Appendix I

Vegetation Management Plan

DRAFT

Vegetation Management Plan

Pilot Knob to Burnsville 115-kV Transmission Line Rebuild and Upgrade Project in Dakota County, MN

[Month] [day], 2023

Mark Strohfus
MStrohfus@GREnergy.com
763-445-5210

DRAFT

Table of Contents

DRAFT

1. PROJECT SUMMARY

Great River Energy has applied for a route permit for the Pilot Knob to Burnsville 115-kV Transmission Line Rebuild and Upgrade Project in Dakota County, MN ("Project") from the Minnesota Public Utilities Commission ("MPUC") in Docket No. ET2/TL 23-410. The Project will replace the existing 69-kilovolt ("kV") high voltage transmission lines connecting the Pilot Knob, Deerwood, River Hills, and Burnsville Substations with a new transmission lines and structures capable of operating at 115 kV. The Project will generally follow the alignment of the existing 69-kV line, except for an alignment change around the intersection of Blackhawk Road and Interstate 35E.

2. PLAN OVERVIEW

Great River Energy has developed this Vegetation Management Plan (or "Plan") for the Project to address an anticipated Route Permit condition for the Project related to vegetation management.

The primary goal of this Plan is to construct the Project and maintain the Project right-of-way in a manner that ensures a safe and reliable transmission line. In addition to the primary goal of ensuring a safe and reliable transmission line, this Plan addresses the following goals:

- Develop and maintain cooperative relationships with landowners along the right-of-way to accommodate reasonable requests and preferences related to right-of-way vegetation management.
- Comply with applicable requirements in federal, state, and local permits, licenses, and/or easements.
- Prevent the introduction and spread of noxious weeds and invasive species ("NWIS") due to the Project.

This Plan reflects vegetation management practices which are consistent with applicable North American Electric Reliability Corporation ("NERC") requirements, as well as requirements set by the MPUC. This Plan also incorporates, where applicable, the Minnesota Department of Commerce's Generic Vegetation Establishment and Management Plan Guidance.

3. SITE DESCRIPTION

a. Existing conditions.

The Project area consists largely of suburban residential and commercial land use patterns. Land cover along the Proposed Route is developed and urban. Elevations range from 860 to 1,090 feet with the lowest elevation located toward the northeast portion of the route and the highest elevation located toward the southwest portion of the route. The terrain is generally flat with gradual to rolling hills; steeper hills are located where the Project crosses interstate highway exchanges. The

Project will cross the Highline Trail/Thomas Lake Park, Carnelian Park, and Terrace Oaks West. There are bike trails, largely associated with bike lanes within roadways, along the majority of the Proposed Route.

b. Project components.

i. Transmission line right-of-way.

The transmission line right-of-way is generally 35 feet either side of the transmission line centerline for a total width of 70 feet. Where the transmission line parallels roads, Great River Energy will seek approximately 40 feet of ROW from landowners. The landowner will be compensated for the ROW as part of the easement acquisition process. Minimal to no guying is anticipated for the Project; however, if guying becomes necessary, additional right-of-way is acquired as necessary to incorporate the guy wires and stakes that are located outside of the 100-foot right-of-way.

ii. Temporary construction areas.

Temporary construction areas typically include stringing equipment setup areas. Landowner easements are acquired for these stringing areas.

4. MANAGEMENT OBJECTIVES

a. Construct the Project and maintain the Project right-of-way in a manner that ensures a safe and reliable transmission line.

Great River Energy's primary goal is to construct the Project and then operate and maintain the Project and its right-of-way in a manner that ensures a safe and reliable transmission line.

In response to widespread outages in the United States in the early 2000s, Congress enacted the Energy Policy Act of 2005, which authorized the Federal Energy Regulatory Commission ("FERC") to certify an Electric Reliability Organization ("ERO") to create mandatory, enforceable reliability standards; the standards are subject to FERC review and approval. FERC subsequently designated NERC as the ERO tasked with developing and enforcing standards to ensure the reliability of the transmission system in North America. NERC's standards are developed using a results-based approach that focus on performance, risk management, and entity capabilities, and using an American National Standards Institute-accredited process that ensures the process is open to all persons directly and materially affected by the reliability of the North American bulk power system.[1]

More specifically, NERC developed its Reliability Standard FAC-003 Transmission Vegetation Management Program and began enforcement of that standard in 2007. In recognition of the fact that failure to address vegetation requirements can cause major power outages and injury, NERC is authorized to assess regulatory penalties for non-compliance. This standard is updated from time to time and is reviewed and approved by FERC, just like other NERC reliability standards. NERC

[1] *See* North American Electric Reliability Corporation, *Standards*, *available at* https://www.nerc.com/pa/Stand/Pages/default.aspx.

has determined that "[m]ajor outages and operational problems have resulted from interference between overgrown vegetation and transmission lines located on many types of lands and ownership situations" and that adhere to standard requirements "will reduce and manage this risk."[2] The purpose of the NERC standard is:

> *To maintain a reliable electric transmission system by using a defense- in-depth[-]strategy to manage vegetation located on transmission rights of way (ROW) and minimize encroachments from vegetation located adjacent to the ROW, thus preventing the risk of those vegetation-related outages that could lead to Cascading.*[3]

For transmission lines subject to NERC standards, compliance with these standards is required. And, even for transmission lines which are not subject to NERC standards, ensuring safe and reliable construction and operation is paramount. While the Project is not subject to NERC standards, it is Great River Energy's general practice to follow the standards for its 115-kV transmission lines. The purpose of this Plan is to meet the objective of a safe and reliable transmission line, consistent with applicable laws, permits, and other requirements, while also minimizing human and environmental impacts associated with vegetation management to the extent possible.

In sum, to ensure safe construction of the Project, Great River Energy will clear the right-of-way of woody vegetation in advance of construction. Additional detail regarding the right-of-way preparation and construction process is included in **Section 5**. After construction, Great River Energy will restore the right-of-way as discussed in **Section 9**. Thereafter, safe operation of the transmission line is the priority. Great River Energy will annually inspect the right-of-way for vegetation management purposes to ensure safe and reliable operations and will implement "wire/border zone" practices as discussed in more detail in **Section 12**.

b. Landowner Preferences.

i. Develop and maintain cooperative relationships with landowners along the right-of-way to accommodate reasonable requests and preferences related to right-of-way vegetation management.

Great River Energy works cooperatively with landowners before, during, and after the construction process regarding easements, rights-of-way, structure locations, restoration, and maintenance (**Section 5.a**, **6, 8, and 9**). This coordination and cooperation are in recognition of the fact that, in most locations under private ownership, Great River Energy has an easement for the Project – it does not own the property in fee simple – and, in large part, the landowners' use of their property, including the right-of-way, will continue after the Project is constructed and operational.

---

[2] *E.g.*, NERC, *FAC-003-4 Transmission Vegetation Management*, *available at* https://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-003-4.pdf.

[3] *Id.*

For example, land that is in agricultural production will likely return to agricultural production; similarly, landowners with mowed turf grass will typically want the right-of-way restored with turf grass that the landowner can mow, just like the rest of the parcel. In this way, a transmission line right-of-way is distinct from vegetation management for other types of energy infrastructure (for example, a solar farm where the project operator has exclusive control of the premises).

This Plan acknowledges that Great River Energy does not have exclusive access to the easement and that the landowner can and will continue to use the easement in a manner that does not interfere with the safe and reliable operation of the Project and is otherwise lawful. As such, this Plan reflects that Great River Energy will coordinate with landowners regarding restoration and maintenance, which means that restoration is likely to be consistent with pre-existing conditions and use, where practicable and consistent with safe and reliable transmission line operation (**Section 4.a.**). When coordinating with landowners regarding restoration and maintenance practices, Great River Energy will also discuss the use of native and/or pollinator vegetation with landowners, where desired and practicable.

ii. Comply with applicable requirements in federal, state, and local permits, licenses, and/or easements.

In addition to the Route Permit, the Project is required to comply with other applicable federal, state, and local permits, licenses, and/or easements. Where those permits, licenses, or easements conflict with this Plan, they shall take precedent over this Plan to the extent they do not violate any other route permit condition. For example:

- Road right-of-way permits: Where the Project will impact road rights-of-way, Great River Energy will follow the vegetation management requirements and guidelines of the appropriate road authority. For example, the Minnesota Department of Transportation ("MnDOT") has guidelines regarding seeding methods and mixes for its rights-of-way.
- Stormwater Pollution Prevention Plan ("SWPPP"): As a requirement of the National Pollutant Discharge Elimination System ("NPDES") permit program, a SWPPP must be prepared to meet the site-specific requirements of each project, to outline procedures to minimize erosion, and to mitigate sediment transport during and after construction activities. The SWPPP covers, among other things, temporary erosion and sediment controls best management practices ("BMPs"). Many of those BMPs are reflected in this Plan.
- Minnesota Department of Natural Resources ("MDNR") licenses/permits: MDNR licenses or permits may have requirements specific to a certain water crossing or site. Where applicable, Great River Energy will implement MDNR-required site specific conditions.

iii. Prevent the introduction and spread of NWIS due to the Project.

During all phases of Project activities, including clearing, construction, operation and maintenance, the Project will minimize the introduction and spread of NWIS along the right-of-way by implementing BMPs that discourage the spread of identified species, and routine cleaning of equipment to remove dirt and plant debris. See **Section 7** below for further detail.

c. Vegetative Cover.

Great River Energy's goal is to establish sufficient permanent vegetative cover as expeditiously as possible after the Project construction activities are complete to minimize erosion potential. Consistent with the Minnesota Pollution Control Agency's construction stormwater permit program, sufficient vegetative cover will be achieved once the disturbed soils have 70% permanent vegetative cover. For transmission line construction, soil disturbances are generally limited to shallow surface impacts, other than the augering of holes for the pole placement, so existing seed banks within the right-of-way soils will be retained and facilitate revegetation. Where appropriate, Great River Energy will apply supplemental seed using BMPs as discussed further in **Sections 9 and 10**.

Sufficient vegetative cover is expected to be achieved within two years where no soil grading was necessary. Actual time frame for complete restoration will be affected by weather and seasonal issues (e.g., appropriate timing for supplemental seeding). Further, if pollinator seeds are included in supplemental seed mixes, Great River Energy recognizes that pollinator establishment may take up to three to five years. Similarly, if grading is necessary, sufficient vegetative cover may take up to five years.

5. RIGHT-OF-WAY PREPARATION & CONSTRUCTION

a. Landowner notification.

Landowners will be notified prior to clearing activities, as required by applicable permit conditions (typically 14 days). Among other things, the notification letter will inform landowners:

- The ROW will be staked indicating the extent of clearing activities.
- Landowners can request to keep any of the timber and materials. Requested wood will be cut to no less than 10-foot segments. Requested whole trees, trunks, wood chips or mulch will be placed just outside of the right-of-way.
- All unwanted materials will be removed from the landowner's property.
- Herbicides to prevent regrowth of woody vegetation may be used, the method of application, and the opportunity for them request that no herbicides be used. **See Section 6**.

b. Initial right-of-way clearing.

The right-of-way will be surveyed and marked in advance of tree clearing to identify the extent of Project activities.

Staging and lay-down areas will be limited to previously disturbed areas where practicable and will avoid wetlands.

Vegetation clearing will be limited to the permanent right-of-way, temporary right-of-way, danger trees off right-of-way, and off-right-of-way access.

BMPs will be used to minimize the spread of invasive/noxious weeds. **See Section 7**.

Where project schedule allows, vegetation clearing will be conducted on firm or frozen ground to minimize rutting and soil erosion. If schedules or weather do not support firm ground, wood or plastic mats or corduroy will be used as necessary to prevent erosion.

Mechanical equipment such as feller bunchers or brush cutters may be used for clearing. In areas where clearing with large equipment is not viable, clearing will be done with hand tools such as chain saws or other hand tools.

Where trees are removed from state and federal property, appropriate licenses/permits will be obtained and followed. There is no state or federal property impacted by the Project.

Vegetation within the right-of-way will be cut at or slightly above the ground surface. Any tree stumps or surface roots in managed turf grasses will be ground to slightly below grade and the hole backfilled with local soils and seeded with a similar turf grass mixture. Any stumps outside of managed turf grass areas will typically be cut or ground such that no more than two inches remain above grade. Great River Energy does not typically grub stumps or roots to minimize soil impacts and erosion potential.

Trees, trunks and/or limbs cut on private property are typically cut to approximately 10-foot lengths unless the landowner requests longer lengths.

Trees (≥3 inches diameter at breast height (dbh) or >20 feet tall) cut from a wetland will be moved outside of the wetland. If the materials will be chipped or shredded, that work will be completed outside of wetlands.

Brush within a wetland may be cut with a brush mower or similar device as long as the chips/mulch will not exceed one inch in depth. If sufficient brush is present such that debris will exceed one inch, sufficient brush will be hauled out for processing in an upland area.

All materials a landowner has requested to keep are stacked outside the ROW. All materials a landowner does not wish to keep are stacked inside the ROW for further processing and disposition.

Any materials a landowner does not wish to keep will be removed from their property. These unwanted materials may be offered to other landowners, offered for sale, placed in a composting site, or disposed of at landfill. The balance of materials will likely be disposed of at TBD or another appropriate location.

c. Erosion & sediment control BMPs.

All work will comply with the SWPPP developed as part of the Project NPDES permit. The SWPPP will define BMPs for erosion and sedimentation prevention and mitigation. Excavating in steeply sloped areas will be avoided to the extent practicable. Due to entanglement issues with small animals, use of erosion control blanket shall be limited to 'bio-netting' or 'natural netting' types and specifically not products containing plastic mesh netting or other plastic components (e.g., those meeting MnDOT Specification 3885)[4].

[4] MNDDOT Rolled Erosion Prevention Products (REPP), http://www.dot.state.mn.us/environment/erosion/rolled-erosion-prevention-products.html

d. Right-of-way preparation and construction at public water crossings.

No MDNR Public Waters are crossed by the Project.

ROW clearing within no less than 30 feet of a non-MDNR jurisdictional streams or wetlands will be conducted to protect all non-invasive vegetation. Brush species will be left across a majority of the right-of-way, except brush in the wire zone (**see Section 12.c**) will be removed to facilitate right-of-way access. No trees that could grow to over 15 feet tall are allowed in the ROW.

6. HERBICIDES

Landowners, operators of organic farms on adjacent parcels, and bee apiary operators within three miles will be notified 14 days in advance if herbicides will be used on the right-of-way. The notice will indicate what herbicides will be used and the methods of application (e.g., broadcast, selective spot treatment, or basal treatment).

Unless a landowner has specified that no herbicides are to be used on their property, herbicides may be used to treat tree and brush stumps to prevent regrowth, and/or to control listed invasive or noxious weed species (**Section 7**). If organic farming is being practiced on adjacent property, see **Section 8 Organic Farming** for additional requirements.

Any weed control spraying will be in accordance with State of Minnesota regulations. Herbicides will be used in accordance with manufacturer's specifications and all applicable federal and state regulations.

Herbicides used within or near wetlands or waterbodies must be:

- designed for use in wet areas as designated by manufacture's specifications and federal and state regulations, and
- be used in accordance with manufacturer's specifications as well as all applicable federal and state regulations.

Areas of high public exposure such as rivers, creeks, streams, and U.S. and state highways shall be treated with a selective basal or backpack application. Approximately 30 to 300 feet on each side of the crossing shall be treated in this manner.

Herbicides will not be used on any state or federal lands without approval of the agency having authority over such land.

Great River Energy may use herbicides on land owned by Great River Energy (e.g., substation facilities). Great River Energy will work with adjacent landowners, if requested, on weed control activities.

7. NOXIOUS WEEDS & INVASIVE SPECIES

During all phases of Project activities including clearing, construction, operation and maintenance, the Project will minimize the introduction and spread of NWIS along the right-of-way by implementing BMPs that discourage the spread of identified species, and routine cleaning of equipment to remove dirt and plant debris. The goal is to prevent new infestations on the right-of-

way as a result of the construction activities. It is important to note that there may be NWIS already existing on private parcels along the right-of-way. While this does not preclude the Project from responsibility for managing the right-of-way, but Great River Energy does not have the authority to treat noxious weeds outside of its right-of-way. Where land outside of the right-of-way contains significant amounts of noxious weeds and/or invasive species clearly visible from the right-of-way, Great River Energy and its contractors will attempt to notify landowners about them and control options they may want to consider.

Plant species which are regulated as noxious weeds in Minnesota are listed by the Minnesota Department of Agriculture in its Noxious Weed lists.[5,6] No noxious weeds are listed Dakota County.

During construction and maintenance, to prevent the spread of noxious weeds from an impacted to a non-impacted area, Great River Energy will implement the following BMPs:

- Maintenance equipment will be cleaned before it is used in Project right-of-way, between equipment use in a known impacted area and a non-impacted area, and prior to entering and exiting the Project right-of-way Cleaning will consist of scraping or blowing to remove visible dirt and weed debris from machinery and trailers, including tracks and wheels.
- Only weed-free materials (e.g., straw bales, bio-rolls, mulch) will be used in erosion control and only weed-free seed will be used during revegetation.
- Equipment and clothing will be inspected for invasive materials.
- Collected invasive materials will be secured and disposed of at an offsite location to avoid dispersal.
- Minimally disturbed areas will be allowed to restore naturally.
- Major infestation areas may be treated with the recommended herbicides (if approved by the landowner) or by mechanical methods such as mowing or burning. The contractor will be required to obtain the necessary permits and/or certifications for the use of applicable herbicides.

Revegetation in non-agricultural areas will be considered successful when the cover of acceptable vegetation is dominant and non-NWIS species density is less than or similar to surrounding lands that have not been affected by the Project. If monitoring indicates a higher density of NWIS, the Project will take appropriate measures to control NWIS. See also **Section 4.c.**

[5] County noxious weed list, MN Department of Agriculture, https://www.mda.state.mn.us/plants/pestmanagement/weedcontrol/noxiouslist/countynoxiousweeds

[6] Statewide noxious weed list, MN Department of Agriculture, https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list

8. ORGANIC FARMS

There are no known or registered organic farms within or adjacent to the Project right-of-way according to the MN Department of Agriculture[7] or the United States Department of Agriculture Organic Integrity Database[8]. However, if Great River Energy encounters a farm that is working toward certification or a landowner considers its farm to be organic, even if they are not certified, Great River Energy will work with the landowner to minimize impacts. Special practices would be adhered to within and adjacent to these organic agricultural lands.

If Great River Energy became aware of an existing or developing, unregistered organic farm within or adjacent to the right-of-way, Great River Energy would work with the organic farmer to develop acceptable maintenance practices potentially including:

- Working with the landowner to identify site-specific maintenance and/or construction practices that would minimize the potential for decertification; once these are developed, the specific measures would be followed. Possible practices may include:
  - Equipment cleaning
  - Planting a deep-rooted cover crop in lieu of mechanical decompaction
  - Application of composted manure or rock phosphate
  - Preventing the introduction of disease vectors from tobacco use
  - Restoration and replacement of beneficial bird and insect habitat
  - Maintenance of organic buffer zones
  - Use of organic seeds for any cover crop
- Prohibited substances would not be applied onto organic agricultural land. No herbicides, pesticides, fertilizers or seed would be applied unless requested and approved by the landowner.
- No refueling, fuel or lubricant storage or routine equipment would be allowed on organic agricultural land. If these prohibited substances are used on land adjacent to organic agricultural land, they would be used in such a way to prevent them from entering the organic agricultural land.

[7] MN Department of Agriculture Organic Farm Directory by County, https://www.mda.state.mn.us/organic-farm-directory-county

[8] US Department of Agriculture Organic Industry Database, https://organic.ams.usda.gov/integrity/

- Topsoil and subsoil layers that are removed during work on these lands for temporary road impacts would be stored separately and replaced in the proper sequence after work is complete.
- Erosion control methods on organic agricultural land would be consistent with the Organic System Plan to the extent feasible. Adjacent to these lands, erosion control procedures would be designed so sediment from non-organic land would not flow into the organic agricultural lands.
- Weed control methods would be consistent with the Organic System Plan to the extent feasible.

9. RESTORATION

a. Overview of restoration process.

Once construction ceases, the ROW will be inspected to identify areas impacted by Project activities. Typical impacts might include rutting, soil compaction, soil exposure, and damage to native vegetation, all to varying degrees. In areas of minimal disturbance (e.g., where erosion is limited to disperse areas and surrounding existing vegetation provides control of sediments, existing vegetation is matted down due to vehicle traffic, areas where drilling spoils are raked into existing vegetation), which will be identified at the time of restoration, will be allowed to regenerate naturally.

All conditions as specified in the local, state, and federal permits and private landowner agreements for final restoration and cleanup will be met. Revegetation and restoration of disturbed areas associated with Project activities are intended to protect wetland and water resources from issues associated with sedimentation, to protect wildlife habitat, and reduce the movement of NWIS species within the right-of-way.

Restoration work will be coordinated with each individual landowner by the restoration contractor and/or Great River Energy's land agent. Finally, each landowner will be mailed a letter asking if they have any outstanding restoration concerns.

Restoration activities may, as needed, include:

- Collecting and disposal of all work-related debris and trash.
- Discing or grading to repair rutting.
- Regrading areas disturbed by construction or clearing to reflect pre-construction topography.
- Returning floodplains to pre-construction profile if disturbed during construction.
- Applying temporary cover and/or temporary seed to minimize erosion potential to the extent practicable.
- Permanent seeding non-agricultural areas disturbed by transmission line structures to prevent runoff.
- Unless timber, slash or chips have been requested by the landowner, all residual vegetation materials will be removed and properly disposed of off-site. Great River

Energy may request a burning permit from state or local jurisdictions to burn residuals.

- Trees (≥3 inches diameter at breast height (dbh) or >20 feet tall) cut from a wetland will be moved outside of the wetland. If the materials will be chipped or shredded, that work will be completed outside of wetlands.
- Brush within a wetland may be cut with a brush mower or similar device as long as the chips/mulch will not exceed one inch in depth and the work will not cause rutting or compaction in the wetland. If sufficient brush is present such that debris will exceed one inch, sufficient brush will be hauled out for processing in an upland area.
- In accordance with easements, Great River Energy's land agent will work with any farmers to repair any damages to cropped fields through discing or planting of deep-rooted crops, and compensate them for any crop damage, consistent with the requirements of Great River Energy's easements (which generally require that landowners receive compensation for construction-related crop damages) and any related landowner agreements.
- Temporary access routes, if any, may be left intact with landowner agreement unless otherwise restricted by federal, state, or local regulations. If a temporary access road is to be removed, the land will be returned to its previous use and restored to pre-construction conditions to the extent practicable unless the landowner requests differently.
- Within wetlands, all construction matting will be removed and vegetation will be allowed to regenerate naturally.

b. Temporary restoration.

Temporary cover and/or seeding may be used as a quick means to minimize soil erosion and reducing the potential for the establishment of NWIS. Temporary seed mixes are considered a cover crop and are made up of annual grasses, have rapid germination, and provide quick ground cover. These seed mixes are not intended to provide multi-year cover. Unless specifically requested by landowners or regulatory agencies, the Project will not establish temporary vegetation on cultivated land or in areas of open water.

Temporary restoration activities will include the repair of rutted surfaces and an even broadcast-seeding of the temporary cover-crop seed mix at a rate of 100 lbs/acre. Temporary vegetation establishment may be expected to be successful between April 1 and September 30. Establishment of temporary vegetation is unlikely to be successful outside of this time window. Temporary use of mulch to stabilize soils may be applied outside of the April 1 through September 30 window.

Straw or wood chip mulch may be used to help stabilize areas of bare soils during the establishment of temporary vegetation or during the period between October 1 and April 1 (winter), except that mulch in wetland areas cannot exceed one inch thick. The contractor will apply mulch during the establishment of temporary vegetation as requested by the landowner or specified in licenses or permits. Wood chip mulch free of soil material and derived from on-site sources, may be used to protect areas where bare soils have been exposed due to tree clearing and construction activities. In winter situations, wood chips may be used to provide protection for bare soils exposed due to

Project activities if out of season seeding is not applicable. Woodchip mulch derived from on-site locations may be spread up to 6 inches deep in upland areas to provide ground protection along access paths. Straw mulch may be used outside of the seeding window as a temporary erosion control measure, followed by temporary or permanent seeding at the earliest possible time consisting with specific seed mix planting guideline.

c. Permanent restoration.

Allowing for and encouraging native species to naturally re-establish temporarily disturbed area is a primary BMP for this Project. Appropriate vegetative cover of the right-of-way will be required along the entire length of the Project. In most cases natural revegetation by early successional species following tree clearing and construction is expected to occur. In areas where native species revegetate the corridor, active restoration may not be required.

Permanent seed mixes for the Project include native seed varieties commonly found and/or available from local seed distributors. The permanent seed mixes are designed to augment the natural colonization of bare ground by local, native seed sources.

Great River will consider the inclusion of pollinator species based on availability of local genotypes, appropriateness for the location/site, and landowner preference. For example, even if a site would otherwise support pollinator habitat, if the landowner intends to instead plant and maintain turf grass, the parcel would be restored in accordance with the landowner's preference. Similarly, if a parcel is in agricultural production, depending on the timing of restoration, a cover crop may be planted to minimize erosion in the short-term, but pollinator or native species would not be planted in recognition of the fact that the parcel will return to agricultural production.

In wetlands, the preferred method for revegetation of disturbed areas is reliance on revegetation by resident plant communities. Great River Energy, in consultation with the appropriate regulatory agencies, will determine whether disturbed areas will require the use of the temporary cover crop only, or seeding with a wetland-specific mix. In areas where the wetland plant community is dominated by native species with rhizomatous root systems that will likely recolonize areas of limited disturbance, bare soils are to be broadcast-seeded with the seasonally appropriate temporary cover-crop seed mix. Large bare soil disturbance areas are defined as greater than 50 square feet of exposed soils that is greater than two feet wide. These areas are large enough to preclude revegetation from the local, native seed source. Large bare soil areas should be seeded using wetland seed mix.

Potential seed mixes are identified in **Section 10(b)** below.

10. SEEDING.

a. Preparation.

Seedbed preparation and seeding are to occur following completion of construction activities and site cleanup in any given location and consistent with seasonal conditions (e.g., snow cover or frozen ground may preclude effective grading and seeding). Where construction activities have resulted in erosion or rutting, surface grade will be restored prior to seeding.

In order to minimize ground disturbance along the entire corridor, forested areas are being cleared, but roots and stumps are being left in place. Within areas of cleared forest, it may not be practical to access large areas of ground with seeding and seedbed preparation equipment. In these areas, smaller vehicles may be required to perform tasks such as smoothing ruts, preparing seedbeds with small rakes, and surface packing after seeding. Fertilizers and other soil amendments are not recommended and will only be applied as requested by and agreed to in right-of-way negotiations with individual landowners.

b. Seed mixes.

Great River Energy will strive to use seed mixes which are native to Minnesota. The following restoration areas and vegetation types are present in and adjacent to the right-of-way:

- Agriculture
- Turf grasses
- Pasture/unmanaged lands
- Road right-of-way

Seed mixes are based on regionally appropriate state seed mixes that are recommended by the Minnesota Board of Soil and Water Resources (BWSR).[9] The mixes are listed in Table 1. This includes two non-native seed mixes that are formulated for pastures or lawn. The identified seed mixes are examples of suitable mixes for each site and replacements are likely to be needed based on availability at the time of construction. Seed mixes were not selected for wetland areas because it is expected that these areas would regenerate naturally. If re-seeding is required in wetlands, those wetlands will be individually assessed to determine the appropriate seed mix.

Table 1: Default Seed Mixes

Seeding Area	Seed Mix Name (State Seed Code)	Rate (Pure Live Seed ["PLS"])	Application Methods
~~Private agriculture~~	~~Cover Crop: Winter wheat or Oats~~	~~100 lbs/ac.~~	Broadcast seeder (Vicon or similar) by hand or mounted to equipment. Allow natural revegetation in lightly disturbed soil where sod is intact.
Private turf	Low Maintenance Turf (25-131)	220 lbs/ac.	
Private pastures and hay fields	Dry Prairie Southeast (35-621)	11 lbs/ac.	
Natural Vegetation: Shaded	Woodland Edge Southern & Western (36-211)	34.5 lbs/ac.*	
Natural vegetation: Mesic Open	Mesic Prairie Southeast (35-641)	12 lbs/ac.*	

[9] BWSR. Seed Mixes. Available at URL: bwsr.state.mn.us/seed-mixes

Unmanaged and Road right-of-way	Native Construction (32-241) **	38 lbs/ac.*	
Wetlands	No seed mix provided. These areas are expected to revegetate naturally.		
*Cover crop is included in these seed mixes ** Other mixes with higher forbs/pollinator content are preferred where site conditions allow.			

i. Pastures and turf: Non-native seed mixes.

The recommended seed mixes will meet the variety of conditions along the right-of-way. There are three seed mixes that are composed on non-native species.

(1) **Cover crop** is listed as an option for the row crop fields near the southern end of the Project. The cover crop would use oats for early season planting or winter wheat for late season planting. Both would be installed at 25 lbs/acre.

(a) The cover crop can be used throughout the Project for other temporary cover if needed.

(2) **Sandy General Roadside (25-121)** was selected for the areas that are part of the hay fields or potential pastures with grazing livestock.

(a) This mix will be suitable for dry sandy area, but it will also do well in areas with more moderate soil moisture.

(3) **Low Maintenance Turf (25-131)** was selected for areas that are manicured and mown as part of lawns.

c. Seeding methods.

Broadcast seeding may be used at all disturbed areas where bare soil is created. Broadcast seeding will occur at double the rate specified in the seed mixes. Seed is to be uniformly distributed by a mechanical, hand-operated seeder; or in small seeding areas, by hand. Following seeding, the surface is to be raked with a cultipacker, harrow, or hand rake. The bed is to be firmed as appropriate to site conditions.

Hydroseeding may be used at all disturbed upland areas where bare soil is created. Hydroseeding is not approved in wetland locations as the method requires extra access by heavy vehicles. Hydroseeding will occur at double the rate specified in the seed mixes. Seed will be applied in a broadcast, hydromulch slurry. The hydromulch seed mix will allow the contractor to see where application has taken place, ensuring uniform coverage of the seeding area. The hydroseeder must provide for continuous agitation of slurry and provide for a uniform flow of slurry. Hydroseed slurry is not to be held in the tank for more than one hour prior to application.

Seed drilling may be used in areas where stumps have been removed and a prepared seed bed can be created. However, these areas are expected to be infrequent and may not occur on the Project. Drilled seed will be sown at a depth of 0.25 inches. Seeding equipment will be able to

accommodate and uniformly distribute different sizes of seed at the required depth. Feeding mechanisms will be able to evenly distribute different seed types at the rates specified. Seedbed soil is to be suitably firmed immediately following seed drilling.

d. Timing.

Seeding periods for application of the permanent seed mixes are limited to April 1 to June 30, during spring, or when soil temperatures have fallen below 55 degrees Fahrenheit in the fall. Outside of these time windows, the cover crop seed mixes will be applied according to temporary cover crop seed mix specifications, as shown above in **Section 10b**.

11. MONITORING

After construction, the Permittee will monitor areas where seeding and erosion control measures have been implemented and will follow up with reseeding measures where vegetative cover by the specified seed mix, or revegetation by the local, native seed source, is inadequate to provide long term stability and sustainable native plant communities, approximately 70% cover. The Project right-of-way will be monitored for up to three growing seasons unless 70% cover is achieved sooner.

12. OPERATION & MAINTENANCE

a. Routine inspections.

Great River Energy will conduct aerial and/or ground visual inspections of the right-of-way every year to ensure a safe and reliable corridor and to ensure access for maintenance activities or emergencies. Maintenance work will be based on the findings of those inspections.

b. Routine maintenance.

Great River Energy will periodically clear vegetation from the existing right-of-way to maintain a safe and apparent corridor, and to allow access for maintenance activities or emergencies. The clearing will be done consistent with wire/border zone practices **(see Section 12.c** for more detail on wire/border zone). Clearing typically includes brushing equipment traveling down the right-of-way, which may consist of tracked or rubber-tired equipment to cut brush and trees, hand-held saws or other manual methods. Small cuttings will be left in place, non-merchantable timber or slash will be disposed of where it originates, hauled off-site, or chipped and evenly spread on the right-of-way. If burning is proposed, Great River Energy will consult with landowners, as well as applicable authorities to obtain necessary authorization or permits.

Project-specific maintenance techniques and mitigation measures include:

- If the surface is unstable such that rutting, soil compaction, or soil mixing may occur, low ground-pressure equipment will be used or maintenance equipment will be operated from weed-free mats or temporary timber corduroy that will be removed upon completion of the work.

- Steep slopes and slopes leading to water bodies will be cleared by hand, leaving adequate herbaceous or low shrub cover to avoid erosion. Trees and shrubs will not be grubbed; all roots will be left intact.
- Vegetation management requirements stipulated in any MDNR, MNDOT, or local governmental unit licenses or permits will be followed.
- All extra work areas (such as staging areas and additional spoil storage areas) will be located outside of wetland boundaries, where topographic conditions permit. If topographic conditions do not permit, an alternate location or matting will be used to minimize impacts.

Due to the typically unstable nature of soils in wetlands, and to preserve wetland hydrology and function, special practices are necessary for some O&M activities as follows:

- Heavy equipment passage through wetlands will be limited to only when necessary to complete the O&M activity.
- Great River Energy will attempt to complete maintenance clearing during frozen conditions. When frozen conditions are not practicable, maintenance will be done using low ground-pressure equipment (ATVs and the like), after installing temporary matting or corduroy, or with hand tools.
- Brush within a wetland may be cut with a brush mower or similar device as long as the chips/mulch will not exceed one inch in depth. If sufficient brush is present such that debris will exceed one inch, sufficient brush will be hauled out for processing in an upland area.
- Wetlands generally revegetate naturally. If no standing water is present, temporary cover crop (oats or winter wheat) may be planted at a rate of 80 pounds per acre. See **Section 10.b.** No fertilizer or lime will be applied in wetlands.

c. Wire/border zone.

Great River Energy uses the wire/border zone methodology in maintaining the right-of-way. The wire zone, or clear zone, is generally defined as the area that extends 15 feet outside of the area directly below the outermost conductors of the transmission line[10] (**Fig. 12-1**). For example, where conductors are located on both sides of a structure, the horizontal distance between 115-kV conductors is approximately 15 feet, which would result in a wire zone width of 45 feet. Narrower total widths might be viable if the conductors are located only on one side of the structure depending on terrain conditions and equipment accessibility. Great River Energy encourages all landowners to contact us regarding any plans to plant or construct within the right-of-way[11].

[10] In areas where sloped, rocky, or other complex terrain characteristics limit equipment access on one side of the transmission centerline or where the transmission line angles, the wire zone may need to be extended further out than 15 feet on one side of the transmission centerline.

[11] https://greatriverenergy.com/transmission-and-delivery/power-line-project-faqs/easements-and-rights-of-way/

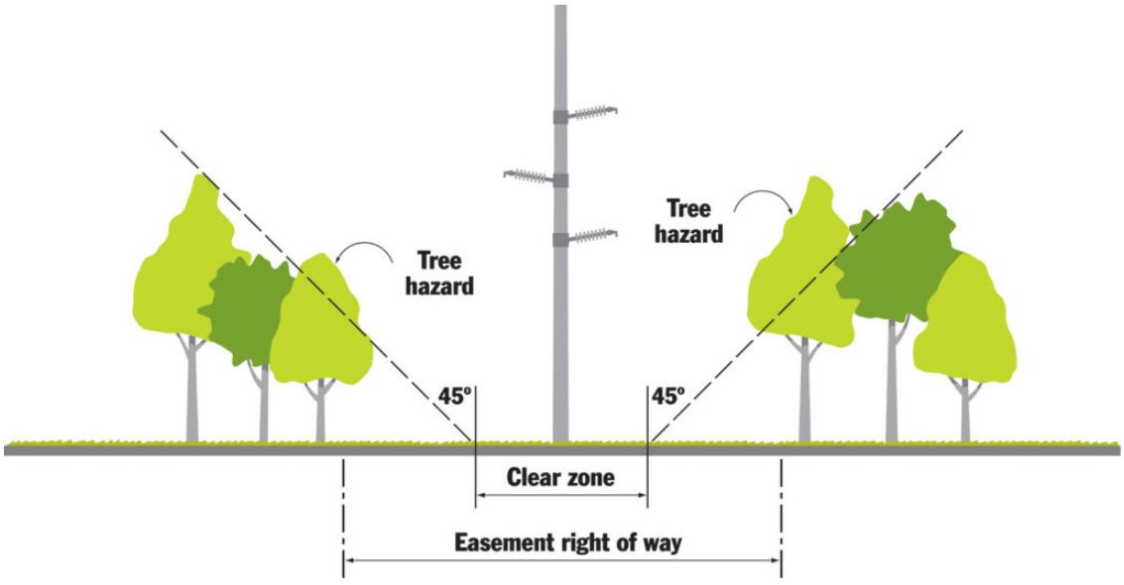
The border zone extends from the edge of the wire zone to the edge of the easement right-of-way.

The wire zone is maintained free of any vegetation that would inhibit Great River Energy from accessing the right-of-way with its equipment or limit its ability to use equipment, such as bucket trucks, to maintain or quickly repair the transmission line. No trees or shrubs are allowed to establish within the wire zone. Stumps or roots that could impede equipment travel will be removed by cutting or grinding them at or slightly below the surface.

Within the border zone, landowners may plant lower growing tree species or shrubs if the species does not exceed a height as depicted in **Fig. 12-1** unless other right-of-way conditions prevent vehicle access. Trees that lie outside of the easement but have branches and/or foliage that lie within the border zone, as depicted in **Fig. 12-1**, may be pruned or removed. In the border zone, allowed woody vegetation can have increasing heights moving away from the wire zone up to a maximum mature height of 15 feet. Again, Great River Energy encourages landowners to contact Great River Energy regarding any planting within the right-of-way.

Danger trees are designated by a certified arborist and are typically any tree that is leaning, damaged, having poor root structure, or showing signs of internal decay such that Great River Energy's right-of-way inspectors believe all or portions of the tree may fall into the transmission line. Great River Energy's easements authorize the removal of danger trees outside of the right-of-way. Danger tree removal is a critical aspect of ensuring transmission line reliability and fire prevention.

Figure 12-1 Wire/Border Zone



[12]

[12] Not to scale.

d. Emergencies.

It may be necessary for Great River Energy to cut, trim or remove vegetations due to damage caused by weather events or accidents. Such work is typically done to facilitate restoring services on the line. Staff will attempt to notify the landowner prior to entering the property.