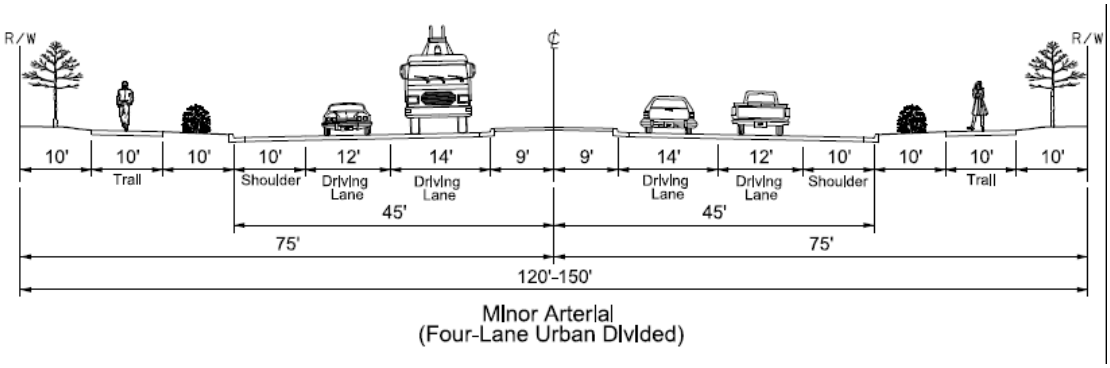
Exhibit A



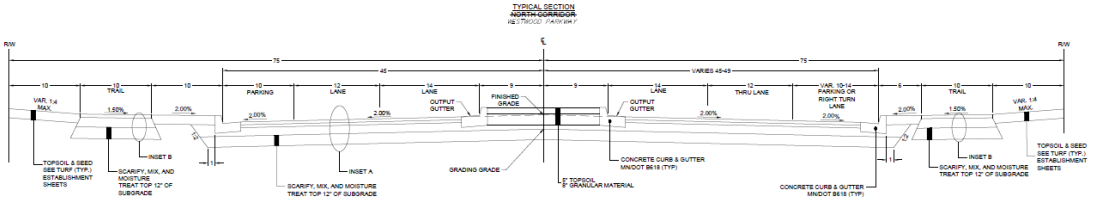
Community Collector
(Three-Lane Urban)

* 100' width allows adding right turn lane at intersections,

**12' lane and 4' shoulder



Minor Arterial
(Four-Lane Urban Divided)



ATTACHMENT C

Great River Energy

- Proposed 115-kV transmission line replacing existing 69-kV transmission line
- Existing 69-kV transmission line
- Project route

ST-WW 69-kV to 115-kV Conversion
Proposed Project

0 250 500 Feet N

GREAT RIVER ENERGY

Great River Energy

- Proposed 115-kV transmission line replacing existing 69-kV transmission line
- Existing 69-kV transmission line
- Project route

ST-WW 69-kV to 115-kV Conversion
Proposed Project

0 250 500 Feet

N

GREAT RIVER ENERGY

Great River Energy

- Proposed 115-kV transmission line replacing existing 69-kV transmission line
- Existing 69-kV transmission line
- Project route

ST-WW 69-kV to 115-kV Conversion
Proposed Project

0 250 500 Feet

N

GREAT RIVER ENERGY

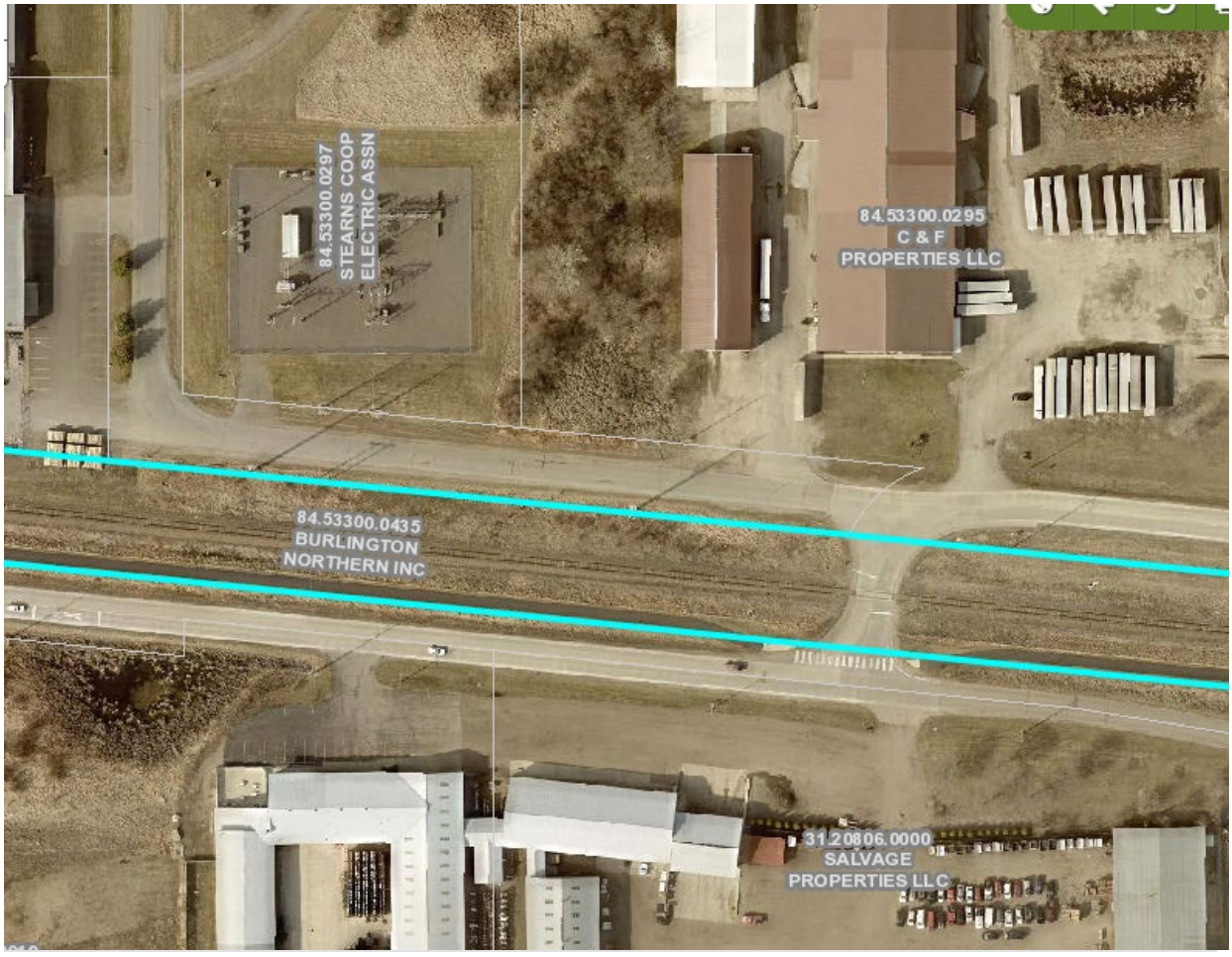
ATTACHMENT D

From:	Schmidt, Kevin (DOT)
To:	Voss, Steven (DOT); Strohfus, Mark GRE-MG; Anderson, Benjamin
Cc:	Cruikshank, Thomas (DOT)
Subject:	RE: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County
Date:	Thursday, October 6, 2022 6:27:11 PM
Attachments:	image006.png image007.png image008.png image009.png image010.png image011.png FACT SHEET ST-WS rebuild 8.25.22.pdf

Mark

Check with Stearns County as I think they have an easement to carry a trail on BNSF's fee. MnDot has nothing to do with this track in this area.

I assume the BNSF JLL company has the authority to issue new permits to cross the trail and train track using a permit



From: Voss, Steven (DOT) <steve.voss@state.mn.us>
Sent: Thursday, October 6, 2022 4:00 PM
To: Schmidt, Kevin (DOT) <kevin.schmidt@state.mn.us>
Cc: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>; Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>
Subject: RE: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County

Hi Kevin,

Please see below and attachment. This 115 KV transmission line upgrade proposal does not appear to affect our State trunk

highway right-of-way from my initial review. Both Tom and I have a meeting conflict for next Monday (10/10) when there is a virtual meeting to discuss this proposal in more detail. I wanted to route it to you to see if you saw any concerns from your end requiring our attention; and if there were, could have someone available to attend the meeting. If you have no concerns, I suspect out attendance would not be necessary.

Thanks,

Steve

Steven Voss | District Planning Director
MnDOT District 3 Office | 7694 Industrial Park Road
Baxter, MN 56425-8096
Phone: (218) 828-5779 | Email: steve.voss@state.mn.us

DEPARTMENT OF TRANSPORTATION

From: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>
Sent: Thursday, October 6, 2022 7:35 AM
To: Voss, Steven (DOT) <steve.voss@state.mn.us>
Subject: FW: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County

---

Good Morning Steve,

As noted in Stacy's email below, if you're not the appropriate contact for this project, please forward it to the appropriate MNDOT contact.

I've attached the most recent Fact Sheet for Great River Energy's (GRE) proposed 115-kV transmission line in St. Joseph, MN. We have an existing 69-kV transmission line in this area, and we are hoping to rebuild it to 115 kV using our existing ROW. St. Cloud has recently informed us that they are looking at expanding, and possibly extending, 73rd Ave, which would impact our existing ROW. We are working with them to better understand their plans and have a virtual meeting with them on Oct 10 at 1:00-2:00. Let me know if you or one of your staff would be interested in joining this meeting.

As to Stacy's comment about the Wobegon Trail, our proposed transmission line would cross the trail approximately 1.75 miles east of CR 133. This information will be helpful though if stakeholders think we should also evaluate an alternative route to the west. Our proposed trail crossing has a single span of more than 200 feet with structures south of CR 134 and north of 304th Street, well outside of a 100-foot trail ROW.

Pat Glaesman, St. Cloud Community Development Director, provided me some document links for the St. Cloud Area Planning Organization. In reviewing those documents, I noted that they plan to expand CR 133 to a 4-lane undivided highway in the 2024 – 2029 timeframe. I don't see that project in the Dist 3 Future Projects through 2025 summary link provided by Stacy. GRE would nevertheless like to consider this project in our Project design. It's not clear to me if MNDOT has a role in the design of the expanded road, and I'd appreciate your thoughts on this or any education you can offer on how state and local road planning is conducted and coordinated.

If you have any questions or would like to join our Oct 10 meeting, please contact me.

Thank You,
Mark Strohfus
Transmission Permitting, Project Manager
Great River Energy
12300 Elm Creek Boulevard

Maple Grove, MN 55369-4718
Tel: 763-445-5210 | Cell: 612-961-9820
MStrohfus@GREnergy.com

From: Kotch Egstad, Stacy (DOT) <stacy.kotch@state.mn.us>
Sent: Wednesday, October 05, 2022 2:31 PM
To: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>
Subject: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County

Good Afternoon Mark,

Per our phone conversation this morning, below are the items and information for your use/records:

Response from MnDOT District 3B Transportation Specialist –
Looking at the mapping, in St Joe the only right of way [possibly] affected for MNDOT would be the Wobegon trail.
District 3B's portion of the Railbank /Wobegon Trail starts at CR 133 and goes west to Osakis.
The right of way on the trail in St Joe is 50 ft on each side from centerline of the trail, 100 ft total.

MnDOT District 3 Future Project Page –
Future construction Central Region - District 3 - MnDOT (state.mn.us)

MnDOT District 3 Planning Contact –
Steve Voss - MnDOT District 3 Planning Director (he may not be THE one, but will be able to guide you accordingly)
steve.voss@state.mn.us 218-828-5779

Please let me know if I can be of further assistance,

Stacy Kotch Egstad
Utility Routing & Siting Coordinator | Office of Land Management
Minnesota Department of Transportation
395 John Ireland Blvd Mailstop 678
St. Paul, MN. 55155
O: 651-366-4635
mndot.gov/

Attachment D

From:	Strohfus, Mark GRE-MG
To:	Anderson, Benjamin
Subject:	RE: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County [Stearns Cnty - Webegon Trail]
Date:	Wednesday, October 19, 2022 12:11:00 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png

Good afternoon Ben,

You are correct that the proposed line would simply span over the trail with the structures south of CR134 and north of 304th Street.

I don't anticipate closing the trail. When we string the new conductor and shield wire, we'll likely just have somebody walk the stringing rope across the trail when there is no traffic. This stringing rope would be used to pull the conductors across the roads and trail, keeping it all above the road/tail surfaces. If necessary, temporary structures might be erected within the spanned distance to prevent the lines from sagging.

Our vertical clearances generally exceed 25 feet, so your requirement should not be a problem.

Thanks for your feedback. If you have any questions now or in the future, feel free to contact me.

Sincerely,
Mark Strohfus
Project Manager, Transmission Permitting
12300 Elm Creek Boulevard
Maple Grove, MN 5536-4718
D: 763-445-5210
C: 612-961-9820
MStrohfus@GREnergy.com

From: Anderson, Benjamin <Benjamin.Anderson@co.stearns.mn.us>
Sent: Friday, October 7, 2022 2:17 PM
To: Schmidt, Kevin (DOT) <kevin.schmidt@state.mn.us>; Voss, Steven (DOT) <steve.voss@state.mn.us>; Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>
Cc: Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>
Subject: RE: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County [Stearns Cnty - Webegon Trail]

Mark,

Good afternoon! We do have a permanent easement from BNSF to have the trail within their ROW. From what I gathered the line would only span over the trail and no work would be completed within the trail ROW (20ft to the south of the existing chain-link fence). Is that correct? Do you foresee any reason that the trail would have to be closed during the upgrade? As it is an existing structure our only requirement is that the new line is at least 22ft above the trails surface.

Let me know if you have any questions.

Thanks,

Ben Anderson
Parks Director
Stearns County Parks

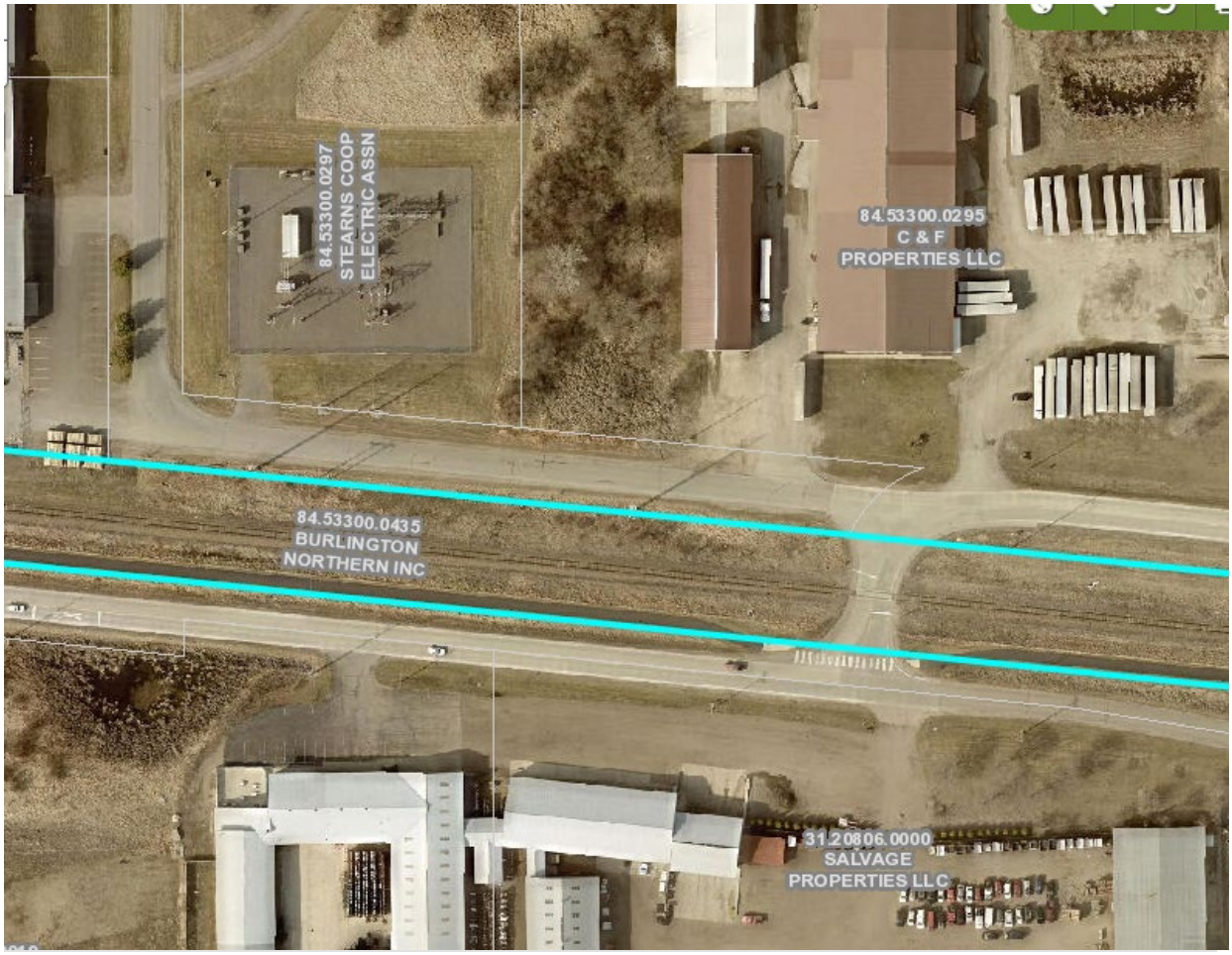
1802 County Road 137
Waite Park, MN 56387
320-654-4725

Stearns County Mission: "Provide Exceptional Public Services to Assure a Safe, Healthy, Vibrant County for All"

From: Schmidt, Kevin (DOT) <kevin.schmidt@state.mn.us>
Sent: Thursday, October 6, 2022 6:26 PM
To: Voss, Steven (DOT) <steve.voss@state.mn.us>; Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>; Anderson, Benjamin <Benjamin.Anderson@co.stearns.mn.us>
Cc: Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>
Subject: RE: Application of GRE for a Route Permit to Rebuild the Existing 69-kV ST-WW Transmission Line to 115-kV in Stearns County

Mark
Check with Stearns County as I think they have an easement to carry a trail on BNSF's fee. MnDot has nothing to do with this track in this area.

I assume the BNSF JLL company has the authority to issue new permits to cross the trail and train track using a permit



From: Voss, Steven (DOT) <steve.voss@state.mn.us>
Sent: Thursday, October 6, 2022 4:00 PM
To: Schmidt, Kevin (DOT) <kevin.schmidt@state.mn.us>
Cc: Strohfus, Mark GRE-MG <MStrohfu@GREnergy.com>; Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>

ATTACHMENT E

DEPARTMENT OF NATURAL RESOURCES

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Proposed ST-WS 115-kV transmission line and substation upgrades

Project Proposer: Great River Energy

Project Type: Utilities, Transmission (electric, cable, phone)

Project Type Activities: Tree Removal;Wetland impacts (e.g., discharge, runoff, sedimentation, fill, excavation)

TRS: T124 R28 S6, T124 R28 S7, T124 R29 S1, T124 R29 S12, T125 R29 S36

County(s): Stearns

DNR Admin Region(s): Central

Reason Requested: PUC Site or Route Application

Project Description: Rebuild and upgrade the existing ST-WS 69kV overhead transmission line to 115kV.

Existing Land Uses: Light industry, commercial and residential

Landcover / Habitat Impacted: Commercial and agricultural

Waterbodies Affected: None

Groundwater Resources Affected: None - Project will only entail imbedding new transmission structures approximately 15 feet into the ground.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	No Comments	No Further Review Required
Ecologically Significant Area	Comments	Protected Wetlands: Calcareous Fens
State-Listed Endangered or Threatened Species	No Comments	No Further Review Required
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	No Records	Visit IPaC For Federal Review

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

October 14, 2022

Project ID: MCE #2022-00287

Mark Strohfus
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369

RE: Automated Natural Heritage Review of the proposed Proposed ST-WS 115-kV transmission line and substation upgrades
See Cover Page for location and project details.

Dear Mark Strohfus,

As requested, the above project has been reviewed for potential effects to rare features. Based on this review, the following rare features may be adversely affected by the proposed project:

Project Type and/or Project Type Activity Comments

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed below, all seven of Minnesota's bats, including the federally threatened northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, the DNR recommends that tree removal be avoided during the months of June and July.

Ecologically Significant Area

- One or more calcareous fens have been documented in the vicinity of the proposed project. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. Calcareous fens are fragile and may be impacted by stormwater runoff, any activity within the fen, or any activity that affects groundwater hydrology including groundwater pumping, contamination, or discharge). For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet. To minimize stormwater impacts, please refer to the Minnesota Pollution Control Agency's General Principles for Erosion Prevention and Sediment Control in the Minnesota Stormwater Manual. Please note that calcareous fens are "Special Waters" and a buffer zone may be required.

Depending on the distance to the calcareous fen(s), additional guidance may be provided below if you indicated that potential project activities include wetland impacts or groundwater impacts. If you did not correctly identify wetland or groundwater impacts as part of your project, this impact analysis may be incorrect.

State-Listed Endangered or Threatened Species

No state-listed endangered or threatened species have been documented in the vicinity of the project.

State-Listed Species of Special Concern

Taxonomic Group	Common Name	Scientific Name	Water Regime	Habitat	Federal Status
Invertebrate Animal	Black Sandshell	Ligumia recta		Large Rivers, Medium Rivers and Streams	

- The above table identifies state-listed species of special concern that have been documented in the vicinity of your project. If suitable habitat for any of these species occurs within your project footprint or activity impact area, the project may negatively impact those species. To avoid impacting state-listed species of special concern, the DNR recommends modifying the location of project activities to avoid suitable habitat or modifying the timing of project activities to avoid the presence of the species. Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. For further assistance, please contact the appropriate DNR Regional Nongame Specialist or Regional Ecologist. Species-specific comments, if any, appear below.

Federally Listed Species

The Natural Heritage Information System does not contain any records for federally listed species within one mile of the proposed project. However, to ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool.

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 and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

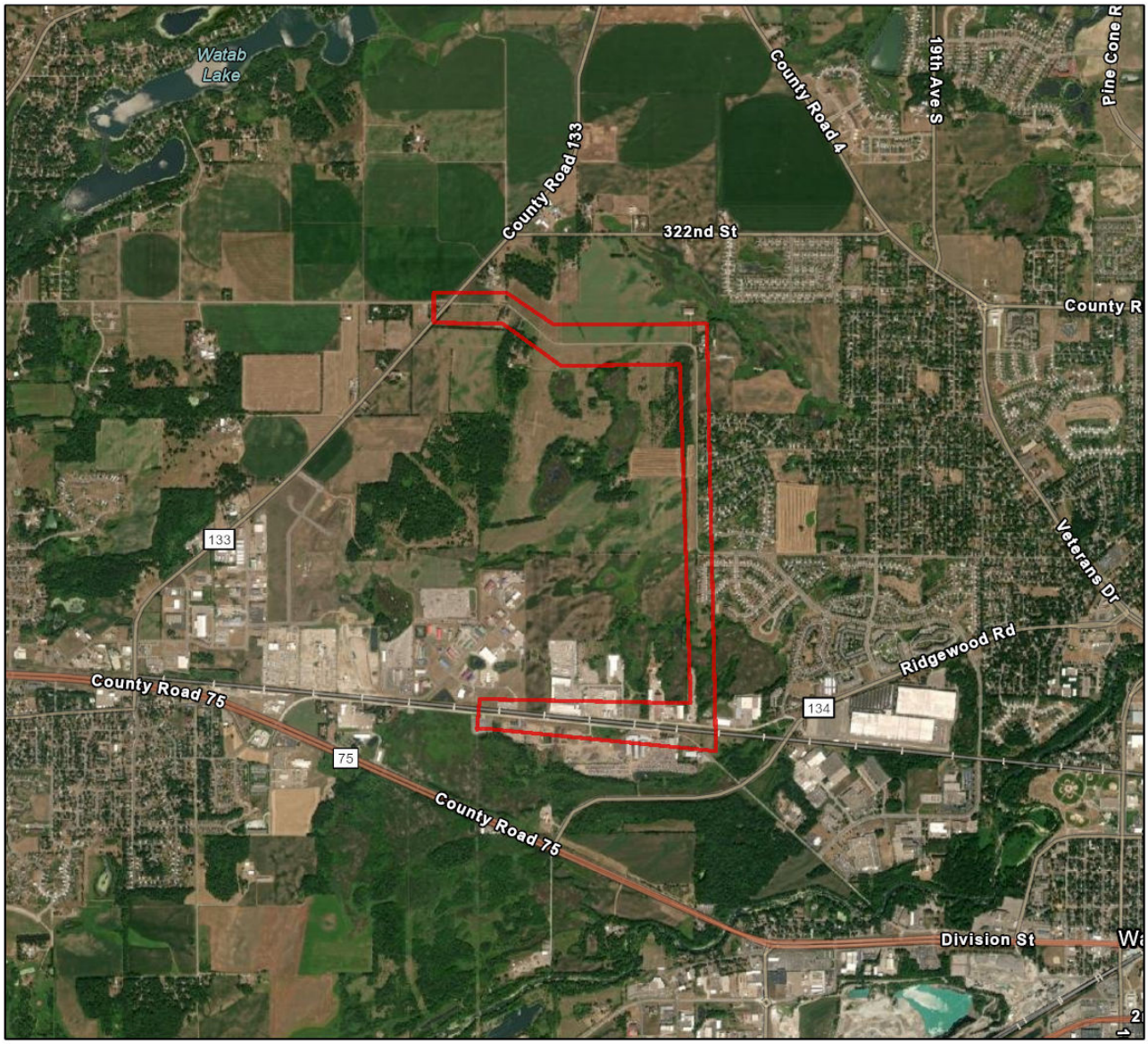
Sincerely,

Samantha Bump
Natural Heritage Review Specialist
Samantha.Bump@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
Information for Planning and Consultation (IPaC) tool
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

osed ST-WS 115-kV transmission line and substation upgr

Aerial Imagery With Locator Map



N
W E
S

0 0.23 0.45 0.9 1.35 1.8
Miles

Project Boundary

Project Type: Utilities, Transmission (electric, cable, phone)

Project Size (acres): 224.95

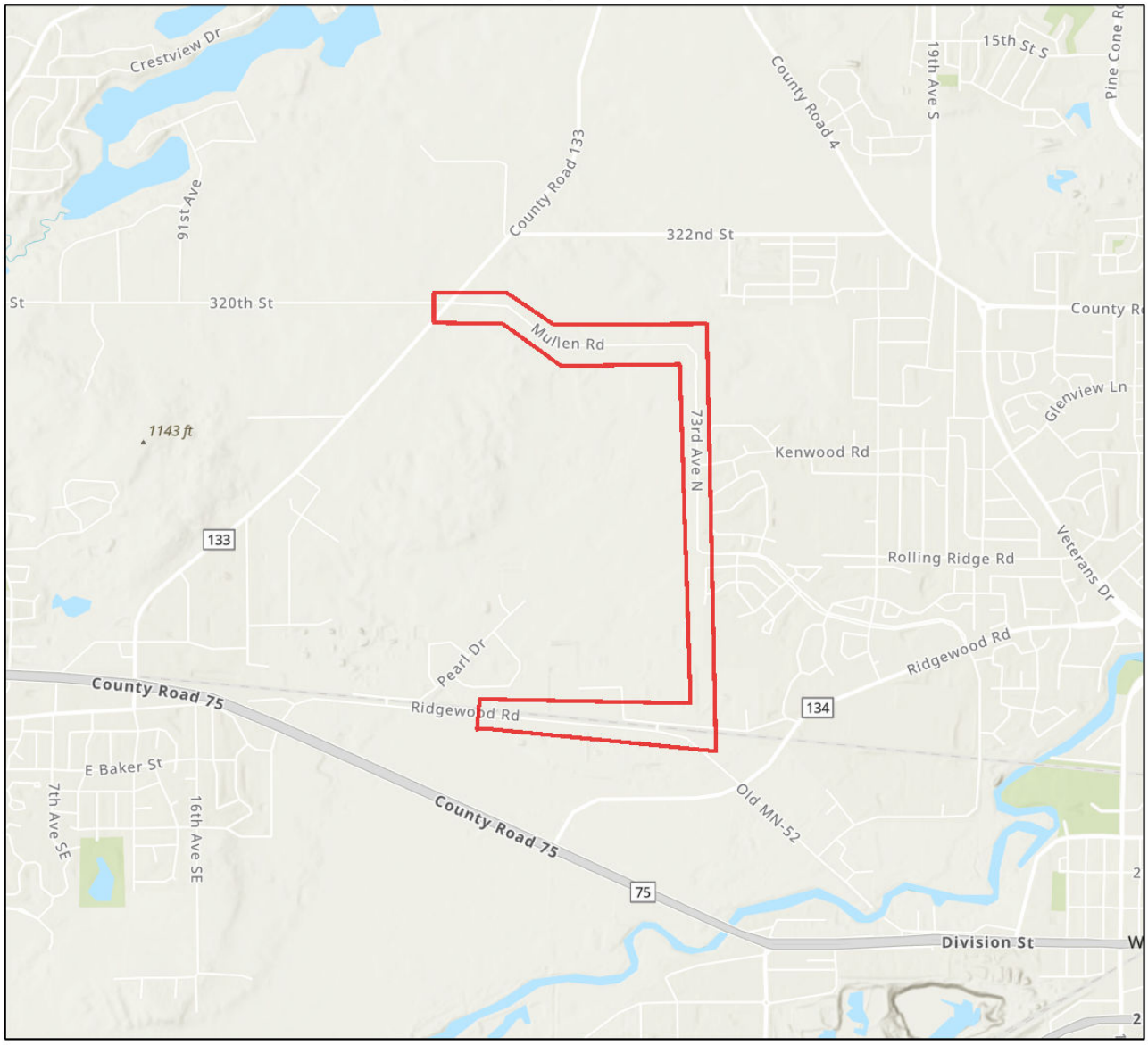
County(s): Stearns

TRS: T124 R28 S6, T124 R28 S7, T124 R29 S1, T124 R29 S12, T125 R29 S36

Earthstar Geographics
Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

osed ST-WS 115-kV transmission line and substation upgr

USA Topo Basemap With Locator Map



Project Type: Utilities, Transmission (electric, cable, phone)

Project Size (acres): 224.95

County(s): Stearns

TRS: T124 R28 S6, T124 R28 S7, T124 R29 S1, T124 R29 S12, T125 R29 S36

Esri, NASA, NGA, USGS, FEMA
Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

ATTACHMENT F

Attachment F

From: Strohfus, Mark GRE-MG
Sent: Wednesday, November 2, 2022 2:56 PM
To: MacAlister, Jamie (COMM) <jamie.macalister@state.mn.us>
Subject: RE: Public Meeting Planning - GRE St. Joseph Project 22-235

Jamie,

Thank you for the table. We will work to get you responses as soon as possible.

It's not clear to me what you are looking for on the GHG calculations. I've attached the live spreadsheet version of Table 7-6, pg 7-23 in the application. Please look this over and then let's have a conversation around what else you're looking for.

Thanks Again,
Mark Strohfus
Project Manager, Transmission Permitting
12300 Elm Creek Boulevard
Maple Grove, MN 5536-4718
D: 763-445-5210
C: 612-961-9820
MStrohfus@GREnergy.com

Fuel Type	Estimated Total Fuel Use (gal)	Heating Value (mmBtu/gal)	CO2 Emission Factor (kg/mmBtu)	Total CO2 Emissions (kG)	CH4 Emission Factor (kg/mmBtu)	Total CH4 Emissions (kG)	N2O Emission Factor (kg/mmBtu)	Total CH4 Emissions (kG)
Distillate No. 1	10,800	0.139	73.25	109,963	0.003	4.5	0.0006	0.90
Distillate No. 2	10,800	0.138	73.96	110,230	0.003	4.5	0.0006	0.89
TOTAL (kG)	---	---	---	220,193	---	9.0	---	2
Global Warming Potential	---	---	---	1	---	25	---	298
Grandtotal as CO2e (kG)	---	---	---	220,193	---	224	---	535
Grandtotal as CO2e (tons)	**---**	**---**	**---**	**243**	**---**	**0.25**	**---**	**0.59**