Line 5 Wisconsin Segment Relocation Project

Compensatory Wetland Mitigation Strategy

November 2021

Table of Contents

List of Tables

1 PROJECT INTRODUCTION

Enbridge owns the U.S. portion of the world's longest liquid petroleum pipeline system. Combined with the Canadian portion, the operationally integrated pipeline system spans approximately 3,200 miles across North America and has been in operation since 1950. The Wisconsin portion of the existing Line 5 pipeline crosses Douglas, Bayfield, Ashland, and Iron Counties. Within Ashland County, the existing Line 5 crosses through approximately 12 miles of the Bad River Reservation ("Reservation") of the Bad River Band of Lake Superior Chippewa Tribe ("Bad River Band").

Enbridge and the Bad River Band have been in discussions for several years regarding renewal of pipeline easements on 15 parcels of land through the Reservation. In response to the discussions with the Bad River Band and litigation filed in July 2019, Enbridge has developed the proposed Line 5 Wisconsin Segment Relocation Project ("Project"), which will replace the existing Line 5 pipeline segment that traverses through the Reservation with a new, 30-inch outside diameter pipeline segment to be located entirely outside the Reservation.

2 PROJECT DESCRIPTION

The Project would reroute the existing Line 5 pipeline around the Reservation and replace approximately 20 miles of the existing Line 5 pipeline, including the segment of the existing Line 5 pipeline that traverses through the Reservation, with a new, 30-inch outside diameter pipeline segment that would be located entirely outside the Reservation.

The Project is located in Ashland, Bayfield, Douglas, and Iron Counties, Wisconsin. Project activities in Douglas County will be restricted to the use of a material storage yard at an existing commercial facility.

The Project involves the construction and operation of various types of equipment or facilities, including:

- approximately 41.1 miles of new, 30-inch-outside diameter pipeline;
- cathodic protection and AC mitigation facilities;
- seven mainline block valves;
- four pipe yards and material storage yards; and
- minor modifications to the existing Ino Pump Station.

The route is located within the U.S. Army Corps of Engineers ("USACE") – St. Paul District and Wisconsin Department of Natural Resources ("WDNR") Northern Region. The Project occurs in the following township, range, and sections:

- T45N R1W Sections: 5, 6, 7, 8, 18
- T45N R2W Sections: 1, 2, 13, 14, 22, 23, 27, 28, 29, 30, 31, 32, 33
- T45N R3W Sections: 6, 7, 8, 9, 14, 15, 16, 22, 23, 24, 25, 36
- T45N R4W Sections: 1, 2
- T46N R1W Sections: 3, 4, 10, 15, 16, 17, 20, 21, 22, 27, 28, 29, 32, 33
- T46N R4W Sections: 5, 6, 7, 8, 17, 18, 20, 27, 28, 29, 34, 35
- T47N R1W Sections: 33, 34, 35
- T47N R4W Sections: 3, 8, 17, 20, 29, 32
- T47N R5W Sections: 8, 10
- T48N R13W Section: 16
- T48N R4W Section: 34

3 EXISTING ENVIRONMENT

The Project pipeline route crosses approximately 30.6 miles of Ashland County and 10.5 miles of Iron County in Wisconsin. Ashland County is approximately 32 percent wetlands and Iron County is approximately 31 percent wetlands (based on WDNR Wisconsin Wetland Inventory ["WWI"] data). The Project crosses the Superior Coastal Plain and North Central Forest Ecological Landscapes (WDNR, 2012) and is in the Lake Superior drainage basin. WDNR watersheds crossed by the pipeline route include Fish Creek, Lower Bad River, White River, Marengo River, Upper Bad River, Tyler Forks, Potato River, and Montreal River.

Enbridge generally proposes to use a 120-foot-wide construction right-of-way for the new 30-inch outside diameter pipeline segment, which will allow for temporary storage of topsoil and spoil as well as accommodate safe operation of construction equipment. To minimize wetland disturbance, Enbridge proposes to reduce the construction right-of-way to 95-feet-wide in wetlands, where practicable based on site-specific conditions.

The primary impact of pipeline construction and right-of-way maintenance activities on wetlands will be the temporary removal of wetland vegetation. Construction will also temporarily diminish the recreational and aesthetic value of the wetlands crossed. These effects will be greatest during and immediately following construction. In emergent wetlands, the impact of construction will be relatively brief, since herbaceous vegetation will typically regenerate within one or two growing seasons. In forested and shrub-dominated wetlands, the impact will last longer due to the longer recovery period of these vegetation types. Clearing of wetland vegetation will also temporarily remove or alter wetland wildlife habitat. In areas where the pipeline is collocated with other utilities or roads in wetlands, the minor effect on those wetlands due to a small increase in the corridor width would not cause a loss of wetland functional values.

Enbridge completed wetland and waterbody surveys along the Project route and submitted the 2019 Wetland and Waterbody Survey Report and an addendum that included information collected during the 2020 field season. The wetlands were identified using the Cowardin (1979) classification system and classified according to the plant community types defined in *Wetland Plants and Plant Communities of Minnesota and Wisconsin, Third Edition* (Eggers and Reed, 2014). The boundaries of each wetland were recorded using global position system (GPS) units. Where more than one Eggers classification was present within an existing Cowardin (1979) boundary at a given wetland complex, the boundaries of each of the different Eggers communities were recorded using GPS units. Table 3-1 below summarizes the Cowardin wetland classification types and the corresponding Eggers & Reeds classifications that were used. Additional information regarding the specific wetland types identified during the field surveys is provided below.

Table 3-1: Wetland Classification Types

Cowardin Classification	Eggers & Reed Classification
PEM	Bog; Deep Marsh; Farmed Wetland; Fresh Meadow; Open Bog; Seasonally Flooded Basin; Sedge Meadow; Shallow Marsh; Shallow Open Water; Wet Meadow
PSS	Alder Thicket; Bog; Coniferous Swamp; Shrub-Carr
PFO	Bog; Coniferous Swamp; Floodplain Forest; Hardwood Swamp

- Palustrine emergent wetlands (PEM) crossed by the route within the Project area typically include species such as sedges, Canada bluejoint grass (*Calamagrostis canadensis*), orange jewelweed (*Impatiens capensis*), asters (*Asteraceae* spp.), boneset (*Eupatorium perfoliatum*), rough bedstraw

(*Galium asprellum*), marsh fern (*Thelypteris palustris*), arrow-leaved tearthumb (*Persicaria sagittata*), and sensitive fern (*Onoclea sensibilis*).

- Palustrine scrub-shrub (PSS) wetlands crossed by the route within the Project area typically include speckled alder, red-osier dogwood, willows, and several minor shrub components. Widely scattered small, ephemeral pools in these PSS wetlands support a variety of emergent hydrophytes.
- Palustrine forested wetlands (PFO) crossed by the route within the Project area primarily comprise (1) black ash (*Fraxinus nigra*) dominated depressions within the hardwood uplands, (2) discrete aspen groves within shrub-carr, and (3) isolated hardwoods and conifers in better drained areas adjacent to incised drainageways. Black ash also occurs as a fringe or minor component to larger wetland complexes or as isolated stunted specimens within some wetlands.

A total of 733 wetlands were identified within the survey corridor. As noted in the Wetland and Waterbody Survey Report, some of the wetlands included multiple Cowardin and/or Eggers and Reed classifications within the same wetland system. Where this occurred each community type within the wetland was recorded as a separate polygon. As a result the total number of wetland features identified within the proposed workspace was 843.

Project construction activities will result in approximately 101.1 acres of wetland disturbance. Of this total, approximately 67.13 acres will be allowed to revert to its original cover type after construction; and approximately 33.95 acres of forested and scrub-shrub wetland will be converted to emergent wetland habitat as a result of maintenance of the permanent right-of-way. The Project will result in the permanent loss of 0.02 acre of emergent wetland as a result of filling required for aboveground facilities.

Table 3-2: Summary of Line 5 Wetland Impacts

Wetland Type [a]	Impact Areas - Allowed to Revert to Pre-construction Wetland Cover Type(Acres) [b]	Impact Areas - Converted From One to Another Wetland Type(Acres) [c]	Permanent Impact (Acres) [d]
Emergent/Wet Meadow (PEM)	28.06	0	0.02
Forested (PFO)	32.76	30.06	0.00
Scrub/Shrub (PSS)	6.30	3.89	<0.01
TOTAL	**67.13**	**33.95**	**0.02**

[a] Wetland type based on Cowardin, 1979.
[b] Based on temporary workspace disturbance due to construction activities.
[c] Based on permanent ROW with conversion from PSS and PFO to PEM.
[d] Based on permanent wetland impacts (fill).

4 PROPOSED WETLAND MITIGATION STRATEGY

To the maximum extent practicable, Enbridge will restore affected wetlands to preconstruction conditions, which is considered in-place compensation, but not in-kind and not in-advance. Enbridge is proposing to provide compensatory wetland mitigation for unavoidable Project-related:

- permanent fill of wetland;
- conversion of scrub-shrub and forested wetlands to emergent wetlands; and
- temporal loss of wetland functions.

In applying the in-kind and in-advance factors, Enbridge proposes to use baseline compensation ratios for impacts to emergent, forested, and scrub-shrub wetland types similar to those used for previous Enbridge pipeline projects. A description of the methodology used to develop the proposed ratios is described below.

4.1 DETERMINATION OF WETLAND CHARACTERISTIC FUNCTIONAL VALUES

During field delineations, each wetland was assessed based on the WDNR Wetland Rapid Assessment Method ("WRAM") wetland functions including: Floristic Integrity; Human Use Values; Wildlife Habitat; and Fish and Aquatic Life Habitat. The WRAM data sheets for these assessments were included in Appendix D of Enbridge's Wetland Delineation Report, which was filed with the WDNR and USACE in February 2020 and an Addendum that was provided in July 2020. Enbridge then used the WRAM data sheets to assign an overall functional value rating of: Low, Low-invasive, Medium, or High to each wetland. The assignment process was conservative and the highest potential overall general functional value was given to each wetland. For example, if the WRAM assessed functions for a particular wetland were determined to be Medium for both Floristic Integrity and Wildlife Habitat and Low for Human Use Values and Aquatic Life Habitat, the overall general wetland rating was determined to be Medium (versus Low).

Based on the functional value rating methods described above, it was determined that the Project will impact approximately 23.4 acres of wetlands with a High assessed functional value, approximately 55.6 acres of wetlands with a Medium assessed functional value, and approximately 24.1 acres of wetlands with a Low or Low-invasive assessed functional value.

4.2 MITIGATION RATIOS

Enbridge reviewed the mitigation ratios for three previous Enbridge projects in Wisconsin, specifically the Enbridge Southern Access project in 2007, Alberta Clipper project in 2009, and Line 3 Segment 18 project in 2017. The mitigation ratios by wetland type required by the USACE – St. Paul District for wetland impacts for those projects are summarized in Table 4-1.

Table 4-1: Mitigation Ratios for Past Enbridge Projects

Southern Access Project (2007)	**Alberta Clipper Project (2009)**	**Segment 18 (2017)**
Forested 0.50 (temporary)	Forested 0.5 (temporary)	Forested 0.50 (conversion)
Shrub-Carr 0.10 (temporary)	Shrub-Carr 0.3 (temporary)	Shrub-Carr 0.25 (temporary)
Emergent 0.03 (temporary)	Emergent 0.03 (temporary)	Emergent 0.25 (temporary)

The Line 5 Project will take place largely within new temporary workspace, which will be allowed to revert back to the preconstruction wetland type, and new permanent right-of-way, which Enbridge will maintain and covert from one wetland type to another in order to operate the proposed facilities. Only a small amount of permanent wetland loss will result from the Project. Based on this, and the mitigation ratio requirements from past projects, Enbridge has calculated proposed mitigation ratios for the Line 5 Project. The associated mitigation ratios anticipated to be applicable for calculating mitigation for temporal loss, wetland type conversion, and permanent wetland fill related to the Project are discussed below, and presented in Table 4-2.

Table 4-2: Proposed Mitigation Ratios for Line 5

Wetland Type	Mitigation Ratio Proposed for High Value Wetlands	Mitigation Ratio Proposed for Low or Low-invasive & Medium Value Wetlands
Emergent		
Temporal loss during construction	0.06	0.03
Permanent loss; wetland converted to non-wetland	1.5	1.2
Scrub-shrub [a]		
Temporal loss during construction	0.25	0.06
Permanent conversion of wetland type (maintained corridor)	0.60	0.5
Permanent loss; wetland converted to non-wetland	1.5	1.5
Forested		
Temporal loss during construction	0.5	0.25
Permanent conversion of wetland type (maintained corridor)	0.70	0.6
Permanent loss; wetland converted to non-wetland	2.0	2.0
[a] includes open bog wetland type		

4.3 POTENTIAL MITIGATION CREDIT OPTIONS

Based on the 2008 Mitigation Rule (33 CFR 332.1 et. seq.), compensatory mitigation may come from three sources: mitigation banks, in-lieu fee programs, and permittee-responsible mitigation. A description of these sources is presented in Table 4-3.

Table 4-3: Potential Sources of Compensatory Mitigation

Source of Mitigation	Description
Mitigation Bank	One or more sites where aquatic resources such as wetlands or streams are restored, established, enhanced and / or preserved for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources.
In-lieu Fee Program	A program that involves the compensatory mitigation of aquatic and related terrestrial resources through funds paid to a government or non-governmental natural resource management organization.
Permittee-responsible Mitigation	Individual projects constructed by permittees to provide compensatory mitigation for activities authorized by Corps of Engineers' permits.

Enbridge proposes to use USACE/WDNR approved Compensatory Mitigation Banks, and potentially the Wisconsin Wetland Conservation Trust in-lieu fee program, to compensate for unavoidable Project wetland impacts. Before deciding to propose use of the in-lieu fee program, Enbridge reviewed the USACE Regulatory In-lieu Fee and Bank Information Tracking System ("RIBITS") for available wetland mitigation bank options. Based on this information, Enbridge determined there are potential wetland mitigation bank credits available in the Poplar River Mitigation Bank that could at least partially satisfy likely Project compensatory mitigation requirements. Enbridge does not anticipate utilizing the permittee-responsible mitigation option.

The Project will cross two hydrologic unit codes ("HUC" 8) in the Lake Superior and Chippewa Bank Service Areas in Ashland and Iron Counties: 04010301 - Beartrap-Nemadji; and 04010302 - Bad-Montreal.

The Lake Superior Service Area and Chippewa Bank Service Area watersheds (as defined in the in-lieu fee program) are consistent with those utilized for mitigation banking and permittee responsible mitigation. By providing compensatory mitigation within the same Bank Service Area ("BSA"), the Project will meet the goal of providing mitigation "in-place."

Enbridge proposes to purchase commercially available mitigation credits from one or more Interagency Review Team ("IRT") approved wetland mitigation banks as a first option. Where available in sufficient quantity to satisfy the respective mitigation need, in-kind mitigation bank credits will be purchased from mitigation bank(s) with released credits servicing the affected areas where the temporal, conversion, and permanent loss of wetlands would occur. Enbridge reviewed the USACE RIBITS to identify wetland banks in the Project's BSA with available credits. Two wetland banks were identified, and are presented in table 4-4 below.

Table 4-4: Approved Wetland Mitigation Bank Credits

Approved Bank Site and Sponsor	Available Credit Ledger Summary	Credits Available
LSWMB Poplar River MVP-2013-00039-WMS Alf Siverson 1465 Arcade St St. Paul, MN 55106 651-778-0575	shrub-carr or alder thicket	2.9
	hardwood swamp or coniferous	3.9
	sedge meadow	7.8
	shallow marsh	1.44
	deep marsh	1.24
Bluff Creek MVP-2014-01566-WMS Bill Sande, USACE 651-290-5882	shrub-carr or alder thicket	36.5
	hardwood swamp or coniferous	8.14
	sedge meadow	13.94

Source: USACE RIBITS accessed April 29, 2021

4.4 IN-LIEU FEE PROGRAM OPTION

A wetland permit applicant can purchase credits from the DNR Wisconsin Wetland Conservation Trust ("WWCT"); however, federal and Wisconsin regulations identify purchasing credits from available mitigation banks first as the preferred option to satisfy compensatory mitigation requirements. Enbridge proposes to use the In-Lieu Fee Program only if credits from approved wetland mitigation banks are not available and/or the WDNR and USACE direct Enbridge to purchase In-Lieu Fee credits.

4.5 COMPENSATORY WETLAND MITIGATION SUMMARY

As described above, the proposed Project will mostly result in temporal and vegetation conversion impacts, with only a small permanent loss of wetland due to wetland fill. Table 4-5 identifies the proposed mitigation ration and calculated credits needed for the Project based on the impacts to each wetland type and overall functional value classification.

Table 4-5: Compensatory Wetland Mitigation Category and Associated Ratios

Wetland Type	Functional Value	Temporary Impact (ac)	Permanent Conversion (ac)	Permanent Fill (ac)	Proposed L5R Mitigation Ratio	Credits Needed
Palustrine Emergent (PEM)						
Fresh (Wet) Meadow	Low/Medium	22.98			0.03	0.69
Fresh (Wet) Meadow *	Low/Medium			0.02	1.2	0.02
Fresh (Wet) Meadow	High	1.67			0.06	0.10
Seasonally Flooded Basin	Low/Medium	0.23			0.03	0.01
Sedge Meadow	Low/Medium	2.65			0.03	0.08
Sedge Meadow	High	0.17			0.06	0.01
Shallow Marsh	Low/Medium	0.11			0.03	0.01
Shallow Marsh	High	0.25			0.06	0.02
Subtotal PEM		*28.06*	*0.0*	*0.02*		*0.94*
Palustrine Scrub-Shrub (PSS)						
Alder Thicket	Low/Medium	2.01			0.06	0.12
Alder Thicket	Low/Medium		0.84		0.5	0.42
Alder Thicket	High	0.10			0.25	0.03
Alder Thicket	High		0.06		0.60	0.04
Shrub-Carr	Low/Medium	4.14			0.06	0.25
Shrub-Carr	High		0.03		0.60	0.02
Shrub-Carr	Low/Medium		2.86		0.5	1.43
Open Bog	High		0.06		0.6	0.04
Open Bog	Low/Medium	0.06			0.06	0.01
Open Bog	Low/Medium		0.05		0.5	0.03
Subtotal PSS		*6.85*	*3.90*	*0.0*		*2.39*
Palustrine Forested (PFO)						
Coniferous Bog	High		0.40		0.70	0.28
Coniferous Swamp	Low/Medium	0.33			0.25	0.08
Coniferous Swamp	Low/Medium		0.41		0.6	0.25
Floodplain Forest	Low/Medium	0.48			0.25	0.12
Floodplain Forest	Low/Medium		0.84		0.6	0.50
Floodplain Forest	High		1.38		0.70	0.97
Hardwood Swamp	Low/Medium	21.72			0.25	5.43
Hardwood Swamp	Low/Medium		16.06		0.6	9.64
Hardwood Swamp	High	10.18			0.50	5.09
Hardwood Swamp	High		10.94		0.70	7.66
Subtotal PFO		*32.71*	*30.03*	*0.0*		*30.02*
Wetland wasw013ss was classified as a PSS under the Cowardin classification system and a Fresh (Wet) Meadow under the Eggers and Reed classification system. Cowardin classification was adjusted to Shrub-Carr for mitigation purposes.						

Based on the table, Enbridge will need a total of 33.35 mitigation credits for the Project comprising 0.94 credit for PEM wetland impacts, 2.39 credits for PSS wetland impacts, and 30.02 credits for PFO wetland impacts.

5 CONCLUSION

Based on Enbridge's review of the Project's wetland impacts and the available wetland banks within the mitigation service area, Enbridge believes that LSWMB Poplar River and Bluff Creek wetland mitigation banks will potentially satisfy the amount of credits that may be required. However, the wetland banks may not have adequate available credits for the PFO wetland type impacts, which may require an alternative compensatory mitigation strategy such as purchasing additional PSS credits or using the ILF option that was discussed in Section 4.4 of this document.

6 REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* Washington, DC: U.S. Fish and Wildlife Service Pub., FWS/OBS-79/31. December.

Eggers, Steve D., and Reed, Donald M. 2014. *Wetland Plants and Plant Communities of Minnesota and Wisconsin.* Accessed May 2021. Available online at https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/WetlandBook/Part%201%20-%20Introduction,%20Key%20to%20Plant%20Communities,%20Shallow%20Open%20Water%20Communities.pdf

WDNR. 2012. *Wisconsin's Ecological Landscapes.* Accessed December 2019. Available online at https://dnr.wi.gov/topic/landscapes/index.asp?mode=Choose.