

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

AGREEMENT FOR THE EXCHANGE OF LANDS

THIS AGREEMENT, made and entered into this 23 day of February, 2024, by and between ITC MIDWEST LLC, a Michigan limited liability company, and DAIRYLAND POWER COOPERATIVE, a Cooperative Association incorporated under the laws of the State of Wisconsin, (together, the "Utilities" or "Grantor") for themselves, their heirs, executors, administrators, successors, and assigns, and the UNITED STATES OF AMERICA ("United States") acting by and through the Secretary of the Interior or her authorized representative,

THE PARTIES AGREE AS FOLLOWS:

1. In consideration of the mutual promises and covenants set forth in this agreement, the Utilities agree to convey to the United States of America and its assigns certain lands upon the terms and conditions set forth in this agreement. Specifically, in consideration of the conveyance by the United States of the lands described in Section 6 hereof, the Utilities agree to convey to the United States all of the lands and other interests, including all tenements, hereditaments, together with all water, mineral, and other rights, easements, improvements, and appurtenances belonging to, and owned by them, situated and lying in the County of Grant, Wisconsin, containing 35.69 acres, more or less, and described as follows:

See attached Exhibit "A" (the "Wagner Parcel")

2. By signing this agreement, Utilities agree to convey the property described in Section 1, above, to the United States of America, acting by and through the Secretary of the Interior or her authorized representative, or any other officer or agency of the United States authorized to purchase said land. The Utilities waive their right to an equalization payment under 16 U.S.C. 668dd(b)(3). The United States agrees to convey the property described in Section 6, below, to the Utilities. The Parties intend to close on the exchange within 30 days (exclusive of any days during which there is a government shutdown) from the date of signature by an officer of the United States. The Parties will work with Lafayette Land Title Services LLC located at 700 Main Street, Darlington, WI 53530, or other contracted escrow agent, who has the authority to act as an authorized agent of the United States Government for the purposes of closing this transaction. If the parties do not close within the period stated above, the parties may extend this period by written consent or this agreement shall terminate without penalty to either party.

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

3. This agreement to convey the Wagner Parcel is subject to the following conditions:

- a. **The grantor must provide clear title to the property that is satisfactory to the Attorney General of the United States or their delegee pursuant to 40 U.S.C. §3111; and**
- b. **An approved, final, Pre-Acquisition Contaminant Survey documenting the land to be in an environmental condition acceptable to the U.S. Fish and Wildlife Service.**

Determination as to whether the necessary conditions are acceptable shall be in the sole discretion of the United States. If these conditions are not met, the United States may unilaterally terminate the agreement without liability.

4. The Utilities agree that they have the full right, power, and authority to convey, and that they will convey to the United States the fee simple title to the Wagner Parcel clear, free, and unencumbered, except subject to existing road, railroad, and utility easements of record, if any; all rights of the United States and third parties as cited in the patent, and other conveyances of record.

5. The Utilities further agree not to do, or suffer others to do, any act by which the value or title to said lands may be diminished or encumbered. It is further agreed that any loss or damage occurring prior to the vesting of satisfactory title in the United States of America, including but not limited to, by reason of the unauthorized cutting or removal of products therefrom, or because of fire, shall be borne by the grantor; and that, in the event any such loss or damage occurs, the United States may refuse, without liability, to accept conveyance of said lands, or it may elect to accept conveyance upon an equitable adjustment of the purchase price.

6. In consideration of the conveyance by the Utilities of the lands described in Section 1 hereof, the United States of America, by and through the Secretary of the Interior or her authorized representative, agrees to convey to the said grantor the following described lands situate in the County of Clayton, State of Iowa, containing **19.84** acres, more or less, and particularly described as follows:

See attached Exhibit "B" (the "Exchange Property")

Subject, however, to existing public roads, railroad and public utility easements, if any, existing rights of the United States and third parties as cited in the patent of record, and to the following easements, reservations, and exceptions, which will appear in the deed:

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

- A. The Utilities, on behalf of themselves, their successors and assigns, shall not drain or alter any wetland areas located within the above-described lands and shall protect the integrity of said wetlands pursuant to Federal Executive Order 11990, Protection of Wetlands, dated May 24, 1977, and Federal Executive Order 11988, Floodplain Management, dated May 24, 1977, except as authorized by a permit or license issued by a Federal agency;
- B. The Utilities will use the Exchange Property solely for the construction, operation and maintenance of electric lines, unless another use is authorized in writing by the Regional Director of the Upper Mississippi River National Wildlife and Fish Refuge (the “Refuge”);
- C. Should the Exchange Property, after completion of construction of the Cardinal-Hickory Creek 345 kV Transmission Project, no longer be used for or occupied by the Utilities for electric line purposes for a continuous period of 2 years, it shall revert to United States Fish and Wildlife Services (“USFWS”). If such a reversion occurs, the Utilities will restore the land to its original condition to the satisfaction of the Regional Director, so far as it is reasonably possible to do so upon reversion, unless this requirement is waived in writing by the Regional Director;
- D. The Utilities will conduct vegetation management on the conveyed lands in accordance with the “ITC Midwest LLC – Vegetation Management Plan – Cardinal Hickory Creek 345 kV Transmission Project in the Upper Mississippi River National Wildlife and Fish Refuge” attached here as Exhibit C. The vegetation management plan will be reviewed and updated every five years by the Utilities and Refuge staff;
- E. The Utilities will restore the lands at the existing Stoneman crossing in accordance with the December 6, 2021, Cardinal to Hickory Creek Transmission Line Project – Updated Restoration Plan for the Upper Mississippi River Refuge near Turkey River, Iowa, attached here as Exhibit D;
- F. The Utilities will remove the existing Stoneman crossing transmission facilities in accordance with the November 7, 2023, Transmission Line Retirement in Upper Mississippi River National Wildlife and Fish Refuge Connected to Cardinal to Hickory Creek 345-kV Transmission Line Project and Effects to Cultural Resources (“Retirement Plan”), attached here as Exhibit E. Upon completion of construction and restoration of the Project and fulfillment of the Retirement Plan:
 - a. ITC Midwest LLC will release the July 20, 2015 Easement for Electric Power or

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

Communication Facility Located on Upper Mississippi River Nine-Foot Channel Project Pool No. 11, Clayton County, Iowa (Contract No. DACW25-2-13-4031) and partially release the Transmission Line Easement dated December 18, 1962 and recorded in the County Recorder's Office for Clayton County, Iowa on January 12, 1963 (Box 4/Page 134), with respect to Lot 1 of the Northeast Quarter of the Northeast Quarter of Section 13, Township 91 North, Range 2 West of the of the 5th P.M. Clayton County, Iowa as filed for record in Book 1999, Page 1391 in the office of the Clayton County, Iowa Recorder; and,

- b. Dairyland Power Cooperative will Release the August 29, 2000 Easement for Electric Power or Communication Facility Located On Upper Mississippi River Nine-Foot Channel Project Pool 11, Clayton County, Iowa (Contract No. DACW25-2-00-4152) and partially release the Right of Way Easement for Rural Electric Line dated December 2, 1949 and recorded in the County Recorder's Office for Clayton County, Iowa on February 4, 1950 (95 L.M. p. 602) with respect to Lot 1 of the Northeast Quarter of the Northeast Quarter of Section 13, Township 91 North, Range 2 West of the of the 5th P.M, Clayton County, Iowa as filed for record in Book 1999, Page 1391 in the office of the Clayton County, Iowa Recorder.
- G. So long as USFWS authorizes Clayton County's use of the USFWS fee-owned portions of Oak Road, the Utilities agree to allow Clayton County to use the portion of Oak Road within the Exchange Property on the same terms as provided by USFWS; provided the Utilities, in their sole discretion, determine such continued use does not interfere with the safe operation and maintenance of the Project;
- H. The Utilities will immediately report any cultural and/or paleontological resources (historic or prehistoric sites or objects including burials or skeletal material) discovered by the grantor, or any person working on their behalf, in the Exchange Property by contacting the Refuge Manager, Upper Mississippi River National Wildlife and Fish Refuge. The Utilities shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by said Refuge Manager;
- I. Due to known bald eagle territories and active nests in the vicinity of the conveyed lands, the Utilities will consult with the USFWS Migratory Bird Program and obtain any necessary permits for all work planned or conducted within the conveyed lands between the months of February and July, prior to the work being undertaken;
- J. The Utilities will pay the United States the full value for all damages to non-Exchange Property National Wildlife Refuge System lands caused by the Utilities or their

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

employees, contractors, or employees of the contractors in their construction, maintenance, operation, and use activities on the Exchange Property.

- K. The Utilities will notify the Refuge when construction begins and is completed.
- L. The Utilities will obtain a Special Use Permit issued by the Refuge Manager for any work that occurs on remaining National Wildlife Refuge System lands.
- M. USFWS shall have the right to inspect the conveyed lands to ensure compliance with the Agreement. The U.S. Fish and Wildlife Services shall have the right to seek equitable relief in court to enforce material terms of this agreement.

7. The Utilities further agree that during the period covered by this instrument, officers and accredited agents of the United States shall have, at all proper times, the unrestricted right and privilege to enter upon said lands for all proper and lawful purposes, including but not limited to examination and survey of said lands and the resources upon them.

8. The Utilities will execute and deliver upon demand of the proper officials and agents of the United States, a good and sufficient general warranty deed conveying to the United States fee title to said lands, improvements, and other interests of such character as to be satisfactory to the Attorney General of the United States. If any right-of-way, easements, or reservations in favor of the grantor are identified in Section 4 above, the deed shall provide that the use, occupation, and operation of the rights-of-way, easements, and reservations retained therein, shall be subordinate to and subject to such rules and regulations as may be prescribed by the Secretary of the Interior governing the use, occupation, protection and administration of areas under and in compliance with the National Wildlife Refuge System Administration Act, 16 U.S.C. § 668dd, *et seq.*, as amended.

9. The United States of America agrees that it will acquire all of said lands, improvements, and other interest for the consideration of land, as-stated above, with the acreage of the lands in Exhibit A and Exhibit B to be ascertained by a survey to be made at the option and expense of the United States after reasonable notice to the grantor, and according to standard methods and procedures, or by recourse to the records of the Bureau of Land Management, or by both. It is mutually agreed that an abstract, certificate of title, or other evidence of title to the Wagner Parcel will be obtained by the United States at its own expense and the preparation, execution, delivery, and recordation of the Wagner Parcel deed will be at no cost to the Utilities. The expenses of the Utilities for recording fees, revenue stamps, transfer taxes, and similar expenses incidental to the conveyance of the Utilities' property, as well as the pro rata share of the real property taxes allocable to the period subsequent to the vesting of title in the United States, or the effective date of possession of such real property by the same, whichever is earlier; shall be

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

subject to reimbursement as provided in Section 303 of the Act of January 2, 1971, (P.L. 91-646). The Utilities agree to furnish the United States with evidence that these items of expenses have been billed to and paid by the Utilities, and further agree that the United States alone shall determine the fairness and reasonableness of the expenses to be paid. Full possession and use of the Wagner Parcel shall pass to the United States as of the date that the Exchange Property is transferred, subject only to the reservations stated in Sections 4 and 6 above.

10. The Utilities agree that they will acquire all of said lands, improvements, and other interest for the consideration of land, as-stated above, with the acreage of the lands in Exhibit A and Exhibit B to be ascertained by the survey obtained by the United States pursuant to Section 9 above. The preparation, execution, delivery, and recordation of the Exchange Property deed will be at no cost to the Utilities. Full possession and use of the Exchange Property shall pass to the Utilities as of the date that the Wagner Parcel is transferred, subject only to the reservations stated in Section 4 and 6 above.

11. It is understood and agreed that if the Secretary of the Interior determines that the title to said lands or any part thereof should be acquired by the United States by judicial proceedings, either to procure a safe title, or when it is in the public interest, to take immediate possession, or for any other reason, then the compensation to be claimed by the owners and the award to be made for said lands in said proceedings shall be upon the basis of the Statement of Just Compensation previously provided to the Utilities.

12. It is mutually understood and agreed that this contract shall not be assigned in whole or in part without the consent in writing of the United States.

13. It is further mutually agreed that no Member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or agreement, or to any benefit to arise thereupon. Nothing, however, herein contained shall be construed to extend to any incorporated company, where such contract or agreement is made for the general benefit of such incorporation or company. Nothing in this Agreement shall be interpreted to require the obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. 1341.

14. It shall be the obligation of the Utilities to pay all taxes outstanding on the Wagner Parcel as liens at the date title vests of record in the United States, whether or not such taxes and assessments are then due and payable.

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

15. It is mutually understood and agreed that notice of acceptance of this agreement by the United States shall be mailed and emailed to the Utilities at the following addresses:

For ITC Midwest LLC:
Jean Kim D'Anna
27175 Energy Way
Novi, MI 48377
jdanna@itctransco.com

For Dairyland Power Cooperative:
Steve Schauer
PO Box 817
La Crosse, WI 54602
Steve.Schauer@DairylandPower.com

and shall be effective upon the date of mailing and shall be binding upon the grantor without sending a separate notice to each individual, except as such obligations may be affected by the provisions of this agreement. This Agreement may be executed and acknowledged in multiple counterparts for the convenience of the parties that together shall constitute one agreement and the counterpart signature and acknowledgment pages may be detached from the various counterparts and attached to make one copy of this Agreement to simplify the execution of this Agreement. Each copy of this Agreement will be deemed an original.

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

DAIRYLAND POWER COOPERATIVE

By Steve Schauer

1/29/2024

Steve Schauer
Manager, Real Estate and Right of Way

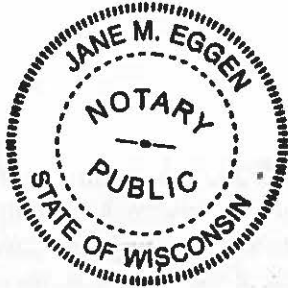
Date

ACKNOWLEDGMENT

STATE OF WISCONSIN)
) ss.
COUNTY OF LA CROSSE)

Personally came before me this 29th day of January, in the year 2024, the above named, Steve Schauer, the Manager, Real Estate and Right of Way, for Dairyland Power Cooperative, known to me to be the persons who are described in and who executed the within instrument, and who acknowledged to me that they executed the same.

(SEAL)



Jane M. Eggen

Notary Public, State of Wisconsin

My commission expires: Nov. 16, 2026



LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

The Secretary of the Interior (Secretary), acting by and through the Secretary's authorized representative has executed this agreement on behalf of the United States of America this 23 day of February, 2024.

THE UNITED STATES OF AMERICA

By: *Danielle L. Kepford*
Danielle L. Kepford, Realty Officer
U.S. FISH AND WILDLIFE SERVICE

ACKNOWLEDGMENT

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

On this 23 day of February, in the year 2024, before me personally appeared Danielle L. Kepford, Realty Officer, U.S. Fish and Wildlife Service, known to me to be the person who is described in and who executed the within instrument, and who acknowledged to me that she executed the same in her official capacity on behalf of the United States of America.

Notary Public, State of Minnesota

(SEAL)



My commission expires: Jan. 31, 2029

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

EXHIBIT "A"

**Land to be conveyed to United States
Cardinal – Hickory Creek Project
Wagner Parcel
Grant County, Wisconsin**

That part of Government Lot 1, Government Lot 2 and Government Lot 5, Section 27, and part of Government Lot 4, Section 34, all in Township 3 North, Range 5 West of the 4th Principal Meridian, Grant County, Wisconsin described as follows:

Commencing at the West Quarter corner of said Section 27; thence South 00 degrees 17 minutes 30 seconds West, assumed bearing, along the west line of said Section 27, a distance of 1386.69 feet to a found 1 inch iron pipe at the southwest corner of a parcel of land described in Document 784121 on file in the Office of the Register of Deeds, Grant County, Wisconsin; thence South 42 degrees 24 minutes 17 seconds East, along the southerly line of said parcel, 619.21 feet to the point of beginning of the land to be described; thence continue South 42 degrees 24 minutes 17 seconds East, along said southerly line, 392.91 feet to a found 1 inch iron pipe; thence South 67 degrees 11 minutes 30 seconds East 680.61 feet to a found 1 inch iron pipe; thence South 80 degrees 09 minutes 59 seconds East 600.11 feet to a found 1 inch iron pipe; thence South 65 degrees 08 minutes 40 seconds West 208.62 feet to a found 1 inch iron pipe; thence South 33 degrees 17 minutes 21 seconds East 706.64 feet to a found 1 inch iron pipe; thence South 38 degrees 25 minutes 12 seconds East 835.41 feet to the east line of Government Lot 4, said Section 34; thence North 00 degrees 41 minutes 59 seconds East, along said east line, 1163.69 feet to the South Quarter corner of said Section 27; thence North 00 degrees 41 minutes 59 seconds East, along the east line of said Government Lot 5, a distance of 311.61 feet to a found 1 inch iron pipe at the northeast corner of said Document 784121; thence North 80 degrees 59 minutes 02 seconds West, along the north line of said Document 784121, a distance of 341.01 feet to a found 1 inch iron pipe; thence North 81 degrees 51 minutes 24 seconds West, continuing along said north line, 348.00 feet; thence North 75 degrees 32 minutes 12 seconds West, continuing along said north line, 352.12 feet to a found 1 inch iron pipe; thence North 75 degrees 57 minutes 09 seconds West, continuing along said north line, 506.06 feet to a found 1 inch iron pipe; thence North 69 degrees 46 minutes 26 seconds West, continuing along said north line, 278.78 feet to a found spike; thence North 23 degrees 16 minutes 23 seconds West, continuing along said north line, 86.70 feet to a found 1 inch iron pipe; thence North 47 degrees 07 minutes 30 seconds West, continuing along said north line, 114.89 feet to a found 1 inch iron pipe; thence North 47 degrees 45 minutes 24 seconds West, continuing along said north line, 146.02 feet; thence South 55 degrees 10 minutes 17 seconds West 265.64 feet to the point of beginning.

AND

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

That part of Government Lot 1, Section 26 and that part of Government Lots 4 and 5, Section 27, all in Township 3 North, Range 5 West of the 4th Principal Meridian, Grant County, Wisconsin described as follows:

Beginning at the southwest corner of said Section 26; thence South 88 degrees 39 minutes 00 seconds East, assumed bearing along the south line of said Government Lot 1, a distance of 1330.75 feet to the southeast corner of said Government Lot 1; thence North 00 degrees 39 minutes 06 seconds East, along the east line of said Government Lot 1, a distance of 100.00 feet; thence North 88 degrees 39 minutes 00 seconds West, parallel with the south line of said Government Lot 1, a distance of 1330.42 feet to the east line of said Government Lot 4 of Section 27; thence North 00 degrees 49 minutes 41 seconds East, along said east line, 217.28 feet to the southerly right of way line Burlington Northern Santa Fe Railroad; thence North 86 degrees 20 minutes 32 seconds West, along said right of way line, 694.13 feet; thence South 00 degrees 49 minutes 41 seconds West 220.41 feet to the south line of a parcel of land described in Document 784121, on file in the Office of the Register of Deeds, Grant County, Wisconsin; thence South 78 degrees 27 minutes 40 seconds East, along said south line, 705.55 feet to the point of beginning.

Containing 35.69 acres, more or less, and is subject to easements of record.

ALSO including an easement for ingress and egress as set forth in Document No. 784122.

TOGETHER WITH ACCESS EASEMENT:

A 20.00 foot wide perpetual easement for ingress and egress purposes over, under and across Governments Lots 1 and 2, Section 27, Township 3 North, Range 5 West of the 4th Principal Meridian, Grant County, Wisconsin, the centerline of said easement is described as follows:

Commencing at the west quarter corner of said Section 27; thence South 00 degrees 17 minutes 30 seconds West, along the west line of said Section 27, a distance of 996.91 feet to the south right of way line of the Burlington Northern Santa Fe Railroad; thence South 71 degrees 41 minutes 04 seconds East 546.66 to the point of beginning of the centerline to be described; thence South 11 degrees 58 minutes 16 seconds East, exiting said railroad, 17.87 feet; thence South 47 degrees 12 minutes 15 seconds East 45.82 feet; thence South 58 degrees 12 minutes 21 seconds East 46.29 feet; thence South 64 degrees 17 minutes 47 seconds East 87.76 feet; thence South 66 degrees 52 minutes 24 seconds East 161.90 feet; thence southeasterly along a tangential curve concave to the southwest having a radius of 150.00 feet and a central angle of 75 degrees 44 minutes 34 seconds a distance of 198.29 feet; thence South 08 degrees 52 minutes 09 seconds West, tangent to said curve, 156.65 feet; thence southerly along a tangential curve having a radius of 275.00 feet and a central angle of 51 degrees 23 minutes 58 seconds a distance of 246.70 feet; thence South 42

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

degrees 31 minutes 49 seconds East, tangent to said curve, 26.47 feet; thence southeasterly along a tangential curve concave to the northeast having a radius of 330.00 feet and a central angle of 40 degrees 43 minutes 39 seconds a distance of 234.57 feet; thence South 83 degrees 15 minutes 28 seconds East 118.95 feet; thence South 76 degrees 37 minutes 00 seconds East 287.21 feet; thence South 88 degrees 39 minutes 27 seconds East 75.63 feet; thence South 83 degrees 58 minutes 31 seconds East 319.37 feet; thence South 76 degrees 00 minutes 23 seconds East 93.72 feet; thence South 68 degrees 24 minutes 28 seconds East 69.01 feet; thence South 74 degrees 53 minutes 34 seconds East 158.50 feet; thence South 82 degrees 38 minutes 17 seconds East 25.97 feet; thence southerly along a tangential curve concave to the southwest having a radius of 50.00 feet and a central angle of 91 degrees 39 minutes 16 seconds a distance of 79.98 feet; thence South 09 degrees 00 minutes 58 seconds West 34.58 feet to the northerly line of a parcel of land described in Document 784121, on file and of record in the Office of the Register of Deeds, Grant County, Wisconsin.

The sidelines of said easement are to be lengthened or shortened to terminate on the southerly right of way of the Burlington Northern Santa Fe Railroad and the northerly line of Document 784121.

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

EXHIBIT "B"
Land to be divested by United States
Exchange Property

Lot 2 of Government Lot 6, Section 12, Township 91 North, Range 2 West

Also:

Lot 1 of the Southeast Quarter of the Southeast Quarter of Section 12, Township 91 North, Range 2 West

Also:

Lot 1 of Lot 1 of Government Lot 5, Section 12, Township 91 North, Range 2 West all in the 5th P.M., Clayton County Iowa, filed for record as Document No. 2021R03706 in Book 48, Page 50 in the Office of the Recorder of Clayton County, Iowa on September 3, 2021.

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

EXHIBIT “C”

ITC Midwest LLC – Vegetation Management Plan – Cardinal Hickory Creek 345 kV
Transmission Project in the Upper Mississippi River National Wildlife and Fish Refuge

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

EXHIBIT “D”

December 6, 2021, Cardinal to Hickory Creek Transmission Line Project – Updated Restoration
Plan for the Upper Mississippi River Refuge near Turkey River, Iowa

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

EXHIBIT “E”

November 7, 2023, Transmission Line Retirement in Upper Mississippi River National Wildlife and Fish Refuge Connected to Cardinal to Hickory Creek 345-kV Transmission Line Project and Effects to Cultural Resources
“Retirement Plan”

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange

ITC Midwest LLC

Vegetation Management Plan

**Cardinal Hickory Creek 345 kV
Transmission Project**

**in the Upper Mississippi River National Wildlife and Fish
Refuge**

July 15, 2020

1. INTRODUCTION

The Cardinal-Hickory Creek 345 kV Transmission Line Project (“Project”) was designed as part of a 17-project Multi-Value Project portfolio developed by the Midcontinent Independent System Operator. The Project will:

- Address reliability issues on the regional bulk transmission system and ensure a stable and continuous supply of electricity is available to be delivered where it is needed even when facilities (e.g., transmission lines or generation resources) are out of service;
- Alleviate congestion that occurs in certain parts of the transmission system and thereby remove constraints that limit the delivery of power from where it is generated to where it is needed to satisfy end-user demand;
- Expand the access of the transmission system to additional resources, including 1) lower-cost generation from a larger and more competitive market that would reduce the overall cost of delivering electricity, and 2) renewable energy generation needed to meet state renewable portfolio standards and support the nation’s changing electricity mix;
- Increase the transfer capability of the electrical system between Iowa and Wisconsin;
- Reduce the losses in transferring power and increase the efficiency of the transmission system and thereby allow electricity to be moved across the grid and delivered to end-users more cost-effectively; and
- Respond to public policy objectives aimed at enhancing the nation’s transmission system and to support the changing generation mix by gaining access to additional resources such as renewable energy or natural gas-fired generation facilities.

The 345 kV double circuit line will be constructed within the Upper Mississippi River National Wildlife and Fish Refuge (“Refuge”) on right-of-way relocated north from the existing transmission line right-of-way on the southside of Cassville (“Relocated ROW”). The double-circuit structures will be self-weathering steel structures and will primarily be double-pole structures set on a concrete foundation. These structures will range in height from 75 feet to 195 feet with spans averaging 500 to 700 feet.

Appendix I of the Federal Environmental Impact Statement prepared for the Project and Conditions (2) and (4) of the Right-of-Way Permit for Electrical Transmission Lines to be issued by the USFWS to ITC Midwest and Dairyland Power Cooperative require ITC Midwest to develop a Vegetation Management Plan (“VMP”) in conjunction with USFWS and the United States Army Corps of Engineers (the “Agencies”) for the Relocated ROW. The purpose of the VMP shall be to identify measures to minimize the disturbance and

removal of vegetation for the Relocated ROW, prevent the introduction of any additional invasive species, and re-vegetate disturbed non-cropland areas with appropriate native species in cooperation with state, federal, and local resource agencies, in such a way that does not negatively impact the safe and reliable operation of the Project.

This VMP will apply to the existing transmission line right-of-way that will be relocated from the Stoneman crossing to the north at the Nelson Dewey crossing (the “Relocated ROW”) will include:

1. Measures that will be taken to minimize vegetation disturbance and removal during construction of the Project to the extent that such actions do not violate sound engineering principles or system reliability criteria.
2. Measures that will be taken to prevent the introduction of non-native and invasive species.
3. Measures that will be taken to re-vegetate disturbed non-cropland areas with appropriate native species to the extent that such actions do not violate sound engineering principles or system reliability criteria.
4. Processes by which ITC Midwest will identify the Agencies’ preferences or requirements regarding vegetation management (e.g. herbicide application, etc.) and how these preferences or requirements will be addressed.
5. Measures that will be taken to manage vegetation during operation and maintenance of the Project, including tree species within and outside of the permitted right-of-way that endanger or may endanger the safe and reliable operation of the transmission line, in accordance with federal laws, permits, licenses, or approvals.

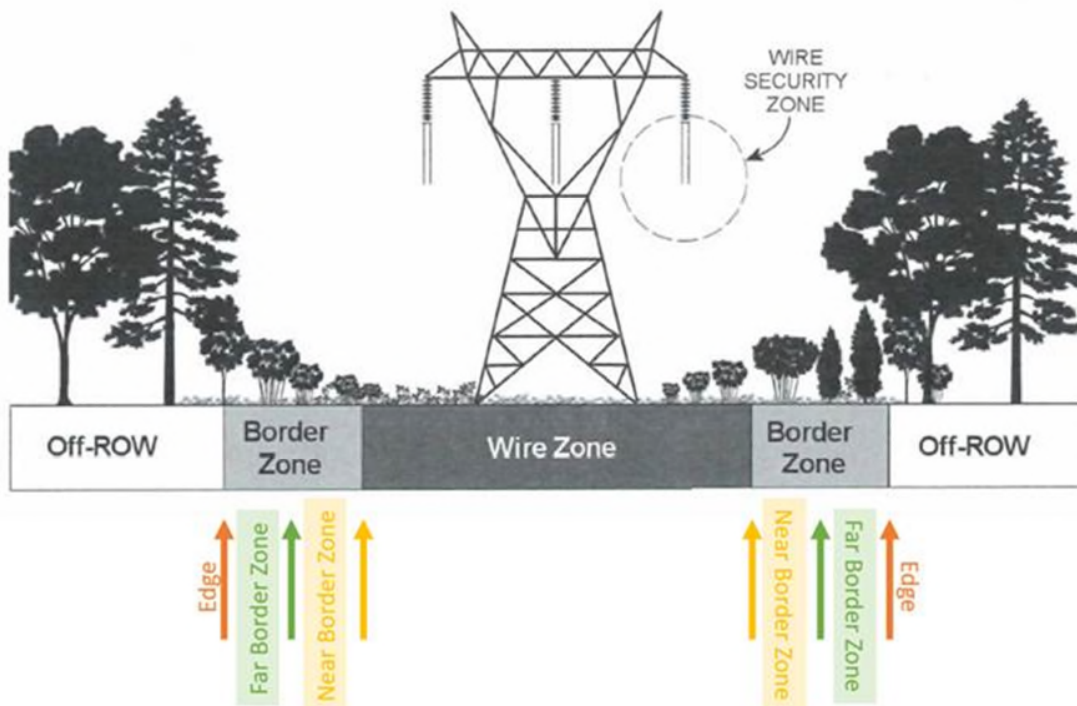
This VMP is intended to outline ITC Midwest’s process for vegetation removal and clearing for construction of the Project, including the use of herbicides. The VMP also includes information on how ITC Midwest and its contractors will re-vegetate lands disturbed by the construction of the Project. The VMP is also intended to address vegetation management measures that are required by Agencies’ permits, licenses, or approvals for the operation and maintenance of the Project.

2. GENERAL RIGHT-OF-WAY VEGETATION MANAGEMENT

It is the standard practice of ITC Midwest to remove all woody vegetation within the right-of-way for the construction of new high voltage transmission lines. Such vegetation may interfere with or restrict safe construction of the transmission line. Cleared rights-of-way provide for safer working conditions and necessary access for large construction equipment including trucks, cranes, and boom lifts. A cleared right-of-way also minimizes conflicts for stringing operations. The right-of-way for the Project on federal lands is centered on the alignment as shown on Figure 1.

After construction of the Project is complete, ITC Midwest will continue monitoring the right-of-way for vegetation management purposes to ensure the safe and reliable operation of the transmission facility. Right-of-way inspections are anticipated to be completed on an approximately annual basis to identify, plan for, and notify of work that is necessary to maintain the safe and reliable operation of the transmission facility.

During right-of-way maintenance activities undertaken after construction of the Project has been completed, ITC Midwest will apply an integrated vegetation management approach by favoring herbaceous or low growing species to serve a dual purpose of wildlife greenways and electrical right-of-way, where feasible and practicable. Safe operation of the transmission line is the top priority for managing vegetation within the right-of-way. ITC Midwest will generally allow compatible low growing species, to revegetate within the 260-foot Relocated ROW. ITC Midwest will generally allow taller growing compatible species that do not interfere with the safe operation of the line along the ROW edge in the Far Border Zone and the Near Border Zone. Species such as sandbar willow and green hawthorn, and eastern redbud, dogwood should remain to the outer 25 feet of the ROW edge, in the Far Border Zone. Species such as button bush, common elderberry, and false indigo bush would be allowed to revegetate within 50 feet of the ROW edge, the Near Border Zone. The remaining area is considered the Wire Zone. Because of the special design of the structures in the refuge, woody species that have grown within the Wire Zone will be targeted for complete removal during maintenance activities with priority emphasis given to incompatible species that are fast or tall growing.



Special best management practices will be undertaken when performing maintenance activities within the Refuge. These practices include:

- Heavy equipment that has been used at a remote area work site and travelled over an unpaved road will be cleaned prior to its initial arrival onsite. Visible dirt must be removed from all equipment using high pressure compressed air blowers or brushing. Heavy equipment that has traveled solely by paved roads from a remote site do not need to be cleaned.
- The contractor(s) must maintain record of cleaning for each piece of equipment used onsite. This information will be available upon request.

2.1 General Vegetation Removal Best Management Practices

During construction of the Project in the Refuge, ITC Midwest and its vegetation removal contractors will follow best management practices (“BMPs”) to minimize vegetation impacts including the following:

- Approved construction activities, including vegetation removal, will be limited to the right-of-way and off right-of-way access areas.
- Rutting will be minimized by using matting materials in wetland areas for all construction activities, including right-of-way clearing vegetation removal activities, or work will be performed on firm or frozen ground when practicable.
- Soil disturbance in steeply sloped areas will be minimized to the extent practicable and, where feasible and practicable, root systems will be left intact in these areas to provide additional soil support and erosion control.
- Traffic in the right-of-way between transmission structure locations will be limited to a single access path to the extent practicable.
- To minimize the potential for spill or leaks from equipment during construction activities, an SPCC Plan will be developed, including inspections of equipment, requiring portable spill containment kits for construction equipment, ensuring equipment operators are present and monitoring the nozzle when fueling is in progress, and prohibiting refueling of equipment in wetlands.
- Selective herbicides will be used for the targeted removal of incompatible species, in favor of grass, forbs, and small shrubs, when the use of herbicides has been permitted by the Agencies.
- Staging or laydown areas will not be placed in the Refuge.
- Right-of-way access paths will be located, designed, constructed, and maintained to minimize rutting, maintain surface and subsurface water flows in wetlands, and reduce erosion and sedimentation. Where wetlands must be crossed, access will

be created through the shortest practicable route to minimize physical impact to the wetland during construction.

- When feasible, structures will be assembled in upland areas before transporting to wetlands.
- Woody vegetation or slash that does not originate within a wetland is considered unauthorized fill, will not be left in wetlands, and will be removed from wetlands if any enters the wetland as part of right-of-way clearing activities.

2.2 General Site Clean-Up and Restoration

Construction waste will be generated as a result of the construction of the Project. Such materials will be properly disposed of during Project construction. After construction of the Project is complete, the following restoration activities will commence and may include:

- Regrading areas to pre-construction topography, where necessary;
- Returning floodplain contours to their pre-construction profile, where necessary;
- Revegetation of non-agricultural areas to prevent runoff using cover crops, ensuring that seeding or planting is done at a time appropriate with seeding and growth of the area, in compliance with the Stormwater Pollution Prevention Plan for the Project; and
- Restoration of rights-of-way, temporary work areas, access paths, or other work areas where ground disturbance was necessary for construction.

3. REMOVAL OF VEGETATION FOR CONSTRUCTION

Within the right-of-way and for construction access paths or roads, all woody and tall growing vegetation will need to be cleared for the Project construction. Vegetation within the right-of-way that may inhibit construction activities will be removed.

Right-of-way clearing is part of the construction process, but will occur prior to transmission line construction activities. Clearing of vegetation will be performed as allowed by permit, license, or approval conditions. Vegetation removal methods may include manual (e.g. chainsaws), mechanical (mowers or hydraulic tree-cutting equipment), natural systems controls, or chemical techniques. Vegetation will be cut as close to the ground as possible, with stump heights not to exceed three inches, unless it is physically impossible or unsafe to do so. Remaining stumps will have their cambial layer treated with an approved herbicide to limit sprouting unless the use of an herbicide is not permitted by the permitting Agencies.

ITC Midwest will notify the agencies at the earliest possible time and coordinate with USFWS regarding the timing of tree felling. All merchantable trees will be removed from the Relocated ROW. Scattered smaller diameter woody species may be cut and scattered using brush hog type or similar equipment. Non-merchantable material will either be

cut and scattered, placed in windrows or chipped within the right-of-way in upland areas. These materials may also be removed from the right-of-way. The cut and scatter method is likely to be used only in areas of shrub and brush or with a limited number of trees. Limited numbers of trees in shrub wetlands may be disposed of in this manner so long as trees that are cut and scattered originate within the wetland and this manner is in compliance with Agency permits and permissions. No upland tree material is to be deposited within wetlands. Chipping in wetlands in non-frozen conditions will only occur through the use of rubber-tracked blade mowers or ASV Posi-Track mower type equipment used to clear small diameter trees and shrubs.

4. VEGETATION MANAGEMENT

4.1 Coordination

The Utilities will contact the USFWS prior to completing maintenance activities after construction. For non-emergency maintenance activities, the Utilities will observe exclusion periods (or have specific approval) for applicable threatened and endangered species and the bald eagle when scheduling and completing maintenance activities that may impact those species.

4.2 Herbicides

Herbicides may be used during vegetation removal or maintenance to control the re-sprout of stumps of incompatible species or to control invasive or noxious weed species. ITC Midwest recognizes the importance of early and frequent communication with the Refuge manager prior to the use of any herbicides during vegetation management operations. All herbicide use will comply with the 2018 Region 3 National Wildlife Refuge System Pesticide Use Policy and Guidance or the most current version adopted by USFWS. Herbicides should also be on the USACE most current adopted and approved list.

4.3 Noxious Weeds and Invasive Species Control

Minimizing invasive species is a priority for the Refuge. The Refuge has a list of invasive species which are of particular concern/interest (provided below). These species have proven difficult to control or eradicate. ITC Midwest will make best efforts to notify the Agencies of the presence of new occurrences of these species.

Invasive Species	Distribution and Habitats
Reed Canary Grass	Widespread - Wet Meadows
Purple Loosestrife	Widespread - Wet Meadows and Marshes
Garlic Mustard	Widespread - Upland and Bottomland Forests
European Buckthorn	Widespread - Upland and Bottomland Forests
Siberian Elm	Limited - Upland and Bottomland Forests
Black Locust	Limited - Upland and Bottomland Forests
Japanese Knotweed	Limited - Upland and Bottomland Forests
Japanese Hops	Limited - Wet Meadow and River Banks
Bush Honeysuckle	Limited - Upland and Bottomland Forests
Phragmites Australis	Limited - Upland and Bottomland Forests

To prevent the introduction of noxious weeds and invasive species (“NWIS”) on lands disturbed by construction activities, ITC Midwest will implement the following mitigation methods: The methods discussed in this section relate only to construction and restoration activities and not to vegetation maintenance activities (Maintenance activities are described on page 3).

- To prevent the introduction and spread of NWIS into the project area from remote offsite locations, heavy equipment that has been used at a remote area work site and travelled over an unpaved road will be cleaned prior to its initial arrival onsite. Visible dirt must be removed from all equipment using high pressure compressed air blowers or brushing. Heavy equipment that has traveled solely by paved roads from a remote site do not need to be cleaned.
- The contractor(s) must maintain record of cleaning for each piece of equipment used onsite. This information will be available upon request.
- Non-compliance with equipment cleaning requirements may warrant a stop work order to be issued. Construction activity could then recommence only after project equipment has been removed from the site, and adequately cleaned.

Winter clearing within the right-of-way and for the purposes of access outside the right-of-way will allow for spring regeneration of existing vegetation within the corridor. The Utilities will be required to assess the project area for NWIS throughout the construction oversight period. Additionally, the construction contractor will report any observed or recognized NWIS infestations to the Utilities who will then provide further instructions for control. The Utilities will report any infestations of NWIS species to the agencies for appropriate action.

Major infestation areas identified during the first growing season will be treated with the use of herbicides or by mechanical methods, as permitted by the Agencies. The contractor applying herbicide is required to obtain any necessary permits and/or certifications prior to herbicide application. The contractor applying herbicide must keep proper documentation of location and timing of herbicide use and be prepared to provide such documentation to ITC Midwest upon request. Treatment shall conform to manufactures' specifications.

To prevent the spread of NWIS during clearing and construction, no mulch is to be spread in wetland locations.

5. SEEDING, EROSION CONTROL, REVEGETATION, AND RESTORATION

5.1 Seeding Methods and Timing

Revegetation and restoration of disturbed areas associated with construction activities within the Relocated ROW 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 and VMZ. Oversight for the implementation of revegetation and restoration procedures will be provided by the Utilities and Agency staff.

Temporary seeding of all disturbed areas shall include planting a cover crop per below table:

Seeding Method	Tillage Turnip	Tillage Radish	Rapeseed	Seed Oats or Annual Rye
Broadcasting	2.0 lbs/ac	2.5 lbs/ac	2.0 lbs/ac	80 lbs/ac
Drilling	1.0 lbs/ac	1.5 lbs/ac	1.0 lbs/ac	50 lbs/ac
Hydroseeding	2.0 lbs/ac	2.5 lbs/ac	2.0 lbs/ac	60 lbs/ac

Permanent seeding of all disturbed areas shall include planting a seed mix per below:

Species	If Drilled	If Broadcast or Hydroseeded
Big bluestem (<i>Andropogon gerardii</i>)	8 lbs/acre	10 lbs/acre
Switchgrass (<i>Panicum virgatum</i>)	4 lbs/acre	6 lbs/acre
Prairie cordgrass (<i>Spartina pectinata</i>)	4 lbs/acre	6 lbs/acre
Black-eyed susan (<i>Rudbeckia hirta</i>)	1 lbs/acre	2 lbs/acre
Purple coneflower (<i>Echinacea purpurea</i>)	4 lbs/acre	6 lbs/acre
Swamp milkweed (<i>Asclepias incarnata</i>)	0.5 lb/acre	0.5 lb/acre
Common milkweed (<i>Asclepias syriaca</i>)	0.5 lb/acre	0.5 lb/acre

Substitutions would be acceptable, but would need to be approved by the District Manager. The timing of seeding for these species should follow Natural Resource Conservation Service recommendations.

Seed used will be purchased on a Pure Live Seed (“PLS”) basis for seeding revegetation areas. Seed tags will identify:

- Purity;
- Germination;
- Date tested;
- Total weight and PLS weight;
- Weed seed content; and
- Seed supplier’s name and business information.

Seed will be used within 12 months of testing as required by applicable state rules and regulations. The seed tags on the seed sacks will also certify that the seed is “noxious weed free.” Seed rates used on the project will be based on PLS rate, not actual weight. The species components of individual mixes are subject to availability at the time of purchase. Grass species may be substituted with alternative native or non-invasive species that are included in Natural Resource Conservation Service guidelines and subject to approval by USFWS.

Seed tags must be collected by the contractor and provided to the Utilities during seeding activities. The tags will be reviewed by the Utilities prior to use to ensure that the seed mix complies with specifications described herein. Legume seed (where specified) will be treated with inoculants specific to the species and in accordance with the manufacture’s recommended rate, appropriate for the seeding method (broadcast, drill, or hydroseeding).

Seedbed preparation and seeding are to occur immediately following completion of construction activities and site cleanup in any given location. Where applicable, soil will

be tilled to a minimum depth of four inches with a disc, field cultivator, or chisel plow to prepare the seedbed, breaking up large clumps and firming the soil surface. Prior to seeding, prepared beds should be sufficiently soft to allow for seed penetration and mulch anchoring, while sufficiently firm to provide surface soil stability. Seeding and mulching should occur parallel to ground contours as practicable.

To minimize ground disturbance along the entire right-of-way, forested areas will be cleared, but roots and stumps will be left in place where feasible and practicable. 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. The contractor will work with the Utilities to develop strategies to work around stumps. Fertilizers and other soil amendments are not recommended and will only be applied as requested by and agreed to with the agencies.

5.1.1 Seeding Methods

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. Within cleared areas, it is assumed that seed drilling will be limited by the presence of stumps and roots left in place to retain the soil surface.

Broadcast seeding will occur as 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 will occur as 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.

5.1.2 Erosion Control

Mulch will be required on disturbed, exposed soils on all slopes greater than five percent, and on dry, sandy soils prone to erosion by wind or rain. A cover crop using the seeds from Section 5.1 above will be planted.

5.1.3 Timing

Seeding periods for application of the seed mixes for cover crops will be limited to April 1 to June 15, during spring, or when soil temperatures have fallen below 55 degrees Fahrenheit from August 20th to September 29. Outside of these time windows, temporary seed mixes, applied according to temporary cover-crop seed mix specifications are to be used. Within 48 hours of the planting ITC Midwest will mow and prepare the seedbed for final seeding. ITC Midwest will coordinate with the Agencies in the event plantings are required outside of these timeframes.

5.2 Temporary Revegetation

Temporary revegetation will be implemented using the seed mixes identified in Section 5.1 and during the timeframes in Section 5.1.3 to quickly establish vegetative cover with the primary purposes of minimizing soil erosion and reducing the potential for the establishment of noxious weeds. The temporary seed mix is considered a cover crop, is made up of annual grasses, has rapid germination, and provides a quick ground cover. This seed mix is not intended to provide multi-year cover.

5.3 Permanent Revegetation and Restoration

Appropriate vegetative cover of the right-of-way will be required along the entire length of the right-of-way within the Refuge, consistent with what is outlined in Section 2 above. Since this project does not require major grading activities, in many cases natural revegetation by early successional native species following tree clearing is expected to occur. In areas where native species voluntarily revegetate the right-of-way, active restoration may not be required. Monthly monitoring during the first year, and adaptive management will be required to ensure that NWIS are controlled, that desirable native plant species become the dominant vegetation communities in natural areas, and that bare soils are quickly stabilized to reduce erosion. In areas of minimal disturbance, vegetation will be allowed to regenerate naturally.

Where standing water is not present, and where surrounding vegetation is dominated by abundant native species, the seeding of bare soils created by rutting, using the temporary cover-crop seed mix may be sufficient for cover while native species revegetate the area. The Utilities will consult with the Agencies during the construction period to assess application of techniques in specific locations. Permanent seed mixes will 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 the right-of-way by local, native seed sources.

5.4 Wetlands

The entire Relocated ROW will be located in wetlands. Clean-up and restoration will occur immediately following all construction activities. Wetland clean-up and site restoration activities include the following:

- All waste, construction materials, and debris from construction activities will be collected and hauled from wetlands immediately upon work being completed in each wetland basin.
- Temporary restoration within wetlands will be established where unfrozen, bare soil surface conditions and ruts will not be permanently restored within 14 days of completion of active work. Temporary restoration activities will include the repair of rutted surfaces and even broadcast seeding of weed-free oat seed at a rate of 80 lbs/acre. No mulch is to be applied in wetland areas.
- Permanent restoration within wetland areas will include the removal of all construction mats and restoration of all ruts and depressions left by mats that are greater than six inches deep. To complete restoration of such ruts or depressions, crews will use skid or power rake equipment to reduce impacts. Restoration will be monitored periodically by the Utilities to review the success of the restoration activities and, if necessary, identify additional restoration measures. No fill from outside of a wetland area is allowed to be used for repair of ruts.
- In areas of minimal disturbance, vegetation will be allowed to regenerate naturally.
- Where bare soils are created due to construction activities but are limited to areas where natural revegetation from native seed bank and rhizomes is likely, a temporary cover-crop seed mix will be broadcast-seeded for temporary cover to reduce opportunities for noxious weed invasion.
- Where standing water is not present and surrounding vegetation is dominated by abundant native species, the broadcast-seeding of bare soil using the temporary cover-crop seed mix may be sufficient for cover while native species recolonize the area.

6. MONITORING

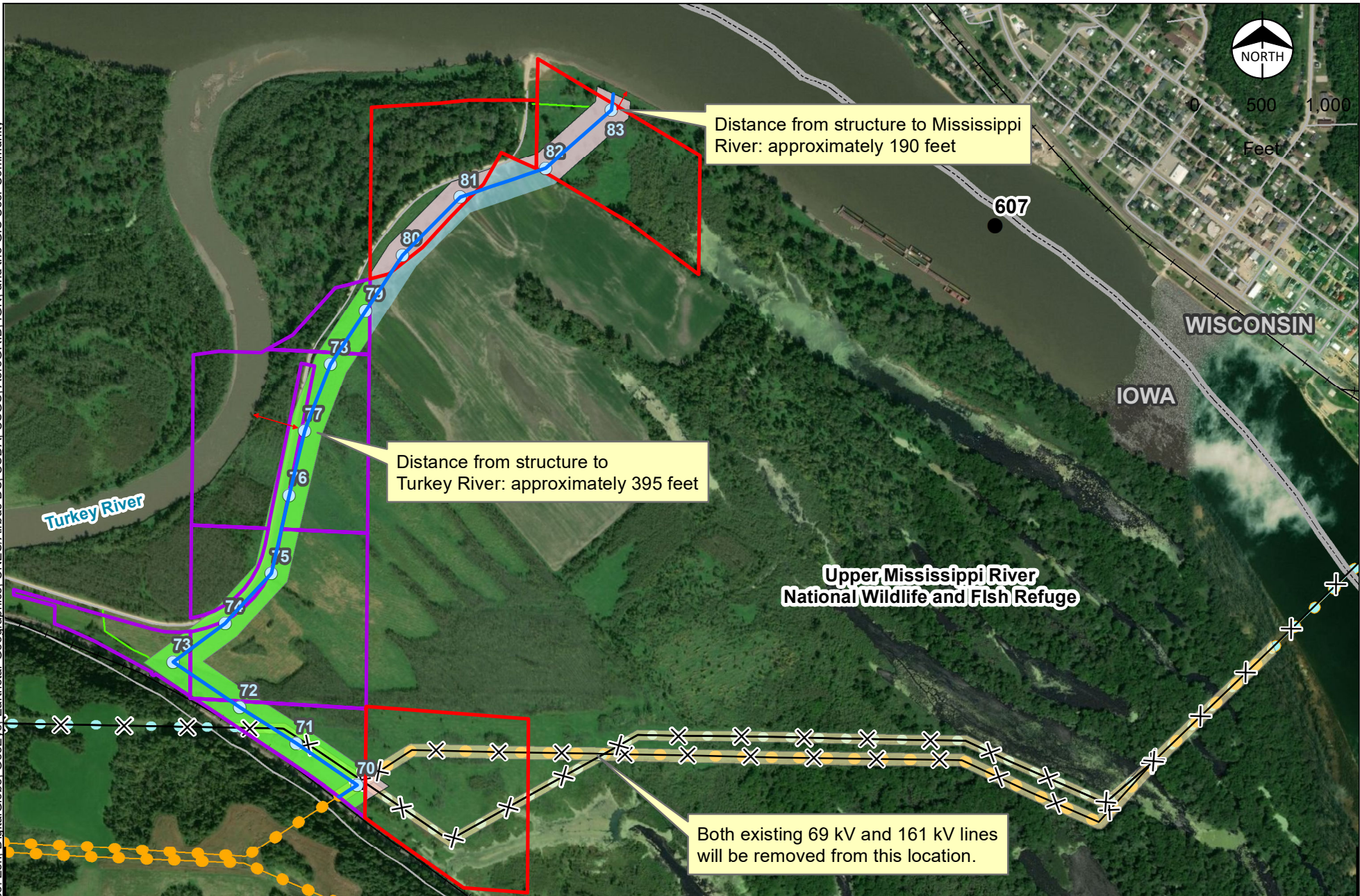
ITC Midwest will monitor and control NWIS within the right-of-way in the Refuge through the construction of the Project and for the following year. During Project construction, the EM will inspect and provide information regarding infestations of NWIS along the right-of-way and VMZ to the appropriate agencies. ITC Midwest will meet easement and permit conditions and obligations and will continue to work with the appropriate Agencies to achieve standards set forth in easement or permit agreements during construction and subsequent maintenance activities.

As part of the construction of the Project and the related restoration and revegetation activities, ITC Midwest 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.

7. FUTURE MANAGEMENT OF THE REFUGE

This VMP will not preclude future management, restoration, or invasive species treatment efforts on the right-of-way conducted by the USFWS or USACE provided the actions are compatible with the operation of the utility line and the plans have received input and concurrence from the utilities.

Path: R:\ITC\74417_Hickory_Crk_Casaville\GIS\DataFiles\ArcDocs\20190920_CD_BIA2_Refuge_FWS.mxd kasamuelson 9/20/2019
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- | | | | |
|------------------------------|--------------------------|------------------------|-----------------|
| Nelson Dewey Crossing/B-IA2 | ROW on USACE Parcel | Mississippi River Mile | Road |
| Transmission Line Structure | 260' ROW in Refuge | Off-ROW Access | State |
| USACE Parcels Crossed by ROW | Approximate Existing ROW | Lines to be Removed | Existing 161 kV |
| USFWS Parcels Crossed by ROW | Railroad | Existing 69 kV | |
| ROW on USFWS Parcel | | | |

Figure 1
 Cardinal to Hickory Creek
 345-kV Transmission Line Project
 Nelson Dewey Crossing / B-IA2
 Upper Mississippi River
 National Wildlife and Fish Refuge

EXHIBIT “D”

December 6, 2021, Cardinal to Hickory Creek Transmission Line Project – Updated Restoration
Plan for the Upper Mississippi River Refuge near Turkey River, Iowa

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange



December 6, 2021

Tim Yager
Deputy Refuge Manager
U.S Fish & Wildlife Service
51 East 4th Street
Winona, Minnesota 55987

Re: Cardinal to Hickory Creek Transmission Line Project – Updated Restoration Plan for the Upper Mississippi River Refuge Near Turkey River, Iowa

Dear Mr. Yager:

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) was retained by ITC Midwest LLC (ITC) to provide environmental services for a portion of the proposed Cardinal to Hickory Creek 345 kilovolt (kV) Transmission Line Project (C-HC Project), also designated as Multi-Value Project 5 (MVP-5) by Midcontinent Independent System Operator, Inc. The C-HC Project is approximately 102-miles long and extends from Iowa into Wisconsin. At the Iowa state boundary, the C-HC Project crosses through the Upper Mississippi River National Wildlife and Fish Refuge near Turkey River, Iowa (Refuge) before spanning over the Mississippi River into Cassville, Wisconsin (Figure 1, Attachment A). Additionally, two transmission lines (69-kV and 161-kV) that are currently operational in the Refuge and adjacent to the proposed C-HC Project will be decommissioned as part of the C-HC Project (Figure 2). These existing transmission line rights-of-way within the Refuge total for approximately 28 acres. In accordance with existing agreements with both U.S. Fish & Wildlife Service (USFWS) and U.S Army Corps of Engineers (USACE), who own and manage the portion of the Refuge overlapping the existing two transmission lines, ITC has agreed to restore the decommissioned transmission rights-of-way (Project)^{1, 2}. The Project area to be restored within the Refuge is hereby referred to as the Refuge Project area. Resource Environmental Solutions, LLC (RES) will serve as ITC's restoration contractor and will execute this plan accordingly.

Additionally, to mitigate for approximately 30.6 acres of proposed Refuge impacts from the C-HC Project, approximately 36 acres of privately owned parcels along the Mississippi River in Cassville, Wisconsin (Wagner Project) has been identified as suitable land for restoration (Figure 1). Restoration at the Wagner Project is only anticipated within two open field areas as shown in Figure 3, totaling approximately 6 acres. As of this submittal, ITC purchased this property and has agreed to turn over the parcels to USFWS to become Refuge lands following the execution of restoration efforts proposed in this updated plan.

¹ C-HC Project Final Environmental Impact Statement (FEIS) - <https://www.rd.usda.gov/resources/environmental-studies/impact-statements/cardinal-%e2%80%93-hickory-creek-transmission-line>

² C-HC Project Compatibility Determination - https://www.rd.usda.gov/sites/default/files/AppA_CHC_comp_determ_Final_508.pdf

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 2

This letter serves as an updated Project restoration plan for agency review and feedback following an October 27, 2021 onsite meeting with USFWS, ITC, Burns & McDonnell, and RES and a follow-up up agency email on December 2, 2021.

Special Use Permit

Prior to any proposed work being conducted within the Refuge, ITC will verify that the approved Special Use Permit (SUP) from USFWS will be adhered to, which identifies special conditions to follow during Project operations.

Refuge Area Restoration Plan

The existing Refuge Project area is comprised of maintained transmission rights-of-way in floodplain wetlands. The overwhelming majority of existing vegetation in the Project area is comprised of dense reed canarygrass (*Phalaris arundinacea*). Shrubs immediately adjacent to the maintained rights-of-way are overwhelming comprised of black willow (*Salix nigra*), while adjacent tree species are dominated by silver maple (*Acer saccharinum*), with smaller concentrations of cottonwood (*Populus deltoides*), black willow, green ash (*Fraxinus pennsylvanica*), and Kentucky coffeetree (*Gymnocladus dioicus*). Attachment B provides a brief photolog of existing conditions.

For removal of existing transmission line and structures, construction vehicles and equipment will prioritize mobilization during frozen ground conditions to minimize ground impact when feasible. If frozen ground conditions are not feasible during the removal of existing transmission line and structures, temporary matting for equipment access will be used to minimize wetland impacts during transmission line removal. Overhead wires will be removed, followed by cutting the wooden poles just below ground surface and removing offsite. Steel structures will be disassembled and removed, while concrete foundations will be broken apart at the surface and removed from three feet below ground surface, and allowable suitable soil will be backfilled for wetland restoration.

If flooding prevents access to the Refuge Project area, the anticipated flood duration will be assessed to determine if a suitable timeframe will be available during the later portions of the growing season to conduct the restoration efforts noted below. If flooding is significant or lasts throughout the majority of the growing season, ITC may request to delay restoration efforts into the following season or year.

Please note there are two areas near the Mississippi River that are particularly difficult to access based on lack of continuous land access (Isolated Refuge Islands). These Isolated Refuge Islands are shown on Figure 4. For removal of existing transmission line and structures in these areas, work during frozen ground conditions is preferred, but additional access from the river may be

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 3

considered if frozen ground conditions are not suitable for equipment mobilization. Based on the remote location of the Isolated Refuge Islands and impracticable logistical restoration challenges, no active restoration efforts are proposed in these areas. Following removal of existing structures within the Isolated Refuge Islands, it is assumed that naturally occurring restoration is sufficient. Following removal of the transmission line components, restoration efforts will begin as outlined:

Spring following decommissioning of transmission lines

- Pre-restoration site assessment and documentation (photos at pre-determined plots).
- Reed canarygrass will be burned for initial site preparation. RES will coordinate with regulators on developing the necessary burn plans and permits that may be necessary prior to conducting any prescribed burn. If burning is not possible, the site will be mowed.
- Following the removal of the reed canarygrass biomass through burning or mowing, the site will be sprayed mechanically with glyphosate-based herbicide in early spring when grass is between 8 inches and 18 inches tall. Use of herbicide within the Refuge Project area will be conducted under the *Region 3 National Wildlife Refuge System Pesticide Use Policy and Guidance*. Prior to any herbicide application, ITC and/or their contractor will coordinate with the Refuge manager to determine appropriate herbicide type and application rates.
- Following herbicide application(s), the majority of the Refuge Project area should have bare soil conditions.
- Bare soil will be disked to prepare for seeding.
- Following disking of bare soil, an initial broadcast native seeding would occur prior to June 1st. Initial seed mix will be consistent with information from Refuge Comprehensive Conservation Plan and feedback from USFWS and USACE and applied at a rate appropriate per the final approved seed mix. An example seed mix is provided in Attachment C and is based on a native forest floodplain in southern Minnesota that is likely applicable to the Project area for restoration purposes. This seed mix contains a majority of quick growth oat and winter wheat that would help establish a groundcover and restrict reed canarygrass regrowth.

Summer 1st year of restoration

- The site will continue to be prepared throughout the growing season with additional herbicide applications. Mechanical site preparation (disking/tillage) will not be utilized in order to minimize potential erosion. Following herbicide application(s), the majority of the Refuge Project area should have bare soil conditions.

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 4

Fall 1st year of restoration

- Following herbicide application(s), the majority of the Refuge Project area should have bare soil conditions. Bare soil will be dragged to prepare for broadcast seeding. No additional preparation will be needed is the seed is installed with a native seed drill.
- The installation of native seed would occur in the dormant season, either in late fall or early spring. After October 15th and prior to July 1st. Initial seed mix will be consistent with information from Refuge Comprehensive Conservation Plan and feedback from USFWS and USACE and applied at a rate appropriate per the final approved seed mix. An example seed mix is provided in Attachment C and is based on a native forest floodplain in southern Minnesota that is likely applicable to the Project area for restoration purposes. This seed mix contains a majority of quick growth oat and winter wheat that would help establish a groundcover and restrict reed canarygrass regrowth.
- A second broadcast native seeding would occur between September 1st and November 1st in areas where groundcover has not taken. In these areas, mowing/haying will occur prior to herbicide application to expose bare soil. This seed mix is proposed to be similar to what is provided in Attachment C, or as provided by the agencies.
- Between October 15th and December 5th, conduct tree plantings. Plant mature trees between 2” to 4” DBH B&B nursery stock at a rate of 10/acre throughout the Refuge Project area. Trees material will be dependent on regional stock, but generally are anticipated to be comprised of silver maple, American elm (*Ulmus americana*), Kentucky coffee tree, swamp white oak (*Quercus bicolor*) and hackberry (*Celtis occidentalis*). Northern pecan trees (*Carya illinoensis*) may also be installed depending on regional availability.

Spring 2nd year of maintenance/management

- Herbicide spot treatment spraying for sprouting reed canarygrass, as needed.
- Delineate areas of successful restoration seeding/plantings from those with reed canarygrass and following herbicide spot treatment. In areas with dense reed canarygrass regrowth, repeat mowing/haying, removal of biomass, herbicide, and soil disking.

Summer 2nd year of maintenance/management

- The Refuge Project area will be assessed on a monthly basis to determine viability of actions taken in the spring and develop appropriate adaptive management strategies. One of the monthly visits would also include vegetation monitoring at pre-determined plots, as discussed in the Monitoring and Objectives section below.

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 5

Fall 2nd year of maintenance/management

- Evaluate where additional tree plantings need to occur to maintain respective densities of 10 trees/acre. Replant as needed between October 15th and December 5th.

3rd and 4th year of maintenance/management

- Continued annual monitoring, reporting, and adaptive restoration measures (See Monitoring and Objectives section below).

5th year of maintenance/management

- Final annual monitoring, reporting, and adaptive restoration measures (See Monitoring and Objectives section below). If less than 50% of all prior tree plantings are well established and alive at this point, coordinate with USACE/USFWS to determine if additional action is required.

Wagner Project Area Restoration Plan

The existing Wagner Project area is comprised of forested floodplain wetlands with two open fields, previously used for ATV recreation. The existing vegetation in the northern and eastern edges of the open areas is dominated by reed canarygrass with a few native forbs. The interior open areas are dominated by cool season non-native grasses such as Kentucky blue grass (*Poa pratensis*) and quack grass (*Elymus repens*) with a few scattered ash trees and sand prairie natives. The wooded areas are comprised of American elm, cottonwood, green ash, silver maple, and swamp white oak. Attachment B provides a brief photolog of existing open area conditions. Based on onsite feedback in February 2020 from USFWS and USACE, the existing wooded areas are sufficient in their current state and do not require restoration efforts. Restoration efforts in the open fields will begin as outlined:

Fall 2021

- Pre-restoration site assessment and documentation (photos at pre-determined plots).

Spring 2022

- When time and weather allow, the undesired vegetation will be mowed or burned to remove the biomass from the Wagner Project area. If burning is proposed, RES will coordinate with regulators on preparing a burn plan and obtaining the necessary authorizations and permits prior to burning.
- Despite currently not being within Refuge limits, use of herbicide within the Wagner Project area will be conducted under the *Region 3 National Wildlife Refuge System Pesticide Use Policy and Guidance*, as the property will eventually become part of the

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 6

Refuge following restoration. Accordingly, RES proposes to use Glyphosate per label recommendations for site preparation.

- Additional herbicide treatment for emerging undesired vegetation will be done for site preparation throughout the growing season. This will be done at a similar rate as recommended by the herbicide label.

Summer 2022

- The Wagner Project area will be assessed on a monthly basis to determine viability of actions taken in the spring and develop appropriate adaptive management strategies. One of the monthly visits would also include vegetation monitoring at pre-determined plots, as discussed in the Monitoring and Objectives section below.
- Site preparation activities will continue throughout the growing season using glyphosate to remove the undesired vegetation and prepare the site for a fall dormant seeding.

Fall 2022

- Initial seed mixes will be consistent with information from Refuge Comprehensive Conservation Plan and feedback from USFWS and USACE and applied at a rate appropriate per the approved seed mixes. The proposed seed mixes are provided in Attachment C and is based on native flora of southern Wisconsin floodplains and savannas.
- Installation of native seed will occur after October 15th until ground freeze using a native grass drill (preferred). Frost seeding can also occur in March to early April on a thin layer of snow, method would be broadcast seeding (second). If conditions do not allow for a fall or frost seeding, a spring installation can be done, using a native seed drill, prior to July 1st.
- Between October 15th and December 5th, conduct container tree plantings. Plant containerized trees at a rate of 60/acre throughout Wagner Project area. Tree species will depend on available stock from regional nurseries, but generally are anticipated to be comprised of silver maple, American elm, Kentucky coffeetree, swamp white oak, bitternut hickory (*Carya cordiformis*), shellbark hickory (*Carya laciniosa*) and hackberry.

Spring 2023

- Utilize adaptive management techniques to foster native seed growth and reduce the invasive species populations in the planting areas.
- Delineate areas of successful restoration seeding/plantings from those with invasive grasses and following herbicide spot treatment. In areas with invasive grasses regrowth, repeat mowing/haying, removal of biomass, herbicide, and soil disking.

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 7

Summer 2023

- The Wagner Project area will be assessed on a monthly basis to determine viability of actions taken in the spring and develop appropriate adaptive management strategies. One of the monthly visits would also include vegetation monitoring at pre-determined plots, as discussed in the Monitoring and Objectives section below.

Fall 2023

- Evaluate where additional plantings need to be re-planted to maintain density of 60 trees/acre. Replant as needed between October 15th and December 5th.

2024 & 2025

- Continued annual monitoring, reporting, and adaptive restoration measures (See Monitoring and Objectives section below).

2026

- Final annual monitoring, reporting, and adaptive restoration measures (See Monitoring and Objectives section below). If less than 50% of all prior tree plantings are well established and alive at this point, coordinate with USACE/USFWS to determine if additional action is required.

Monitoring and Objectives

Monitoring will be used to determine restoration effectiveness in addition to verifying seed mix/tree planting quality/type, photo-logging pre and post restoration conditions, managing crews and equipment, and tracking any discrepancies between the final approved restoration plan and onsite implementation. Monitoring will start immediately prior to restoration activities and continue for 5 years at both the Refuge and Wagner Project areas. As previously noted, the Isolated Refuge Islands will not be actively restored or monitored in favor of naturally occurring restoration. If flooding prevents routine monitoring, the anticipated flood duration will be assessed to determine if a suitable timeframe will be available during the summer growing season for accurately conducting monitoring sessions. If flooding is significant or lasts throughout most of the summer growing season, ITC may request to delay monitoring into the following season or year.

Performance based monitoring will be conducted annually between in the summer months using predetermined plots along transects throughout the Refuge and Wagner Project areas. Plots will be monitored by an environmental scientist or certified arborist from RES. Each plot will denote the absolute cover percentage of each emergent vegetation and stem count of individual woody species, and if the stem is alive or dead. Each plot will be photographed to review changes over

Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 8

time. Following each round of annual monitoring throughout the growing season, monitoring reports for each Refuge and Wagner Project will be provided to USFWS and USACE for review.

During active restoration of both the Refuge and Wagner Project areas, measures will be taken to address invasive species control. Vehicles and equipment will be cleaned prior to and after mobilization to each Project area to minimize the spread of additional invasive species. Decayed reed canarygrass that is proposed to be mulched or hay and removed offsite will be appropriately disposed or burned offsite in a manner to avoid seed dispersion.

The previously approved plan listed restoration sufficiently and reasonably achieved if at least 50% of the total tree plantings are established and alive after five years of monitoring. Native grass re-growth will be documented in the annual monitoring reports, but ultimately not factored as part of the overall restoration achievement requirements. This is primarily due to existing reed canarygrass, which is largely infeasible to eliminate from either the Refuge or Wagner Project areas. Following the proposed routine monitoring, if the minimum 50% tree planting establishment goal is not achieved, ITC will coordinate with USFWS and USACE to determine if additional action is required.

Summary

This updated restoration plan is provided for agency review and feedback. ITC will consider this plan approved if there is no feedback from agencies within 30 days of the submission date. Any potential or proposed changes to this restoration plan will be provided to both USACE and USFWS for review. Please reach out to Mark Rothfork (763-257-6821 or MRothfork@Itctransco.com) or Tyler Beemer (952-491-9470 or tbeemer@burnsmcd.com) with questions.

Sincerely,



Tyler Beemer, PWS
Senior Environmental Scientist

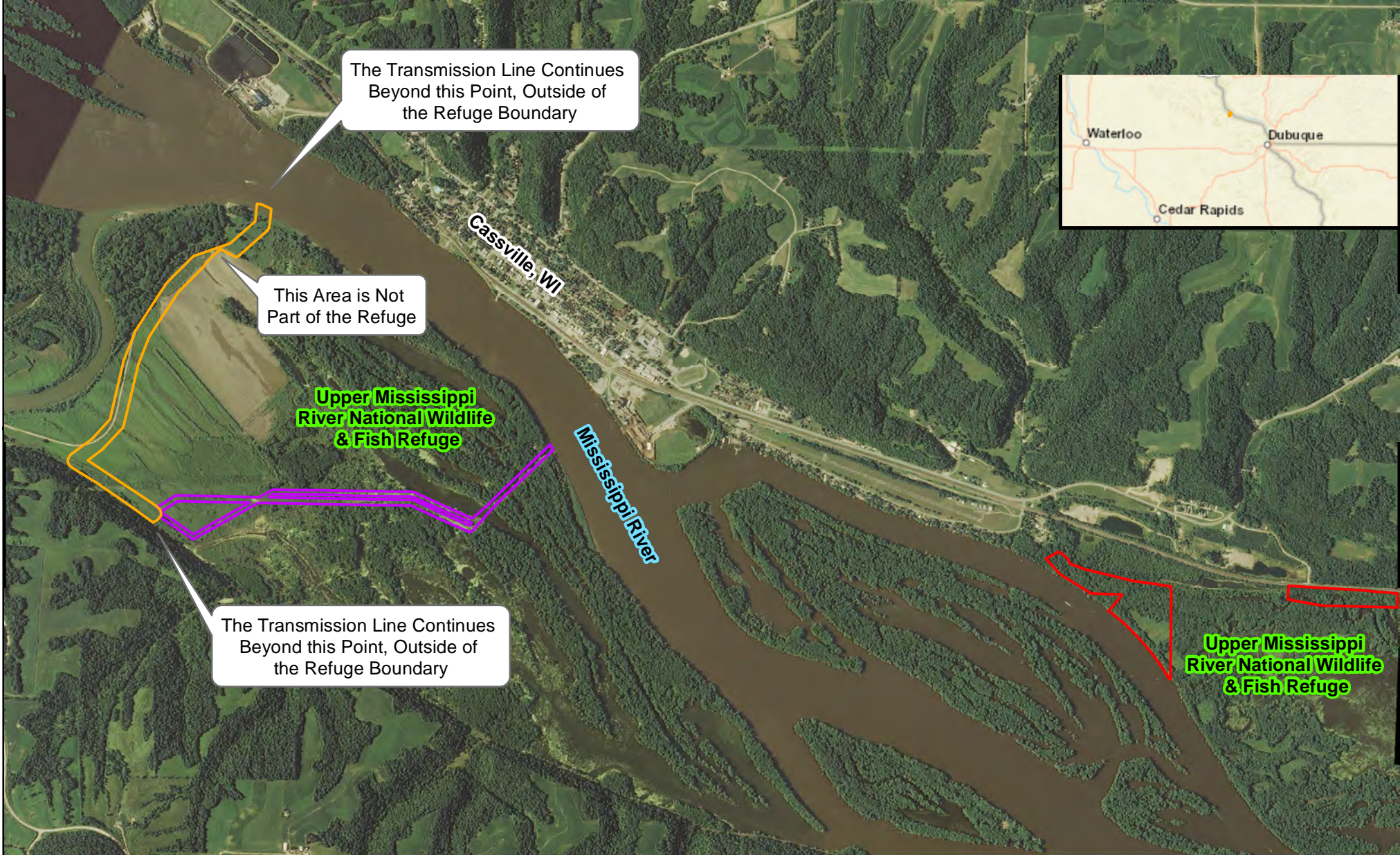
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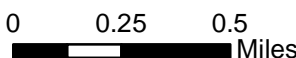



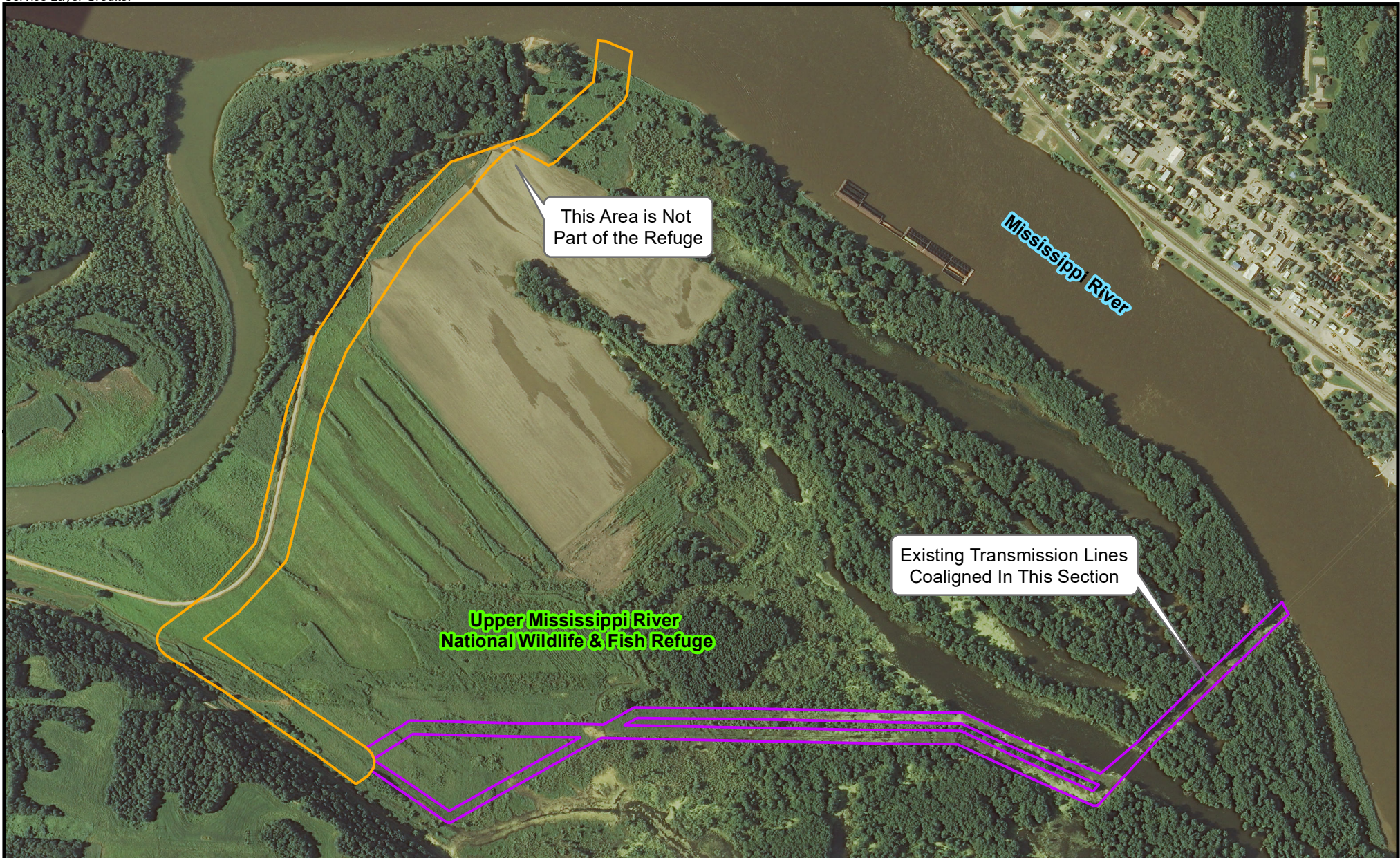
Tim Yager
U.S Fish & Wildlife Service
December 6, 2021
Page 9

Attachment A – Figures
Attachment B – Photo Log
Attachment C – Proposed Seed Mixes

ATTACHMENT A - FIGURES



 	<p>Legend</p> <ul style="list-style-type: none"> Proposed Relocated C-HC Transmission ROW Refuge Area To Be Restored (Existing ROW) Wagner Parcels for Restoration (Privately Owned) 		<p>Figure 1 - Overview Location</p> <p>Preliminary Refuge Restoration Plan Cardinal to Hickory Creek Transmission Line Project Turkey River, IA and Cassville, WI</p>
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Feet

Legend



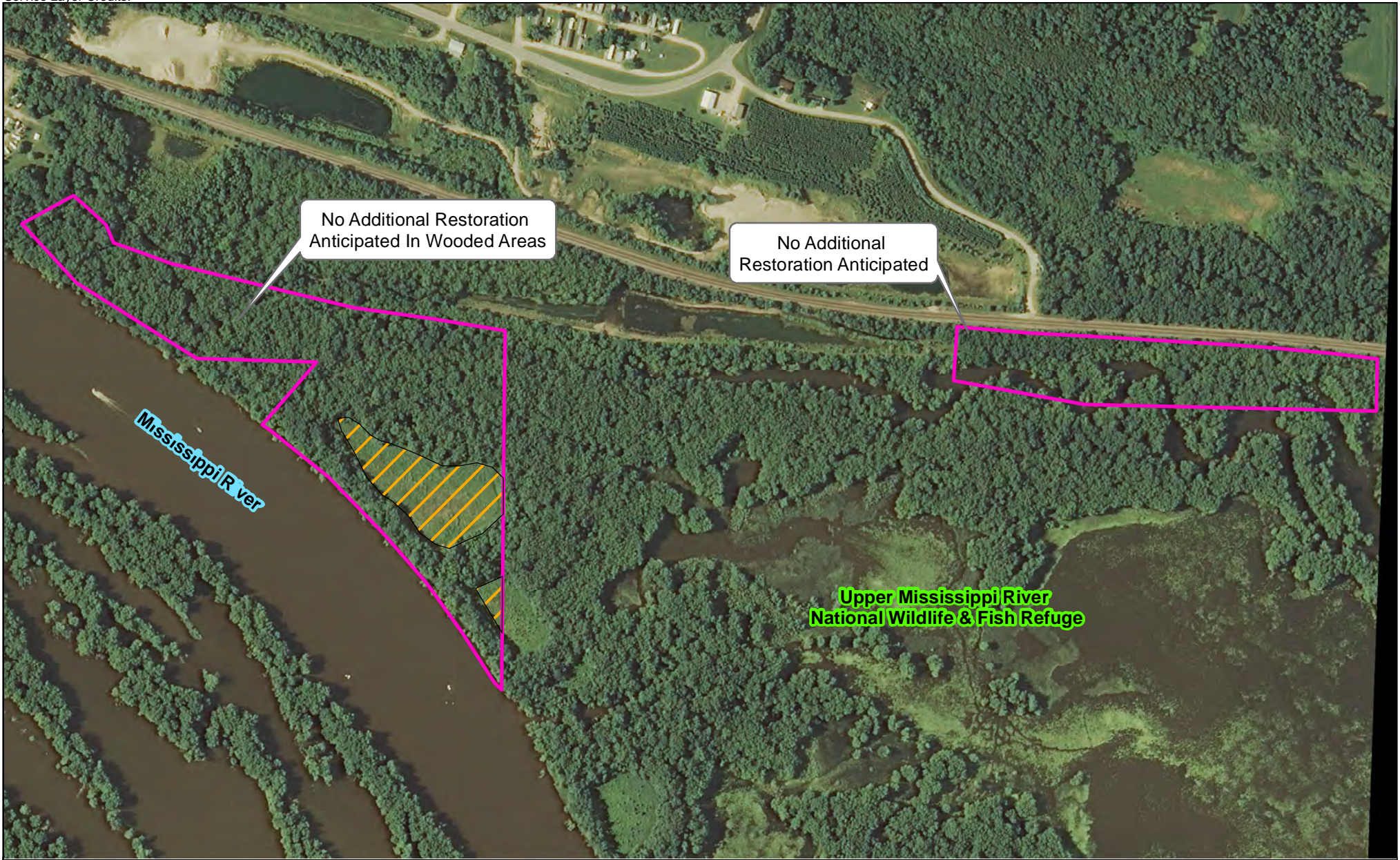
-  Proposed Relocated C-HC Transmission ROW
-  Refuge Area To Be Restored (Existing ROW)



Figure 2 - Refuge Project Area

Preliminary Refuge Restoration Plan
Cardinal to Hickory Creek
Transmission Line Project
Turkey River, IA and Cassville, WI



0 300 600
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Legend



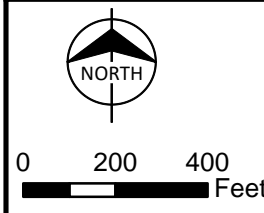
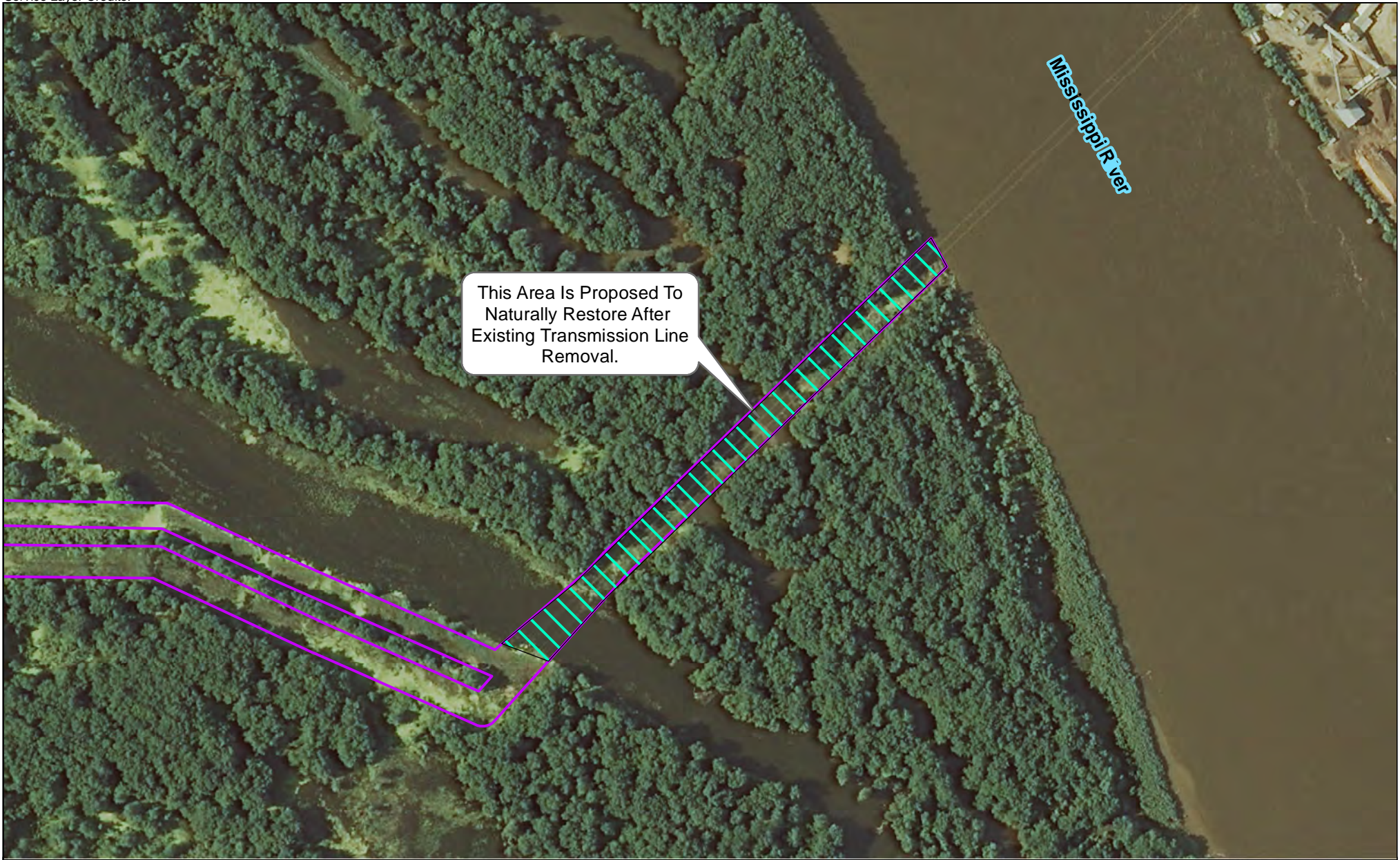
-  Wagner Property (Privately Owned)
-  Restoration Area (Open Field)



Figure 3 - Wagner Project Area
Preliminary Refuge Restoration Plan
Cardinal to Hickory Creek
Transmission Line Project
Turkey River, IA and Cassville, WI



Legend



-  Isolated Refuge Islands
-  Refuge Area To Be Restored (Existing ROW)



Figure 4 - Isolated Refuge Island Area

Preliminary Refuge Restoration Plan
Cardinal to Hickory Creek
Transmission Line Project
Turkey River, IA and Cassville, WI

ATTACHMENT B - PHOTO LOG



Photograph 1: View east under existing transmission line in Refuge, dominated by reed canary grass.



Photograph 2: View southeast under existing transmission line in Refuge, dominated by reed canary grass.



Photograph 3: View south of larger open field at Wagner Property, disturbed by ATV use and predominantly comprised of mowed reed canary grass.



Photograph 4: View east of smaller open field at Wagner Property, predominantly comprised of mowed reed canary grass.

ATTACHMENT C - **Proposed Seed Mixes**

Table 1. Open area seed mix for the Wagner Property (~4 acres).

oz/ac	Seeds/ft ²	Botanical Name	Common Name
32 oz	4.41	<i>Bouteloua curtipendula</i>	Side oats grama
1.6 oz	0.62	<i>Carex bicknellii</i>	Copper-shouldered oval sedge
1.6 oz	1.07	<i>Carex brevior</i>	Fescue sedge
0.8 oz	0.22	<i>Carex gravida</i>	Long-awned bracted sedge
0.8 oz	5.14	<i>Eragrostis spectabilis</i>	Purple love grass
1.6 oz	7.35	<i>Koeleria macrantha</i>	June grass
24 oz	8.26	<i>Schizachyrium scoparium</i>	Little bluestem
0.8 oz	0.55	<i>Sporobolus compositus</i>	Composite dropseed
0.8 oz	0.08	<i>Asclepias tuberosa</i>	Butterfly weed
0.8 oz	0.20	<i>Asclepias verticillata</i>	Whorled milkweed
0.8 oz	0.59	<i>Brickellia eupatorioides</i>	False boneset
0.8 oz	0.18	<i>Coreopsis palmata</i>	Prairie coreopsis
1.6 oz	0.66	<i>Dalea purpurea</i>	Purple prairie clover
0.8 oz	0.15	<i>Euphorbia corollata</i>	Flowering spurge
0.8 oz	0.26	<i>Helianthus occidentalis</i>	Western sunflower
1.6 oz	0.29	<i>Lespedeza capitata</i>	Round-headed bush clover
0.8 oz	0.29	<i>Liatris aspera</i>	Rough blazing star
1.6 oz	2.57	<i>Monarda fistulosa</i>	Wild bergamot
0.5 oz	1.03	<i>Monarda punctata</i>	Horse mint
1.6 oz	3.38	<i>Rudbeckia hirta</i>	Black-eyed Susan
0.8 oz	5.51	<i>Solidago nemoralis</i>	Old-field goldenrod
0.8 oz	0.75	<i>Oligoneuron rigidum</i>	Stiff goldenrod
0.4 oz	1.84	<i>Symphyotrichum ericoides</i>	Heath aster
0.8 oz	1.01	<i>Symphyotrichum laeve</i>	Smooth blue aster
0.8 oz	1.47	<i>Symphyotrichum oolentangiense</i>	Sky-blue aster
0.8 oz	0.15	<i>Tradescantia ohiensis</i>	Spiderwort
0.8 oz	0.51	<i>Verbena stricta</i>	Hoary vervain

Table 2. Seed mix for the Floodplain Forest area at the Wagner Property (~2 acres)

oz/ac	Seeds/ft ²	Botanical name	Common name
1.6 oz	0.04	<i>Carex grayi</i>	Common bur sedge
1.6 oz	0.13	<i>Carex lupulina</i>	Common hop sedge
1.6 oz	0.92	<i>Carex normalis</i>	Spreading oval sedge
0.8 oz	1.54	<i>Carex scoparia</i>	Lance-fruited oval sedge
1.6 oz	0.51	<i>Carex typhina</i>	Cattail sedge
3.2 oz	7.35	<i>Carex vulpinoidea</i>	Fox sedge, Brown fox sedge
1.6 oz	2.08	<i>Cinna arundinacea</i>	Common wood reed
32 oz	3.09	<i>Elymus virginicus</i>	Virginia wild rye
1.6 oz	16.90	<i>Scirpus atrovirens</i>	Green bulrush
4 oz	0.61	<i>Spartina pectinata</i>	Prairie cord grass
1.6 oz	0.18	<i>Asclepias incarnata</i>	Swamp milkweed
0.8 oz	3.82	<i>Boehmeria cylindrica</i>	Small spike false nettle
1.6 oz	5.88	<i>Eupatorium perfoliatum</i>	Common boneset
1.6 oz	4.78	<i>Helenium autumnale</i>	Dogtooth daisy
0.8 oz	7.35	<i>Lobelia cardinalis</i>	Cardinal flower
0.8 oz	9.18	<i>Lobelia siphilitica</i>	Great blue lobelia
0.8 oz	2.39	<i>Lycopus americanus</i>	Water horehound
0.5 oz	26.40	<i>Mimulus ringens</i>	Monkey flower
1.6 oz	0.51	<i>Rudbeckia laciniata</i>	Wild golden glow
0.8 oz	1.19	<i>Scutellaria lateriflora</i>	Mad dog skullcap
0.8 oz	4.59	<i>Symphotrichum lateriflorum</i>	Side-flowering aster
0.8 oz	0.37	<i>Teucrium canadense</i>	Wood germander

EXHIBIT “E”

November 7, 2023, Transmission Line Retirement in Upper Mississippi River National Wildlife and Fish Refuge Connected to Cardinal to Hickory Creek 345-kV Transmission Line Project and Effects to Cultural Resources
“Retirement Plan”

LA- Wisconsin
Upper Mississippi River NWFR
ITC Midwest LLC et al. (1022,a,R)
Cardinal – Hickory Creek Project
Wagner Parcel Exchange



November 7, 2023

Basia Howard
Federal Preservation Officer
Environmental and Historic Preservation Division
1400 Independence Avenue, SW
Washington, DC 20250
basia.howard@usda.gov

Re: Transmission Line Retirement in Upper Mississippi River National Wildlife and Fish Refuge Connected to Cardinal to Hickory Creek 345-kV Transmission Line Project and Effects to Cultural Resources

Dear Ms. Howard:

Introduction

Dairyland Power Cooperative (Dairyland) and ITC Midwest LLC (ITC Midwest) are proposing to retire and remove segments of two existing overhead transmission lines within the Upper Mississippi National Wildlife and Fish Refuge (Refuge) in Clayton County, Iowa. The proposed Cardinal to Hickory Creek 345-kilovolt (kV) Transmission Line (Project) would replace these two segments of existing line (Attachment 1: Figure 1).

The Project anticipates funding, in part, from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS). Due to potential funding by a Federal entity, compliance with Section 106 of the National Historic Preservation Act (NHPA) 54 U.S.C. 306108, and its implementing regulations, 36 CFR Part 800 is required. RUS developed a Project-specific Programmatic Agreement to guide the Section 106 process. ITC Midwest and Dairyland are sponsoring the portion of the Project addressed in this report and hired Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) as a consultant for their portions of the Project.

ITC Midwest has divided their portion of the Project into four segments for phasing of cultural resources compliance and construction (IA-1, IA-2, WI-1, WI-2) (Attachment 1: Figure 1). This letter addresses the retirement and removal of two existing lines within the Refuge associated with installation of new transmission line along Segment IA-2. While RUS is the lead federal agency for the Project as a whole, the land in the Refuge crossed by the two retirement lines is co-owned and co-managed by the U.S. Army Corps of Engineers (USACE) and the U.S. Fish & Wildlife Service (USFWS).

Basia Howard
Environmental and Historic Preservation Division
November 7, 2023
Page 2

This letter addresses Dairyland's and ITC Midwest's proposed line removal plans to minimize impacts to natural and cultural resources within the Refuge and to address previous cultural resources survey findings along one of the retirement segments. The plans have been informed by discussions with USACE, USFWS, and RUS. The removal work is currently planned to begin after the construction of the Project is complete.

Proposed Line Removal Plan in Refuge

The existing structures to be removed within the Refuge are depicted in Attachment 1: Figure 2 and are classified by one of three different structure types. All work would be done by helicopter, and associated work on the ground would be conducted on foot without the use of heavy machinery. Crews and equipment would be transported to the work area by helicopter and lifted in and out at each existing structure location. For all three structure types (see description below), linemen would be positioned to remove conductors and insulators by hand, cut the wire into manageable lengths, structures would be cut off at ground level and pulled over onto the ground, cut into manageable size pieces, then removed by the helicopter away from the Refuge area. Additional linemen would be lowered to the ground surface at each structure and temporarily stage equipment at the structure base such as portable generators, jackhammers, and chainsaws. Utility Terrain Vehicles (UTV) and/or amphibious type vehicles would be on standby outside of the Refuge to quickly deploy for safety and evacuation purposes.

The specific removal strategy for each structure type is outlined below. See Attachment 1: Figure 2 for reference.

1. H-frame wooden structures.
 - a. Following removal of the conductors and insulators as noted above, each wooden pole would be cut down near the ground surface using a chainsaw or equivalent hand tool. The poles would be cut so they fall within the existing right-of-way.
 - b. Felled wooden poles would be cut into smaller pieces and secured with towing cabling where each is subsequently removed offsite by a helicopter.
 - c. The remaining aboveground wooden pole would be hand dug around the base where it would be cut just below ground level (approximately 1 to 4 inches below grade) and backfilled with the previously excavated material

Basia Howard
Environmental and Historic Preservation Division
November 7, 2023
Page 3

- hand dug to expose the base. The last remaining removed pole and equipment would be flown offsite by helicopter. No offsite material would be used for H-frame wooden structure excavation backfill.
2. Hollow steel pole structures.
 - a. Following removal of the conductors and insulators as noted above, each hollow steel pole would be cut off at ground level using a gas-powered concrete saw (i.e. quick saw, cut-off saw) or cutting torch and pulled over onto the ground within the existing right-of-way, cut into manageable size pieces with a cutting torch, and subsequently flown offsite in pieces by helicopter.
 - b. Once the aboveground pole has been cut and removed, an area around the base of each pole about 2 to 3 feet larger in circumference than the pole would be hand dug and each pole would be further cut just below ground level (approximately 1 to 4 inches below grade). The hollow inner void would be backfilled with gravel from offsite to approximately 1-foot below grade, with the remaining backfill to grade completed using clean black topsoil from spoils collected from the prior installation of the adjacent new Cardinal to Hickory Creek transmission line poles within the Refuge. The remaining equipment would be flown offsite by helicopter.
 3. Lattice structures with concrete foundations.
 - a. Following removal of the conductors and insulators as noted above, steel lattice structure would be cut at the base using a welding torch and allowed to fall onto its side within the existing right-of-way.
 - b. Once tipped over, the steel lattice structure would be cut into smaller sections with a welding torch, attached to towing straps, and towed offsite by helicopter.
 - c. The remaining concrete foundation pad would be broken apart using air compressed jackhammers to 1 foot below grade and placed in appropriately rated tarps or crates to be flown offsite by helicopter.
 - d. The excavated foundation area would be backfilled to grade using clean black topsoil from spoils collected from the prior installation of the adjacent new Cardinal to Hickory Creek transmission line poles within the Refuge. The remaining equipment would be flown offsite by helicopter.
 4. For removal process of the portions of the conductor lines across the Mississippi River, please refer to Attachment 2.

Basia Howard
Environmental and Historic Preservation Division
November 7, 2023
Page 4

5. Vegetation restoration would be completed via the December 2021 USFWS and USACE approved “*Cardinal to Hickory Creek Transmission Line Project - Updated Restoration Plan for the Upper Mississippi River Refuge.*”

Area of Potential Effect

The Programmatic Agreement developed for the Project defines the Area of Potential Effect (APE). The APE for direct physical effects for the Project is a buffer around the proposed construction corridor, which includes the right-of-way, aboveground facilities, access routes, laydown yards, and other temporary easements. The Programmatic Agreement establishes a minimum 2,000-foot buffer (1,000 feet either side) around all aboveground Project components for consideration of non-physical, or visual, effects.

Previous Cultural Resources Survey Along Retirement Line and Project Effect Assessment

If the existing line removal strategies proposed in this letter are followed, Burns & McDonnell recommends no effects to historic properties. Previous geomorphological survey along one of the existing corridors was negative for cultural materials and demonstrated that the potential for intact archaeological sites on the surface is low due to the presence of recent alluvium and regular seasonal flooding (Kolb 2000) (Attachment 3). According to that study, the potential for buried archaeological deposits is low for the line removal segments within the upper 2.4 meters of soil due to wet depositional and pedogenic environments.

All proposed line removal ground impacts would be very limited and consist of activities done by foot on the surface in the existing right-of-way and in the top 30 centimeters (1 foot) only at the existing structure locations. Soils used for backfill would be taken from locations previously surveyed within the Refuge that were negative for cultural materials (Gottsfield et al. 2023). Considering the lack of proposed physical impacts and that the existing structure locations were previously disturbed during their installation, there is low archaeological potential within the APE for direct physical effects. As a result, Burns & McDonnell recommends no effect to historic properties for the proposed line removal activities. The line removal work would be temporary, and when complete, would result in a reduction of the Project’s visual effect. Therefore Burns & McDonnell recommends no visual effect to historic properties within the non-physical APE.

Basia Howard
Environmental and Historic Preservation Division
November 7, 2023
Page 5

References

Gottsfeld, Andrew, Douglas Kullen, and Amber Javers
2023 *DRAFT Addendum 2: Archaeological Investigation of the Cardinal - Hickory Creek Project in the Upper Mississippi River National Wildlife and Fish Refuge, Clayton County, Iowa*. ARPA Permit Nos. 2017-IA/3-1 and DACW25-9-17-4062. Burns & McDonnell Engineering Company, Inc., Kansas City Missouri.

Kolb, Michael F.
2000 *A Geomorphological Investigations Along the Mississippi Valley Crossing of the Proposed Dairyland Power Transmission Line Reconstruction Corridor, Clayton County, Iowa*. Strata Morph Geoexploration Report of Investigation No. 34. Strata Morph Geoexploration, Inc. Sun Prairie, Wisconsin.

Sincerely,



Amber C. Javers
Cultural Resources Section Manager, Burns & McDonnell Engineering Company, Inc.



Mark Rothfork, PMP
Lead Permitting Specialist, ITC Midwest LLC

Attachments:

- Attachment 1 - Figures
- Attachment 2 - River Crossing Span Removal Plan
- Attachment 3 - Previous Geomorphological Investigation

ATTACHMENT 1 - FIGURES

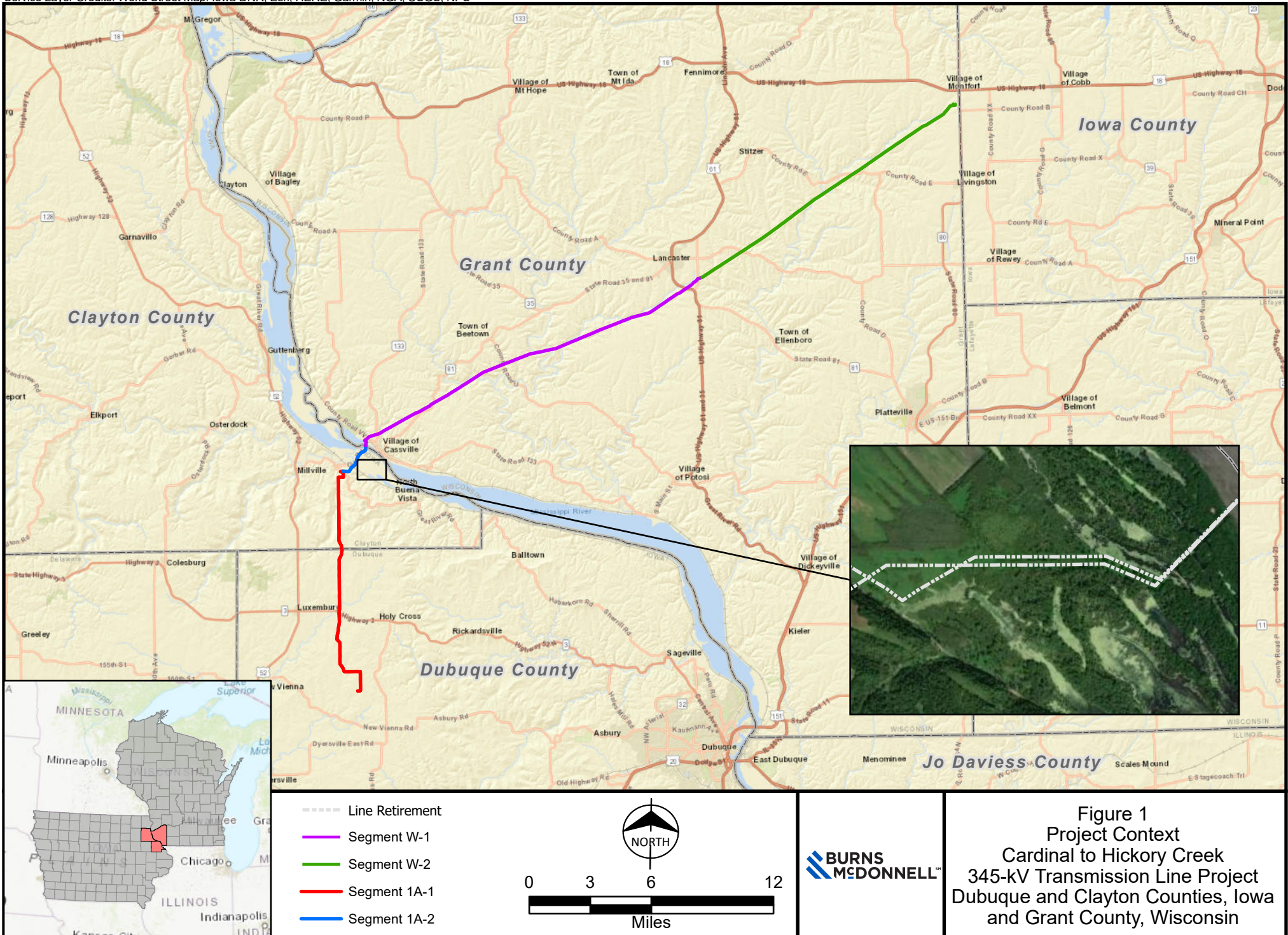
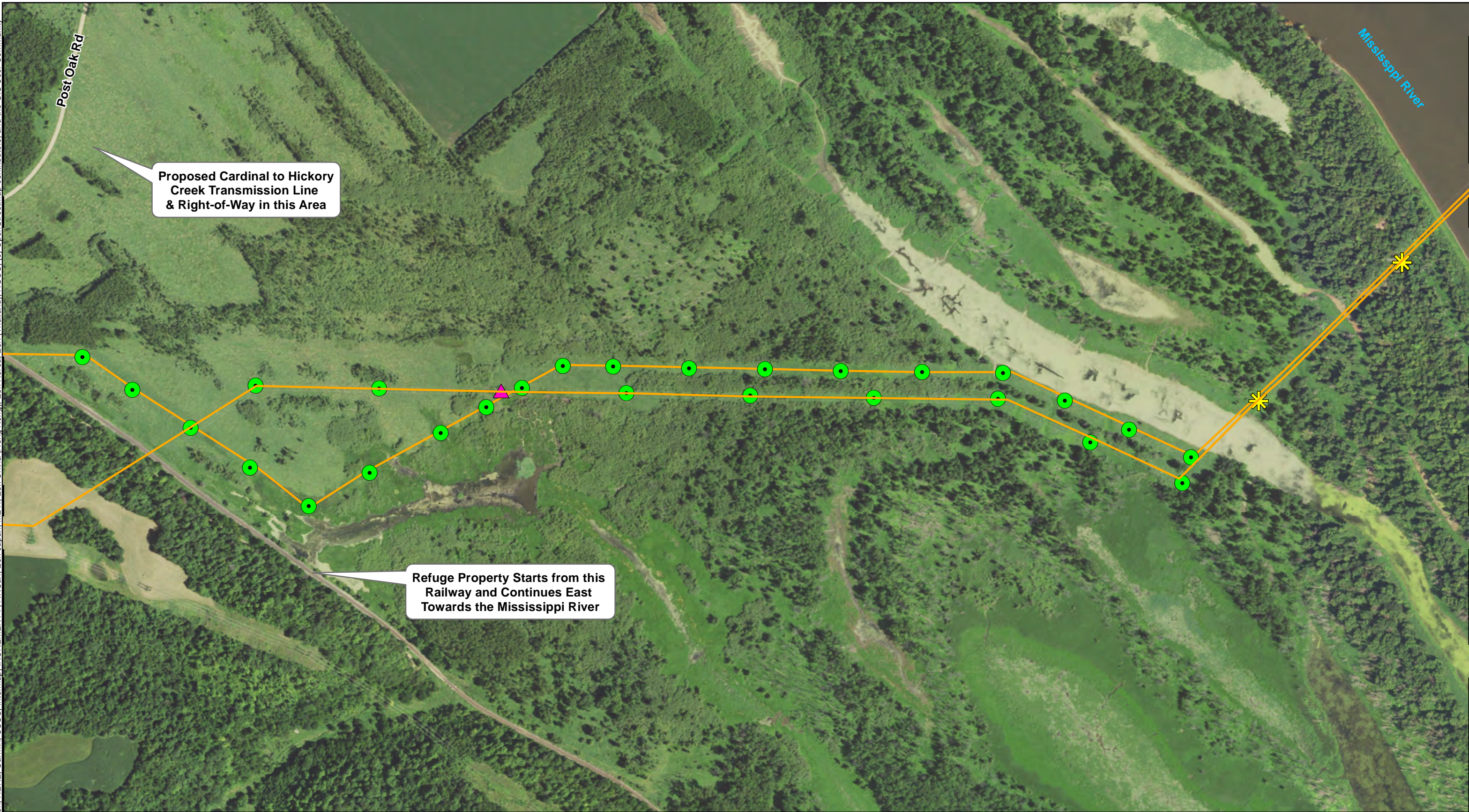


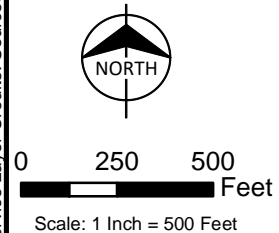
Figure 1
 Project Context
 Cardinal to Hickory Creek
 345-kV Transmission Line Project
 Dubuque and Clayton Counties, Iowa
 and Grant County, Wisconsin

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Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Proposed Cardinal to Hickory Creek Transmission Line & Right-of-Way in this Area

Refuge Property Starts from this Railway and Continues East Towards the Mississippi River







-  Existing Transmission Centerline
-  Steel H-Frame Tower To be Removed
-  Steel Lattice Tower To be Removed
-  Wood H-Frame Tower To be Removed



Figure 2
Existing Transmission Line Structure Removal within Upper Mississippi National Wildlife and Fish Refuge Cardinal to Hickory Creek 345-kV Transmission Line Project Clayton County, Iowa

**ATTACHMENT 2 - RIVER CROSSING SPAN REMOVAL
PLAN**



September 19, 2023

Mr. Shawn Mathis
ITC Holdings Corporation
123 5th Street SE
Cedar Rapids, IA 52401

RE: MVP5 IA Segment 2 River Crossing Span Removal Work Plan

Michels Removal Work Plan

Michels Power, Inc. (MPI) has evaluated the known conditions surrounding the removal of the existing conductors across the Mississippi River and has developed the following removal plan. This plan was developed for use in a scenario in which the river crossing span would be removed during non-frozen conditions.

First, MPI would set up equipment on the Wisconsin side of the river near structure 1. There we would have a single drum rope machine with buoyant rope as well as a single drum take-up machine used for winding up the existing wires. With the equipment in place, the existing wires would be transferred to stringing blocks and be moved lower (to the tower body) on towers 1 and 3 and tension reduced on structure 2.

Using a tag line, helicopter, or other available method, a rope would be placed from structures 1 through 3. This rope would then be secured to one of the existing wires. Once in position, the take up machine would pull the existing wire out while pulling the rope back in its place. A small stringing block would then be attached to the rope and the block would be placed on the next existing wire to be removed. The rope would then ride along the wire guided by a tag line as the rope is pulled back to structure 3. At this point the rope would be attached to the existing wire mentioned above and that wire removed as previously described. This operation would be repeated until the last wire is removed, and the rope remains overhead.

At this point, the rope would be unhooked and attached to a helicopter, boat, or other device to maintain low tension. The rope would then be pulled under low tension from structure 1 to structure 3. At this point, the rope would be temporarily unhooked and removed from the stringing block on structure 3. The rope would then be re-attached and pulled back to structure 1 under low tension to prevent it from contacting the river bottom. Other resources may be staged at different points across the river as needed to keep the rope from contacting the river bottom.



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AA/EOE/M/W/Vet/Disability

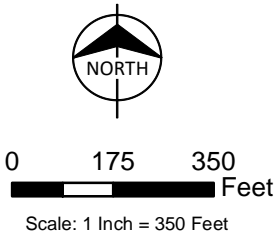
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Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Structure 1

Structure 2

Structure 3



 Steel Lattice Tower to be Removed

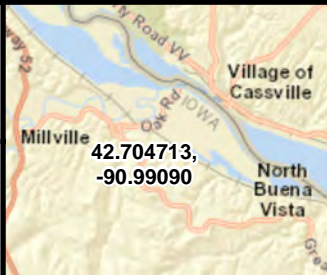


Figure 1 - Existing Transmission Line Structures 1-3 within Upper Mississippi Wildlife Refuge to be Removed

Cardinal to Hickory Creek Transmission Line Project
Clayton County, Iowa

Exhibit 1 - Attach Pulley Block to Tower Body on Iowa Side and Pull Rope Across the River, Through Pulley Block and Connected Up to Far Extent of Lower Conductor Line

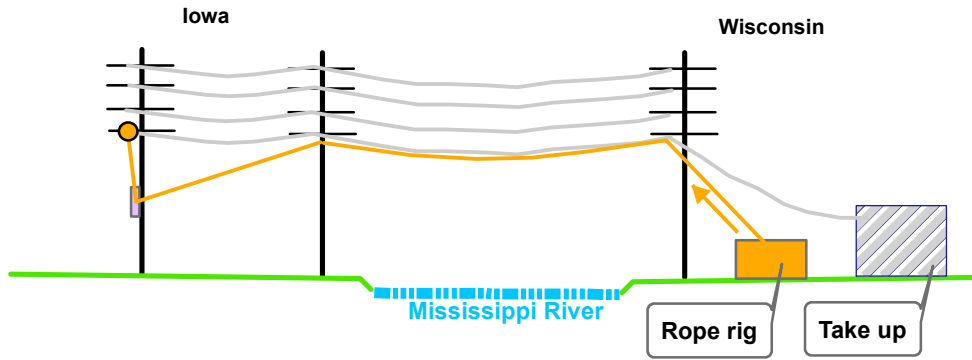


Exhibit 2 - With Rope Fixed to Far Extent of Conductor Line in Iowa, Wind Back Conductor Line Into Wisconsin with Rope Attached to Keep Tension

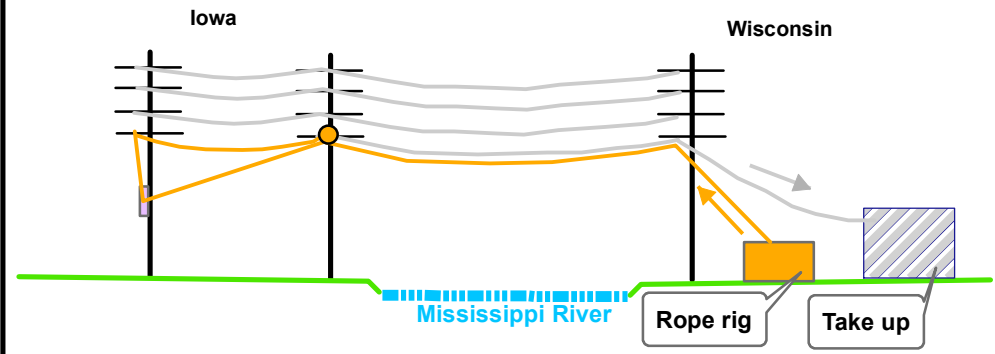


Exhibit 3 - Once Conductor Line is Wound Up in Wisconsin, a Separate Rope Line is Attached to the Loose End of the Looped Rope and Wound Back Across into Iowa Where it is Connected Back to the Far Extent of the Next Lowered Conductor Line to be Pulled Back into Wisconsin as Shown in Exhibits 1 & 2. Process is Repeated Until All Conductor Lines are Wound Up in Wisconsin

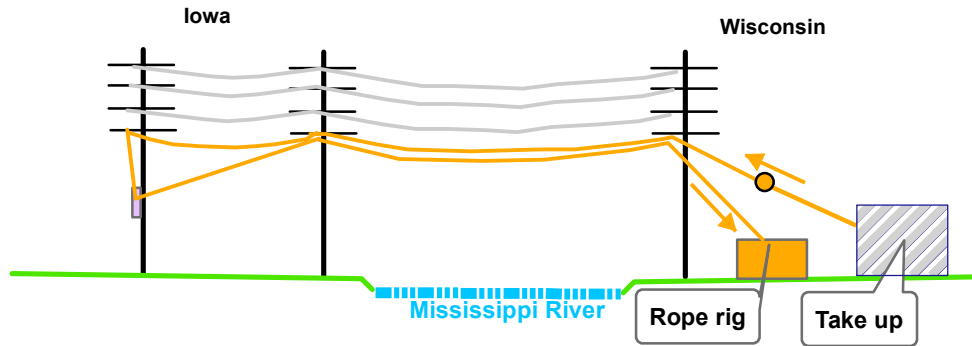
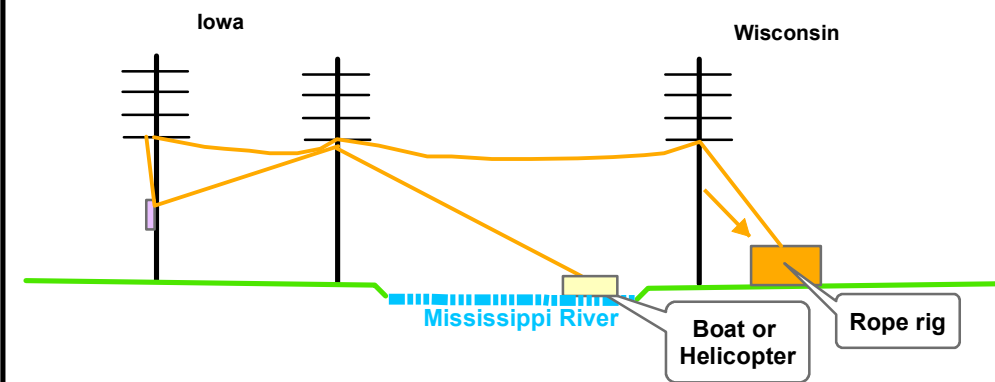


Exhibit 4 - Following Removal of All Conductor Lines, Remaining Rope is Attached to Boat or Helicopter to Maintain Tension While Rope is Wound Back into Wisconsin with Rope Kept from Contacting the River Bottom



Cardinal to Hickory Creek Transmission Line - Alternate Option to Remove Existing Conductor Lines from Iowa Refuge Lands Under Non-Frozen Ground Conditions

Notes:

- 1) Exhibits not to scale and provided for general depiction of process

**ATTACHMENT 3 - PREVIOUS GEOMORPHOLOGICAL
INVESTIGATION**

**A Geomorphological Investigations Along the Mississippi Valley Crossing of the
Proposed Dairyland Power Transmission Line Reconstruction Corridor, Clayton
County, Iowa**

by
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Strata Morph Geoexploration Report of Investigation No. 34

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Prepared for
Dairyland Power
LaCrosse, Wisconsin

INTRODUCTION

Geomorphological investigations were conducted to determine the potential for buried archaeological deposits along the proposed Dairyland Power transmission line corridor. Reconstruction consists of putting up larger dual pole towers and removing most of the old single-pole structures. Subsurface disturbance will occur at each of the large auger holes needed for the two pole towers. These auger holes will be from 1.8 - 2.4 m (6 - 8 ft) deep. The towers will also be supported by guy wires anchored to the ground surface. A single core was taken at each tower location to determine the nature of the surface soil and to locate buried soils. If the surface soils are well developed and not hydric the surface is considered prehistoric and therefore would have potential to contain archaeological deposits. If buried soils are encountered and they are not hydric then they also have potential to contain archaeological deposits.

METHODS

A single core was extracted at each proposed tower location using either a truck mounted Geoprobe® or a push probe. The Geoprobe cores are 5 cm (2 in) in diameter and the push probe cores are 2 cm (0.75 in) in diameter. The Geoprobe cores are preferred because of the larger sample and better recovery. Soils and sediments are described and logged in the field using standard systems from soils (Soil Survey Staff, 1975) and geology (Collinson and Thompson 1982, Folk 1974). Soils are judged hydric based on the criteria for hydric soils for delineating wetlands (Wetland Training Institute, 1995). Hydric fine-grained soils in the context of active Late Holocene floodplains in the Upper Mississippi Valley are considered to wet for prehistoric human occupation. Wet areas were utilized by prehistoric peoples but substantial locatable archaeological deposits are not expected.

RESULTS

The transmission line corridor crosses the Mississippi River at Cassville, WI in Pool 11 in the Upper Mississippi River Valley. Just west of the main channel the transmission line traverses a series of ridges and water filled swales, then crosses Wood Duck Lake before it turns to the west. This portion of the corridor was not investigated because the towers are not being replaced (towers are owned by Alliant Energy but carry some Dairyland transmission lines). The portion of the line investigated parallels Wood Duck Lake on a narrow flat topped ridge and then crosses the Turkey River Fan to the bluff edge (Figure 1).

The project corridor crosses two landforms: (1) the Turkey River Fan, and (2) Mississippi River Island/Bar. The Turkey River fan is a large alluvial cone formed as the Turkey River prograded into the Mississippi River valley. The transmission line corridor is on the southern (downstream edge) of the fan. The modern meander belt of the Turkey River is northwest of the project area. The fan has been forming throughout the Holocene and continues to aggrade today.

Mississippi River Island/Bar

The Mississippi River Island/Bar is a lozenge shaped landform consisting of arcuate ridges separated by swales or slough channels. They are made up of deposits of varying ages. Near large tributary mouth's, as is the case with the project area, they often have a cap of historic alluvium.

Cores 2-5 are located on the Island/Bar landform along the southwest side of Wood Duck Lake (Figure 2). Historic alluvium ranges from 1.55 m to 1.70 m thick (Appendix A) and has A-C soil horizon sequences. A buried soil is present below the historic alluvium in all the cores except Core 3. Sandy channel deposits are present between 1.2 m and 2.4 m in Core 3 which do not appear to be pedogenically altered. The buried soil in Core 2 is hydric formed in silty clay sediments deposited in a marshy floodbasin environment. Buried soil in Cores 4 and 5 are also hydric but they are coarser grained silt loams with traces of very fine sand. They are channel fill deposits which are sedimentologically associated with the sandy channel deposits in Core 3. Morphological evidence indicates a part of the ridge along Wood Duck Lake is a plug at the upstream end of a swale/slough. General widespread aggradation and channel filling continued into the historic period along Wood Duck Lake burying the prehistoric surface.

Potential for buried archaeological deposits is considered low due to the channel and wet floodbasin depositional environments and the hydric nature of the soils. Prior to Euro-American settlement this area was wet flood basin and a swale.

Turkey River Fan

Cores 6-19 are located on the Turkey River fan (Figure 1 and 2). The modern fan surface is fallow agricultural fields, scattered secondary growth woodlands, canary grasses, and wetlands. Historic alluvium covers a buried soil that marks the prehistoric fan surface over the entire project area. Historic alluvium is very dark grayish brown and dark grayish brown silt loam to silty clay loam and often has single laminae or laminated zones (Appendix A). It ranges from 1.0 - 1.8 m in thickness with the thicker alluvium at the western end of the corridor. The soil profile consists of an A-C horizon sequence with

multiple C horizons that are essentially depositional units. Soils are cumlic; i.e. sediment is regularly added to the soil surface during flooding.

Prehistoric alluvium is finer grained than the historic alluvium consisting of silty clay loam's and silty clays with a strong tendency to fine downward (Appendix A). The soil profile consists of an Ab-Cgb horizon sequence. Ab horizons are dark gray and very dark gray and the C horizons are gray and dark greenish gray. The buried soils are also cumlic as well as hydric. Single laminae are present in the subsoil marking the occurrence of a large floods. Sediment the soils formed in was deposited in low wet distal fan depositional environments. The transmission line corridor is downstream (south) of the modern Turkey River meander belt on the distal front and lateral edge of the fan where sedimentation rates are low and the fan merges with the Mississippi River floodplain landforms.

Potential for buried archaeological deposits is low due to the hydric soils and the wet depositional environments. Prior to Euro-American settlement the area was the low distal edge the Turkey River fan that was prograding into the Mississippi River valley. Fan deposits were slowly accumulating in low wet areas of the floodplain.

CONCLUSIONS

Potential for buried archaeological deposits is low in both the Mississippi River Island/Bar landform and the Turkey River Fan landform within the upper 2.4 m of deposits. Low potential is due to the wet depositional and pedogenic environments of the buried soils.

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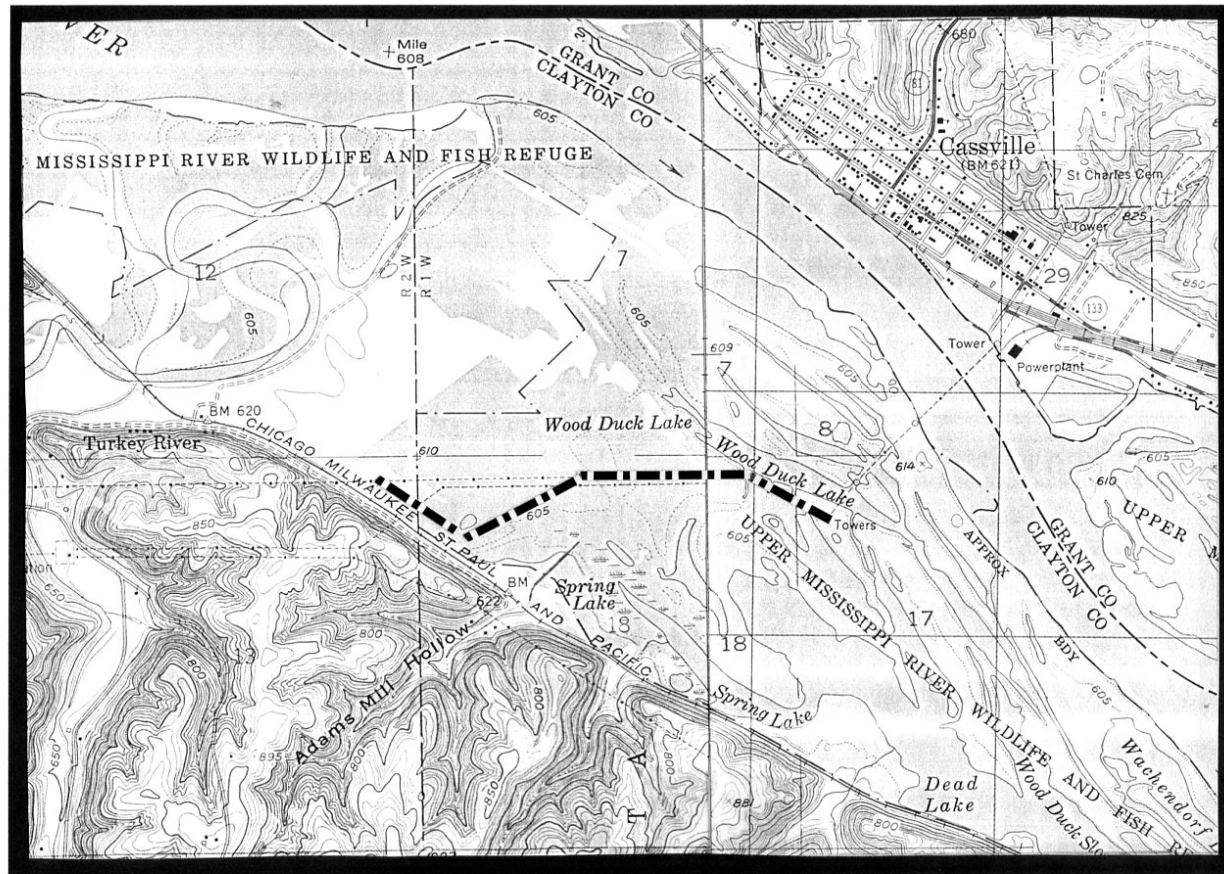


Figure 1. Section of transmission line corridor where geomorphic investigations were conducted on portions of the Turkey River and Cassville USGS 1:24,000-scale Quadrangles (1" = 2000") .

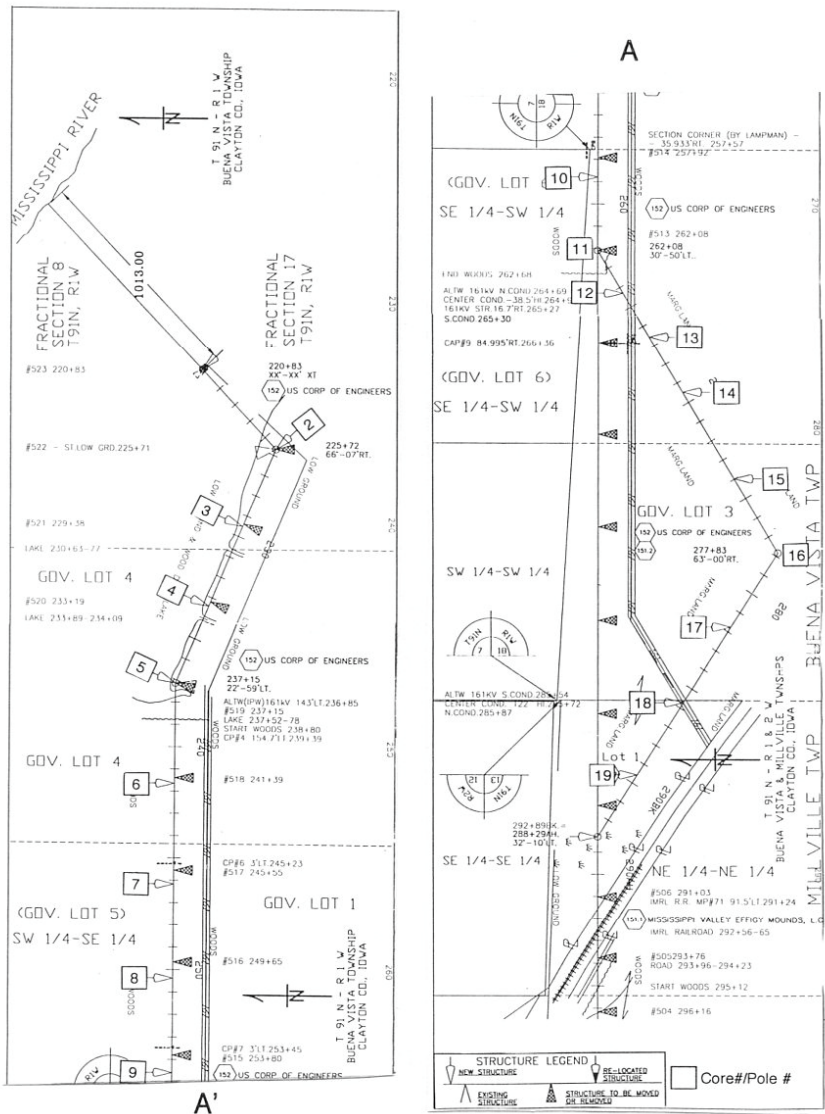


Figure 2. Location of cores along the Dairyland Power transmission line (A attaches to A').

APPENDIX A
Core Description
Dairyland Power Transmission Line Corridor
Clayton County, Iowa

Pole 2 Core: push probe along Wood Duck Lake

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silt clay loam
40-80	C1	HA	very dark grayish brown to dark brown (10YR 3/2-3/3) silt clay loam; stickier with depth
80-120	C2	HA	dark brown (10YR 3/3) silty clay
120-170	C3	HA	dark brown (10YR 3/3) silty clay loam
170-240	Agb	PA	gray (2.5Y 4/1) silty clay; few plant fragments.

Pole 3 Core: push probe along Wood Duck Lake

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silt clay loam
40-80	C1	HA	5 cm recovery, silty clay
80-100	C2	HA	dark brown (10YR 3/3) silt clay loam .
100-120	C3	HA	silt loam
120-160	C4	HA	bedded sandy clay loam and silt
160-240	C5	HA	oxidized sandy loam

Pole 4 Core: push probe along Wood Duck Lake

Depth (cm)	Horizon	Strat a	Description
0-60	A	HA	very dark grayish brown (10YR 3/2) silt clay loam
60-100	C1	HA	dark brown (10YR 3/3) silty clay loam to silty clay; very sticky.
100-155	C2	HA	dark grayish brown (10YR 4/2) silt loam with trace of very fine sand.
155-200	Agb	PA	gray (2.5Y 4/1) silt loam with trace of very fine sand grades down to sticky silty clay loam.

Pole 5 Core: push probe along Wood Duck Lake

Depth (cm)	Horizon	Strat a	Description
0-80	A	HA	very dark grayish brown (10YR 3/2) silt clay loam, sticky; clear boundary.
80-120	C1	HA	dark brown (10YR 3/3) silty clay loam, sticky.
120-155	C2	HA	dark grayish brown (10YR 4/2) silty clay loam with trace of very fine sand at base.
155-280	Agb	PA	gray (2.5Y N5/) silt loam with very fine sand mode interbedded with very fine sandy silt and silty clay

Pole 6 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silt loam, sticky.
40-80	C1	HA	very dark grayish brown (10YR 3/2) and dark brown (10YR 3/3) silty clay loam, sticky.

80-150	C2	HA	dark brown (10YR 3/3) grading to very dark grayish brown (10YR 3/2) silt loam to silty clay loam.
150-240	Agb	PA	gray (2.5Y N5/) silty clay

Pole 7 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silt loam, occasional laminae and plant fragments.
40-100	C1	HA	very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) silty clay loam, sticky.
100-120	Ab	PA	very dark gray (10YR 3/1) silt loam
120-160	Cgb1	PA	gray (2.5Y N5/) silty clay loam with a single silt laminae near top of horizon.
160-240	Cgb2	PA	gray (2.5Y N5/) silty clay

Pole 8 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-80	A	HA	very dark grayish brown (10YR 3/2) silty clay loam, occasional laminae in lower half.
80-115	C1	HA	dark brown (10YR 3/3) silty clay loam, sticky.
115-160	Ab	PA	dark gray (2.5Y N4/) silty clay to silty clay loam
160-200	Cgb1	PA	gray (2.5Y N5/) silty clay with a few plant fragments.
200-240	Cgb2	PA	very dark gray (N3/) to dark greenish gray (10Y 3/1) silty clay

Pole 9 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silty clay loam.
40-100	C1	HA	dark brown (10YR 3/3) silty clay loam, sticky; single silt laminae in upper half.
100-150	C2	HA	brown (10YR 5/3) silt, laminated
150-180	C2	HA	dark grayish brown (10YR 4/2) silt loam; sticky
180-240	Ab	PA	gray (2.5Y N5/) silty clay

Pole 10 Core : Geoprobe

Depth (cm)	Horizon	Strat a	Description
0-31	A	HA	very dark grayish brown (10YR 3/2) silt loam, sticky; clear boundary.
31-61	A12	HA	very dark grayish brown to dark grayish brown (10YR 3/2 - 4/2); silt loam; strong granular structure.
61-140	C1	HA	dark brown, dark yellowish brown, dark gray (10YR 3/3, 4/4, and 4/1) laminated silt and silt loam.
140-168	C2	HA	dark grayish brown (10YR 3/2) silt loam; common faint high and low chroma mottles; few organic fragments; abrupt boundary.
168-195	Ab	PA	dark grayish brown (2.5Y3/2) grading down to dark gray (2.5Y N4/) silty clay loam; fine roots and a few organic fragments.

Pole 11 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silty clay loam.
40-80	C1	HA	dark brown (10YR 3/3) and very dark grayish brown (10YR 3/2) silty clay loam, sticky; silt laminae in lower 5 cm.
80-120	C2	HA	dark brown (10YR 3/3) to very dark grayish brown (10YR 3/2) silt loam; sticky
120-130	Ab	PA	gray (10YR 5/1) silty clay loam
130-240	Cgb	PA	gray (2.5Y N5/) silty clay

Pole 12 Core : Geoprobe

Depth (cm)	Horizon	Strat a	Description
0-22	A	HA	very dark grayish brown (10YR 3/2) silt loam, sticky; clear boundary.
22-45	C	HA	dark brown to very dark grayish brown (10YR 3/2 - 3/3); silt loam; abrupt gradational boundary.
45-58	C2	HA	laminated dark brown and yellowish brown (10YR 3/3 and 5/4) silt loam.
105-155	C3	HA	dark brown (10YR 3/3) silt loam
155-165	C4	HA	dark brown to very dark grayish brown (10YR 3/3 - 3/2) silt loam; sticky.

195-285	Ab	PA	very dark gray (2.5Y N3/) silty clay loam; a single light colored laminae and a 10 cm thick zone of very thin laminae at approximately 220 cmbs; occasional plant fragments.
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Pole 13 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-80	A	HA	very dark grayish brown (10YR 3/2) silty clay loam with occasional silt laminae.
80-130	C1	HA	dark brown (10YR 3/3) silt loam
130-240	Ab	PA	dark gray (10YR 4/1) to gray (10YR 4/1) silty clay loam grading down to silty clay.

Pole 14 Core: push probe in 15 cm of standing water

Depth (cm)	Horizon	Strat a	Description
0-80	A	HA	gray to dark gray (10YR 5/1-4/1) silt loam with very fine sand laminae at 70 cmbs
80-150	Cg1	HA	gray (10YR 5/1) silt loam; sticky; few laminae.
150-200	Ab	PA	greenish gray (10Y 5/1) grading to very dark gray (2.5Y N3/) silty clay; single very fine sand laminae at approximately 190 cmbs.
200-240	Cgb	PA	greenish gray (10Y 5/1) silty clay

Pole 15 Core: push probe

Depth (cm)	Horizon	Strat a	Description
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0-20	A	HA	very dark grayish brown (10YR 3/2) silty clay loam
20-40	C1	HA	laminated silt and very fine sandy silt
40-100	C2	HA	dark brown (10YR 3/3) silty clay loam
100-180	C3	HA	gray to dark gray (10YR 5/1-4/1) silt loam grading down to silty clay
180-240	Ab/Cgb	PA	dark gray (10YR 4/1) grading down to dark greenish gray (10Y 4/1) silty clay loam.

Pole 16 Core: push probe

Depth (cm)	Horizon	Strat a	Description
0-80	A	HA	very dark grayish brown (10YR 3/2) silty clay loam with silt bed in lower half
80-150	C1	HA	dark grayish brown and dark brown (10YR 4/2 and 3/3) silt loam laminated in lower half
150-240	Ab	HA	dark gray (10YR 4/1) silty clay loam

Pole 17 Core: Geoprobe

Depth (cm)	Horizon	Strat a	Description
0-46	A	HA	very dark grayish brown (10YR 3/2) silty clay loam; moderate to strong medium granular structure; abrupt boundary.
46-53	C1	HA	very dark grayish brown to dark gray (10YR 3/2 - 4/1) silty clay loam; brown (10YR 4/3) silt laminae at base; abrupt boundary.

53-91	C2	HA	dark grayish brown (2.5Y 3/2) silt loam; sticky; laminated between 68 and 71 cmbs; abrupt boundary.
91-100	C3	HA	dark grayish brown (2.5Y 4/2) to gray (2.5Y 4/1) silt loam; few laminae; abrupt boundary.
100-150	C4	HA	olive gray (5Y 4/2) silty clay loam; massive; abrupt boundary.
150-169	C5	HA	very dark grayish brown (2.5Y 3/2) silt loam; charcoal at 156 cmbs; few very thin laminae at base; abrupt boundary.
169 -183	Ab	PA	gray (2.5Y N5/) silty clay loam; abrupt gradational boundary.
183-195	Cgb	PA	dark greenish gray (10Y 3/1) silty clay loam; charcoal and plant fragments at 186 cmbs.

Pole 18 Core: Geoprobe

Depth (cm)	Horizon	Strat a	Description
0-40	A	HA	very dark grayish brown (10YR 3/2) silty clay loam; abrupt boundary.
40-63	C1	HA	very dark grayish brown to dark gray (10YR 3/2 - 4/1) silty clay loam; abrupt boundary.
63-105	C2	HA	dark grayish brown (2.5Y 4/2) to dark gray (2.5Y N4/) silt loam; abrupt boundary.
105-180	C3	HA	gray (2.5Y N5/) silty clay loam; abrupt boundary.
180-220	Ab	PA	dark gray (2.5Y N4/) silty clay loam

Pole 19 Core: Geoprobe

Depth (cm)	Horizon	Strat a	Description
0-48	A	HA	very dark grayish brown (10YR 3/2) silty clay loam; abrupt boundary.
48-65	C1	HA	dark grayish brown to dark gray (10YR 4/2 - 4/1) silty clay loam; abrupt boundary.
65-200	C2	HA	gray (2.5Y N5/) silty clay loam; abrupt boundary.
200-220	C3	HA	gray (2.5Y N5/) silt loam; sticky.