

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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November 14, 2024

Docket # IP-NO-2020-2-N00471

Joe McGaver
Enbridge Energy, LP
11 E. Superior Street, Suite 125
Duluth, MN 55802

Subject: Enbridge Line 5 Wisconsin Segment Relocation Project

Dear Mr. McGaver:

Enbridge Energy, LP (Enbridge) has applied to the Department of Natural Resources (Department) for a water quality certification (WQC) pursuant to Section 401 of the Clean Water Act (33 U.S.C. 1341) and 40 CFR Part 121 applicable to a federal permit authorizing impacts to Waters of the United States in conjunction with the construction of approximately 41.1 miles of 30-inch diameter crude petroleum pipeline (known as Line 5), referred to as the Line 5 Wisconsin Segment Relocation Project (Project).

The Department has determined that there is reasonable assurance that the proposed activity will be conducted in a manner that will comply with state water quality standards enumerated in ss. NR 103.03, 103.08, and 299.04, Wis. Adm. Code, and grants water quality certification with conditions. The following conditions are required to ensure compliance with the Clean Water Act Section 401 and state water quality standards enumerated in ss. 103.03, 103.08, and NR 299.04, Wis. Adm. Code.

The Department will publish this notice on its internet website. The Department's waterway and wetland permit decision is being sent under separate cover. Please be aware that Section 401 Certification does not release the permittee from obtaining all other necessary federal, state, and local permits, licenses, certificates, approvals, registrations, charters, or similar forms of permission required by law. It does not limit any other state permit, license, certificate, approval, registration, charter, or similar form of permission required by law that imposes more restrictive requirements.

Please contact the Department's Office of Energy if you have any questions regarding this certification decision at DNROfficeofEnergy@wisconsin.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'B. Callan'.

Benjamin Callan
Director, Waterways Program

cc: Tim Drake, ERM
Bad River Band of Lake Superior Chippewa NRD
Red Cliff Band of Lake Superior Chippewa
William Sande, U.S. Army Corps of Engineers
Melissa Blankenship, U.S. Environmental Protection Agency
Kate Angel, DOA
Ashland County Zoning Administrator
Bayfield County Zoning Administrator
Douglas County Zoning Administrator
Iron County Zoning Administrator

401 WATER QUALITY CERTIFICATION

The Wisconsin Department of Natural Resources (Department) received a water quality certification (WQC) request pursuant to Section 401 of the Clean Water Act (33 U.S.C. 1341) and 40 CFR Part 121, requested by U.S. Army Corps of Engineers (USACE), for the Enbridge Energy Line 5 Relocation Project (Project) in Ashland County and Iron County, Wisconsin.

The Department has examined this application as it relates to Clean Water Act Section 401, Chs. 30, 281, and 283, Wis. Stats., and Chs. NR 102-105 and 299, Wis. Adm. Code. The Department has determined the following conditions are required to ensure compliance with the Clean Water Act Section 401 and state water quality standards enumerated in ss. NR 103.03, 103.08(4) and 299.04, Wis. Adm. Code.

Please be aware that Section 401 Certification does not release the permittee from obtaining all other applicable permits, licenses, certificates, approvals, registrations, charters, or similar forms of permission required by law. It does not limit any other state permit, license, certificate, approval, registration, charter, or similar form of permission required by law that imposes more restrictive requirements.

The Department anticipates that these water quality certification conditions will be incorporated into U.S. Army Corps of Engineers permitting decisions. Please reach out to DNROfficeofEnergy@wisconsin.gov if you have any questions or concerns about this certification.

CERTIFICATION CONDITIONS

I. Notification of Commencing Discharge.

1. You shall notify the Department via email at DNROfficeofEnergy@wisconsin.gov before starting construction and again not more than five days after the Project is complete.

Justification: Necessary to allow the Department to ensure compliance with state water quality standards in Chs. NR 102-105, Wis. Adm. Code, and to impose necessary monitoring requirements, pursuant to s. NR 299.05(3)(d)2.a., Wis. Adm. Code.

II. Notification of Completion Discharge.

2. You shall notify the Department via email at DNROfficeofEnergy@wisconsin.gov before starting construction and again not more than five days after the Project is complete.

Justification: Necessary to allow the Department to ensure compliance with state water quality standards in Chs. NR 102-105, Wis. Adm. Code, and to impose necessary monitoring requirements, pursuant to s. NR 299.05(3)(d)2.b., Wis. Adm. Code.

III. Reasonable Entry and Access.

3. You shall allow access to your Project site(s) during reasonable hours to any Department employee or state-authorized monitor who is investigating the Project's construction, operation, maintenance, or WQC compliance.

Justification: Necessary to allow the Department to ensure compliance with state water quality standards in Chs. NR 102-105, Wis. Adm. Code, and to impose necessary monitoring requirements, pursuant to s. NR 299.05(3)(d)2.c., Wis. Adm. Code.

IV. Construction.

4. This WQC does not authorize any work other than what is specifically described in your application materials, Environmental Construction Plan (ECP, dated October 2024), and as modified by the conditions of this WQC. Final Department-approved plans and accompanying documents, as well as plans developed and approved pursuant to the conditions of this WQC, are a part of, and are conditions of, this WQC. If you wish to alter the Project or WQC conditions, you shall first obtain written approval from the Department.
5. Changes to the prescribed crossing techniques may occur only if approved in writing by the Department.
6. You shall implement the approved ECP, dated October 2024.
7. No wetlands may be disturbed beyond the area specifically described in Permit Table 1 of Department Permit IP-NO-2020-2-N00471.
8. This WQC does not authorize any work within the permanent right-of-way (ROW) corridor, temporary workspaces (TWSs), additional temporary workspaces (ATWSs), access roads, or staging areas after completion of the Project and restoration.
9. Prior to beginning construction, you shall flag or stake the boundaries of the authorized construction area limits in a manner that ensures all individuals can readily identify the boundaries of the authorized construction area limits and ensures the construction activities will only occur in areas authorized by the permitting/certifying agencies.
10. You shall ensure that all aquatic resources (e.g. wetlands, waterways) in the vicinity of the construction area that are not authorized to be impacted by the Project are clearly identified in the field as specified in the ECP.
11. Any springs encountered in the ROW that cannot be avoided by construction must be characterized (i.e., location and flow rate) and documented prior to disturbance. These springs shall be restored to pre-existing flow regimes and conditions as required by the Department.

12. You shall maintain the pipeline in a manner that ensures it does not cause deleterious impacts to waterways, wetlands, and/or groundwater.
13. You shall provide sufficient oversight of all contractors and subcontractors working on the Project on Enbridge's behalf to ensure the work is performed in full compliance with permit conditions, submitted and Department-approved plans and application materials, and Section 401 WQC.
14. Temporary access roads necessary to inspect and repair erosion and sediment control practices pursuant to your Department Construction Site Storm Water Permit coverage shall remain in place until the area disturbed is documented as meeting final stabilization, as defined in your Department Construction Site Storm Water Permit coverage, unless otherwise approved in writing by the Department.
15. Vegetation clearing in the areas of trenchless installation shall be limited to what is required by the Pipeline and Hazardous Materials Safety Administration (PHMSA) or as necessary for drill path inspection.

Justification: Pursuant to s. NR 102.04(1), Wis. Adm. Code, substances that will cause objectionable deposits on the shore or in the bed of a body of water may not be present in amounts that interfere with public rights in water of the state. Pursuant to s. NR 103.03(2)(a), Wis. Adm. Code, liquids, fill, or other solids or gas may not be present in amounts that may cause significant adverse impacts to wetlands. Pursuant to ss. NR 103.03(2)(e) and (f), hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be maintained, and existing habitats and the populations of wetland animals and vegetation shall be protected.

V. Erosion and Sediment Control Practices.

16. You shall follow the final Erosion Control Plans from the ECP including information shown on maps and described in the narrative used to obtain Department Construction Site Storm Water Permit coverage along with any amendments approved by the Department.
17. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters, including wetlands, and as specified in the ECP or approved pursuant to this WQC. The Project shall also be conducted in a manner that minimizes dispersal of sediment away from the Project site.
18. Sediment and erosion control best management practices (BMPs) for Wisconsin Pollutant Discharge Elimination System (WPDES) Construction Site Stormwater General Permit compliance that meet or exceed Technical Standards under subch. V of s. NR 151, Wis. Adm. Code shall be installed prior to any land disturbing activities. The technical standards are found at:
http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.
19. Temporary sediment and erosion control BMPs shall be installed prior to beginning in-water work, including the installation of temporary clear span bridges (TCSBs) where grading will occur prior to installation. BMPs shall be inspected and maintained throughout construction and restoration activities and shall be removed once final stabilization is achieved.
20. Erosion control measures shall be inspected, and necessary repairs or maintenance performed prior to every forecasted rainfall event that may exceed ½ inch, after every rainfall event that exceeds ½ inch, and at least

once per week until final site stabilization is achieved. You shall maintain a log of the erosion control inspections, repairs made, and rain events. The log shall be made available to any Department personnel upon request.

21. Erosion control measures as required by this WQC shall be in-place and effective during every phase of the Project and at the end of each working day.
22. Access roads that cross wetlands and waterways, and are in active use, shall be inspected regularly throughout the day to ensure appropriate BMPs are in place and effective in preventing sediment, debris, fluids, etc. from entering wetlands and waterways. Damaged or defective erosion and sediment control devices along access roads that cross wetlands or waterways shall be repaired or replaced immediately.
23. During active construction, sediment control devices shall be inspected daily and at regular intervals throughout the working day within and adjacent to wetlands, waterways, and sensitive resources.
24. Damaged or defective erosion and sediment control devices shall be repaired or replaced immediately.
25. You shall have spill kits readily available at each location where fueling, equipment maintenance, or other activities are taking place that could result in a spill. Spill kits shall be in close proximity to the operations and staff shall be notified of their location. Material within the spill kits shall be replenished after use. Any spills that occur in waterways or wetlands shall be immediately reported to the Independent Environmental Monitor (IEM) and cleaned up, as specified in the ECP.
26. You shall limit the storage of vehicles and equipment within wetlands. All vehicles and equipment stored overnight in wetlands shall use secondary containment measures as specified in the ECP to prevent any inadvertent fluid or oil spills.
27. When more than ½ inch of rain is forecasted within 24 hours and unvegetated wetland spoils are located on slopes exceeding 5%, you shall place tarp or similar materials over the unvegetated wetland spoil piles where there is any potential for sediment discharge to wetlands, waterways, or sensitive resources.
28. Measures specified in the ECP shall be implemented to prevent fluid leaks (e.g., fuel, oil, hydraulic, coolant, etc.) from vehicles and equipment into wetlands or waterways. Prior to entering wetlands and waterways, vehicles and equipment shall be inspected for fluid leaks. If fluid leaks are observed, the leaks shall be corrected, and the equipment shall be cleaned prior to entering the wetland or waterway. During active construction within wetlands and waterways, vehicles and equipment shall be regularly inspected for oil/fluid leaks. If oil/fluid leaks are observed, the leaks shall be contained, properly cleaned up, and corrected prior to continuing work within the wetland or waterway.
29. Erosion control matting, blankets, and/or netting used in and adjacent to waterways and wetlands to prevent erosion during the establishment of vegetation shall be made from natural fiber only, without any synthetic mesh or netting, and contain biodegradable thread with the “leno” or “gauze” weave (contains strands that are able to move independently).

30. No portion of the waterway banks, wetland, or upland that is altered or disturbed and, as a result, unstable, shall remain unprotected for more than seven days as specified in the WPDES Construction Site Stormwater General Permit and the ECP.
31. Any area where topsoil is exposed during construction shall be stabilized as specified in the WPDES Construction Site Stormwater General Permit and the ECP to prevent soil from being eroded and washed into wetlands, waterways, and sensitive resources.
32. The removal of vegetative cover and exposure of bare ground shall be restricted to the minimum necessary for construction. Areas where soil is exposed shall be protected from erosion as soon as possible after removal of the original ground cover, as specified in the WPDES Construction Site Stormwater General Permit and the ECP.
33. Where the remaining work within a section of the Project is limited to maintaining access needed to construct adjacent segments or inspect and maintain restoration practices, the portion of the work area not needed for access shall be stabilized as soon as possible, but not to exceed seven days, as specified in the WPDES Construction Site Stormwater General Permit and the ECP.
34. Land applied additives such as tackifiers, shall not be applied to wetlands, waterways, or waterway banks.
35. If hydroseeding/hydromulching is utilized on the banks of waterways, it shall not be applied during rain events and shall be applied per manufactures guidelines on cure time before rain events.
36. Fertilizer shall not be applied to wetlands or adjacent to waterways unless approved by the Department.
37. All stockpiled spoils, supplies, or materials shall be isolated from wetlands and waterways as specified in the ECP to prevent impacts to those resources.
38. After any part of the site reaches final stabilization, or at the direction of the Department, all temporary erosion control measures in that part of the site shall be removed and disposed of properly. "Final stabilization" means that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established with a density of at least 70% of the cover for the unpaved areas and areas not covered by permanent structures or that employ equivalent permanent stabilization measures.
39. You shall remove all construction debris and waste immediately after construction.
40. Permanent berms or slope breakers shall not be installed in wetlands.
41. If permanent berms or slope breakers will be installed adjacent to wetlands, you shall place the permanent berms upslope of the wetlands. The length of permanent berms or slope breakers perpendicular to the slope within the corridor shall be minimized to the extent practicable with sufficient energy dissipation provided at discharge points to avoid creating erosion in or draining to wetlands.

Justification: Pursuant to s. NR 102.04(1), Wis. Adm. Code, substances that will cause objectionable deposits on the shore or in the bed of a body of water may not be present in amounts that interfere with public rights in water of the state. Pursuant to s. NR 103.03(2)(a), Wis. Adm. Code, liquids, fill, or

other solids or gas may not be present in amounts that may cause significant adverse impacts to wetlands. Pursuant to ss. NR 103.03(2)(e) and (f), hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be maintained, and existing habitats and the populations of wetland animals and vegetation shall be protected. In-water and upland BMPs in alignment with NR 151, Wis. Adm. Code, help ensure excessive sedimentation, Total Suspended Solids (TSS), and nutrient loadings will not result in a violation of state water quality standards under ss. NR 103.03, 102.04 and 102.06, Wis. Adm. Code.

VI. Equipment Use.

42. All construction equipment used for the Project shall be the right size to do the job and shall be brought to and removed from the Project site without unreasonable harm to vegetative cover and/or fish and wildlife habitat as specified in the ECP.
43. All equipment used in wetlands shall be designed, properly sized, and operated to avoid disturbance to wetlands, including soil rutting and compaction.
44. You shall limit the extent of blasting in wetlands, waterways, and sensitive resources to the greatest extent practicable.
45. You shall follow the blasting plan that was submitted as part of your ECP.

Justification: Pursuant to ss. NR 102.04(1) and NR 102.06, Wis. Adm. Code, objectionable deposits and nutrients may not be present in amounts that interfere with public rights and interests or exceed water quality standards for surface water. Ensuring proper equipment sizing and use will help achieve compliance with NR 151, Wis. Adm. Code, standards and helps ensure excessive sedimentation, TSS, and nutrient loadings will not result in a violation of state wetland water quality standards under s. NR 103.03, Wis. Adm. Code.

VII. Fish spawning.

46. To minimize adverse impacts on fish movement, fish spawning, and egg incubation periods, the placement and removal of TCSBs and any in-water work shall not occur during the time periods listed in Permit Table 1 of Department Permit IP-NO-2020-2-N00471, unless waived or modified in writing by the Department's regional Fisheries Biologist. The timing restrictions only apply to waterways that have standing or flowing water at the time that the regulated activity occurs.

Justification: Pursuant to s. NR 102.04(3), Wis. Adm. Code, aquatic life designations include spawning areas for cold water and warm water fish and aquatic life habitat. Water quality criteria are derived to ensure spawning activities in Wisconsin are protected.

VIII. Wetland protection.

47. You shall implement the Compensatory Mitigation Strategy in the ECP (October 2024). Prior to beginning land disturbing activities within the wetland areas, you shall purchase mitigation credits for the Project from approved wetland mitigation banks in the Lake Superior Bank Service Area. If in-kind credits are available, they must be purchased first for a total of 35.14 credits. After all available in-kind credits are purchased, you shall purchase any additional mitigation credits through out-of-kind mitigation in the Lake Superior Bank Service Area. Required mitigation ratios are detailed in the ECP and Findings of Fact. In the event that no mitigation bank credits are available in the Lake Superior Bank Service Area, you shall purchase mitigation credits from the Wisconsin Wetland Conservation Trust in-lieu fee program.
48. A copy of the affidavit of credit purchase from the mitigation bank(s) (or from the Wisconsin Wetland Conservation Trust in-lieu fee program), for the full amount of credits specified in the Compensatory Mitigation Strategy, shall be provided to the Department. Land disturbing activities shall not occur within the wetland areas until the full amount of wetland mitigation credits have been purchased and the affidavit of credit purchase is submitted to the Department.
49. The permanently cleared and maintained pipeline corridor in wetlands shall be limited to 50 feet wide in areas of trenching installation and 30 feet wide in areas of trenchless installation.
50. TWSs in wetlands shall be limited to 95-feet wide. TWSs and ATWSs shall be limited to those approved in Department Permit IP-NO-2020-2-N00471.
51. All wetland boundaries shall be marked with signs in the field prior to clearing activities and shall remain in place throughout all phases of construction, including restoration. Signs shall be installed so they are not obscured by vegetation growth and/or snow cover.
52. IEMs shall confirm that all wetland boundaries have been accurately marked in accordance with the Project's wetland delineation data prior to clearing and/or any construction activities.
53. You shall notify the Department of any additional wetlands identified that were not part of the wetland delineation reports.
54. You shall not place soil or gravel, including on top of construction matting, for the construction of temporary access roads or staging areas in wetlands, unless approved in writing by the Department.
55. You shall not place gravel or stone in wetlands as part of tracking pads, unless approved in writing by the Department. If stone tracking pads cannot be located in uplands, other trackout control practices may be used as described in Technical Standard 1057. Manufactured trackout control practices must be able to prevent sediment from entering the wetland below.

56. This WQC does not authorize the construction of permanent access roads within wetlands, except for permanent access roads to mainline valve sites 1, 4, and 5.
57. Large woody debris and brush piles resulting from clearing activities shall not be deposited in wetlands.
58. To the extent practicable, chipped, woody debris shall be removed from wetlands. If chipped, woody debris cannot be removed from wetlands, you shall thinly scatter wood chips evenly at a depth no greater than 2 inches. Chipped, woody debris remaining in wetlands shall not impede revegetation, alter surface elevations, and/or obstruct the natural flow of water.
59. Access through wetlands, including equipment travel, shall be minimized as specified in the ECP.
60. You shall minimize the size of the construction workspaces in wetlands as specified in the ECP.
61. You shall minimize the width of the trench through wetlands as specified in the ECP. Where support is needed in the trench due to depth, soil type, or soil saturation, use of trench boxes shall be considered first. Sheet piling shall only be used where necessary for personnel safety.
62. You shall not remove roots or stumps in wetlands within the corridor if the pipeline will be installed via trenchless methods, unless required for safety reasons.
63. Grading in wetlands, including topsoil stripping, shall be limited to the trench line.
64. Stump and root removal of woody vegetation in wetlands shall be limited to the trench line, unless required for safety reasons.
65. The Project shall not result in adverse changes to wetland hydrology, as specified in the ECP.
66. When constructing in wetland areas without standing water, you shall segregate the topsoil from the subsoil. If topsoil layers are observed to be shallower or deeper within different locations of the Project, you shall adjust accordingly to properly segregate topsoil from subsoil.
67. In wetlands with standing water, you shall segregate as much of the organic layer as possible based on site and saturation conditions. Where there may be standing water over more cohesive layers, you shall take the first excavated bucket of material and separate it from subsoil material based on the limitations of the soil characteristics and the limits of the workspace.
68. You shall segregate confining layers from topsoil and subsoil and return confining layers to their pre-construction conditions. This does not apply to areas of bedrock that would be blasted and removed from the trench.
69. You shall segregate the uppermost layers of peaty soil, sphagnum mosses, and other native bryophytes from the remaining topsoil and return the uppermost layers as they were removed. Excavated peaty soil,

sphagnum mosses, and/or other native bryophyte spoils shall be maintained to prevent desiccation and degradation of the matrix. Excavated peaty soil, sphagnum mosses, and other native bryophytes shall be returned to their original layer as quickly as possible to minimize disruption.

70. Topsoil and confining layers shall be replaced to its original stratum. Subsoil shall be removed or replaced to its original stratum.
71. The remaining native fill that will not be used as backfill or for crowning above the pipeline (surplus excavated material that has been displaced by new pipeline, pipeline bedding, pipeline installation materials) shall not be re-dispersed in wetlands. Any of the remaining native fill shall be disposed of in an upland area or at an authorized facility.
72. Trenches shall be backfilled (including topsoil placement) within 72 hours of pipeline installation, unless approved in writing by the Department or IEM.
73. Seeding and site stabilization activities shall occur within 20 days of backfilling the trench line, as specified in the ECP.
74. You shall submit the final acreage of actual wetland impacts associated with this Project within 30 days of Project completion. This information shall be submitted in a new column added to Permit Table 1 of Department Permit Docket IP-NO-2020-2-N00471.
75. Construction mats shall be unused or decontaminated prior to placement and use. The matting used over reed canary grass populations shall not be re-used as part of the Project, even if decontamination protocols are implemented.
76. You shall operate vehicles and equipment in wetland on construction matting or during stable ground conditions where operation will not result in soil rutting, mixing, or compaction.
77. Construction mats placed in wetlands shall be removed as soon as possible but shall not be removed until final cleanup of a pipeline installation segment is complete and heavy equipment will no longer be working within that particular segment. Construction matting shall not be left in wetlands during the growing season for longer than necessary.
78. Excavated wetland soils shall be stockpiled on construction matting, a thin layer (no more than 2 inches) of weed-free straw or a similar biodegradable material, an adequate layer of snow, or an adequate layer of ice to serve as a physical and visual barrier between spoils and the undisturbed wetland underneath.
79. All construction waste materials shall be removed from wetlands immediately at the completion of construction.

Justification: Pursuant to s. NR 103.03(2)(a), Wis. Adm. Code, liquids, fill, or other solids or gas may not be present in amounts that may cause significant adverse impacts to wetlands. Pursuant to ss. NR 103.03(2)(e) and (f), hydrological conditions necessary to support the biological and physical

characteristics naturally present in wetlands shall be maintained, and existing habitats and the populations of wetland animals and vegetation shall be protected.

IX. Invasive Species.

80. You shall implement the Invasive and Noxious Species Management Plan included in the ECP and as prescribed in this WQC.
81. All Project activities, including clearing and post-construction monitoring, shall be in compliance with the ECP's Invasive and Noxious Species Management Plan and NR 40, Wis. Adm. Code.
82. You shall ensure that all machinery and equipment used for all phases of the Project, including during post-construction monitoring events, has been de-contaminated as specified in the ECP's Invasive and Noxious Species Management Plan for invasive species prior to use and after use within wetlands and waterways. Best management practices for invasive species can be found at: <http://dnr.wi.gov/topic/Invasives/bmp.html>.
83. Prior to beginning the Project and each annual post-construction monitoring event in accordance with the ECP, all Project personnel shall receive training and informational materials on invasive species identification, prevention strategies, personnel and equipment/vehicle cleaning, and locations of known invasive species within the Project Area.
84. Prior to vegetation clearing, you shall install flags and/or signage notifying crews of the boundaries (or the presence of, for aquatic invasive species) of known state restricted and/or prohibited terrestrial and aquatic invasive species populations, in addition to reed canary grass, that overlap with the Project area.
85. Prior to beginning the Project, you shall pre-treat (e.g., targeted spraying, manual, mechanical) known locations of terrestrial plant invasive species, including reed canary grass, located within the Project pipeyards, staging areas, and laydown yards, as specified in the ECP's Invasive and Noxious Species Management Plan. You shall install visible barriers and signage notifying crews to avoid the invasive species areas within the pipeyards, staging areas, laydown yards. Areas of pre-treatment shall be recorded, including the location of treatment, species treated, type of treatment, and treatment amount. You shall maintain these treatment records until the completion of restoration requirements and provide to the Department upon request.
86. Prior to beginning the Project, you shall pre-treat (e.g., targeted spraying, manual, mechanical) known locations of terrestrial plant invasive species, in addition to reed canary grass, in the construction corridor, TWSs, ATWSs, and access roads, as specified in the ECP's Invasive and Noxious Species Management Plan, considering species-specific treatment methods, timing of implementation, quality of the surrounding vegetation, proximity to water resources, agency or land management authorizations/specifications, etc. Areas of pre-treatment shall be recorded, including the location of treatment, species treated, type of treatment, and treatment amount. You shall maintain these treatment records until the completion of restoration and provide to the Department upon request.
87. Prior to beginning the Project, and prior to each annual post-construction monitoring event in accordance with the ECP, personnel cleaning stations shall be set up and used by all site personnel in entry/exit

locations (or along the construction corridor, depending on the site and construction sequencing) for areas with known populations of reed canary grass, areas of known state restricted and/or prohibited invasive species, areas where gear is unloaded and loaded, and as directed by the IEMs. You shall provide and maintain personnel cleaning tools (e.g., stiff brushes, boot brushes), invasive identification information, and directions on how to inspect and clean personnel items at each personnel cleaning station. Cleaning stations shall utilize secondary containment structures and shall be managed in a way that prevents debris from entering wetlands, waterways, and sensitive resources. Prior to construction, and prior to each annual post-construction monitoring event in accordance with the ECP, crews shall be notified of the locations of personnel cleaning stations.

88. Prior to beginning the Project, and prior to each annual post-construction monitoring event in accordance with the ECP, vehicle and equipment cleaning stations shall be set up, used by all site personnel, and maintained at entry/exit locations (or along the construction corridor, depending on the site and construction sequencing) for Project areas located within areas of large reed canary grass populations, areas of known state restricted and/or prohibited invasive species, and as directed by the IEMs. You shall provide and maintain cleaning tools and equipment, invasive identification information, and directions on how to inspect and clean vehicles and equipment at each cleaning station. Cleaning stations shall utilize secondary containment structures and be managed in a way that prevents debris from entering wetlands, waterways, and sensitive resources. Prior to construction, and prior to each annual post-construction monitoring event in accordance with the ECP, crews shall be notified of the locations of vehicle/equipment cleaning stations.
89. You shall perform visual inspections on all tools, vehicles, and equipment entering and leaving the Project during all phases of the Project, including post-construction monitoring events, to ensure no vegetation, soil, or debris are present. If visible vegetation, soil, debris is present, you shall clean the tools, vehicles, and equipment using scraping, brushing, compressed air, water, or similar method. The vegetation, soil, and debris shall be properly contained upon cleaning and prevented from entering wetlands, waterways, and sensitive resources.
90. Construction mats shall be free of invasive species prior to arriving on site.
91. You shall utilize matting for construction and vehicle access in known areas of reed canary grass, based on information collected during Enbridge's invasive species surveys, wetland delineations, and on-site observations pre-construction and during construction. In areas of woody vegetation, matting shall be installed upon clearing. The matting used in areas of reed canary grass populations shall not be re-used as part of the Project, even if decontamination protocols are implemented.
92. All construction matting shall be inspected following removal and cleaned with compressed air, water, scraping, and/or brushing to remove soil and vegetation debris prior to leaving the site.
93. Equipment and machinery exposed to invasive species shall be properly decontaminated as specified in the ECP's Invasive and Noxious Species Management Plan prior to moving from one area of the Project that contains an invasive species to another area of the Project that does not contain those invasive species, including during post-construction monitoring events.
94. You shall not clean equipment, vehicles, or trailers in or near wetlands, unless within a designated cleaning station/area with secondary containment. You shall not clean equipment, vehicles, or trailers in or near waterways.

95. You shall minimize soil disturbance as specified in the ECP to reduce the potential for invasive plant introduction and colonization.
96. You shall stabilize disturbed soil in a timely manner as specified in the ECP to reduce the potential for the establishment of invasive species.
97. You shall manage stockpiles of materials to limit the spread of invasive species (e.g., covering exposed piles of soil or construction materials with plastic sheeting, planting cover crops to prevent the establishment of invasive species, etc.). You shall treat any infestations of invasive species promptly before the plants set seed.
98. You shall properly dispose of any construction debris that contains or harbors invasive species.
99. You shall avoid the off-site transport of invasives and materials that may contain invasives. If you must transport material that may contain invasive species or materials containing invasives, you shall manage the load to limit the spread of invasive species and bring it to a designated area for appropriate disposal.
100. If moving timber products to or from sites, you shall comply with Department's Forestry Division restrictions for invasive insects and diseases. Best Management Practices for Invasive Species can be found here: <https://councilonforestry.wi.gov/Pages/InvasiveSpecies/Forestry.aspx>.
101. You shall prevent and reduce the spread of Emerald Ash Borer from Project activities by complying with best management practices found here: https://dnr.wisconsin.gov/sites/default/files/topic/Invasives/bmp_EAB.pdf.
102. To prevent the spread of non-native plant species, you shall utilize seed providers who can guarantee their seed is free of invasives.
103. You shall monitor for the introduction, spread, and increase in invasive plant species as a result of Project activities for each wetland within the Project's permanent ROW, TWSs, ATWSs, and the access roads needed to access those sites. You shall monitor annually for a minimum of six consecutive years post-construction and until performance standards are met.
104. You shall monitor for the introduction, spread, and increase in invasive plant species as a result of Project activities for each wetland within the Project's valve sites, pipeyards, and access roads that will not be used to access permanent ROW, TWSs, or ATWSs during post-construction monitoring. You shall monitor annually for a minimum of 3 consecutive years post-construction and until performance standards are met.
105. If invasive plant species are newly observed in wetlands as a result of the Project, you shall manage, monitor, treat, and/or control the invasive species to eradicate the species and prevent its spread.
106. If an increase of invasive plant species is observed in wetlands as a result of the Project, you shall manage, monitor, treat, and/or control the invasive species to restore the presence to pre-construction conditions or better, depending on site conditions and as approved by the Department.
107. You shall provide invasive species reports annually to the Department that include the following:

- i. Narrative summary of post-construction invasive species monitoring from that year.
- ii. Updated table(s) that documents invasive species data from post-construction monitoring (e.g. species, abundance, cover, observations, etc.), including any treatment measures that were conducted by Enbridge. Pre-construction invasive data should also be included in the table(s).
- iii. Descriptions, locations, and photos of any newly observed invasive species that were not identified pre-construction.
- iv. Updates to the Documented Invasive Species Location Maps (see Attachment C of the Invasive Species Management Plan of the ECP) incorporating invasive species data from post-construction monitoring.
- v. Site-specific plans proposing treatment and/or control measures that will be implemented by Enbridge in order to meet the performance standards identified in the ECP's Invasive Species Management, Wetland and Waterway Restoration and Post-Construction Monitoring Plan, and this WQC. Site-specific proposals shall be reviewed and approved by the Department prior to beginning post-construction monitoring activities for the following year.

Justification: Pursuant to s. NR 103.03(2)(f)3., Wis. Adm Code, water quality certification must prevent conditions conducive to the establishment or proliferation of nuisance organisms to protect existing wetland habitat and ecosystems. Invasive species threaten the "protection and propagation of a balanced fish and other aquatic life community" under the "Fish and other aquatic life" designated use in s. NR 102.04(3), Wis. Adm. Code.

X. Preventive Measures.

108. You shall notify the Department via email at DNROfficeofEnergy@wisconsin.gov within 24 hours of any spills of any hazardous materials affecting wetlands and/or waterways. Spills of hazardous or toxic materials that pose a threat to human health, safety, or the environment shall be cleaned up to the greatest extent practicable. All reportable spills shall also be reported immediately to the Department using the 24-hour toll free hot line, 1-800-943-0003. For more information, please visit the spills program web page: <https://dnr.wisconsin.gov/topic/Spills>.
109. You shall follow field protocols for activities in proximity to known landfills and any solid waste encountered shall be disposed of in accordance with NR 500, Wis. Adm. Code, solid waste regulations.
110. Electrical, fueling, and waste handling facilities shall comply with applicable safety and environmental protection regulations.
111. You shall use tarps or similar material underneath areas of pipeline field coating to capture and contain drips/overspray during application on the pipeline.

112. Herbicide used within or adjacent to wetlands, waterways, and sensitive resources shall follow manufacturer's directions and comply with state and federal regulations.
113. You shall only use drilling mud and drilling mud additives that have been approved for use by the Department as specified in the ECP.
114. No grading or trenching shall occur in waterways or wetlands along the bore drill path, unless required to safely install a temporary bridge; required for the sole purpose of containing an inadvertent release (IR) of drilling mud from reaching wetlands, waterways, and/or sensitive resources; or to facilitate the immediate removal of any such drilling mud. Grading or trenching within wetlands or waterways along the bore drill path shall only occur when the Department determines it is not practicable to use alternative containment methods that do not require grading and trenching. Erosion and sediment control practices shall be used to reduce impacts to adjacent portions of wetlands and waterways.
115. You shall not discharge drilling mud into wetlands, waterways, or sensitive areas.
116. You shall monitor returns continuously during drilling operations. If a rig operator identifies a sustained loss in drilling fluid pressure or a loss of circulation during horizontal directional drilling (HDD) or direct bore operations, you shall immediately cease drilling operations, shut the drilling mud pump down, and dispatch experienced observers to monitor the area in and around the drill path for signs of an Incidental Release (IR) of drilling fluid to the ground surface, wetland, or waterbody. You shall notify the IEM that an IR may have occurred and follow the procedures in the ECP's Site-Specific IR Plans for that crossing.
117. If an IR of drilling mud to uplands occurs during the Project's HDD or direct bore construction activities, you shall immediately contain the drilling mud to prevent discharge to waterways or wetlands and report the discharge to the IEM. You shall remove the discharge as thoroughly as possible and dispose of the discharged drilling mud at an authorized location before demobilizing the drill rig.
118. If an IR of drilling mud to waterways or wetlands occurs during the Project's HDD or direct bore construction activities, you shall immediately cease the drilling operations, including pump shut down, report the discharge to the IEM and regulatory agencies, and contain the discharge. You shall remove the discharge as thoroughly as possible and dispose of the discharged drilling mud at an authorized location before demobilizing the drill rig.
119. For all of the Project's HDD or direct bore stream and wetland crossings, within 30 days of completion of each HDD crossing, you shall provide a written summary report to the Department describing the success of that HDD crossing; the degree to which there were any IRs of drilling mud; the efforts employed to report, contain, and recover any IR of drilling mud; and information related to where the drilling mud was disposed.
120. You shall not clear a width of more than 30-feet of vegetation along the permanent corridor in wetlands and waterways as part of the boring drill path, unless approved in writing by the Department. This excludes the Tyler Forks waterway crossing (WBIC 2923100) near MP 34.04, which shall be limited to 50-feet of vegetation clearing within the permanent corridor as part of the boring drill path.
121. You shall hold HDD Pre-Construction meetings prior to beginning drilling operations. The meeting shall include, at minimum, representatives from the Project owner, general contractor, drill contractor, the

owner's environmental staff or consultant, and the IEM(s) assigned to the HDD crew for each drill path. Each meeting may address one or more drill paths, but for each proposed drill path addressed by the meeting the following information shall be discussed:

- i. Location and required protections for Area of Special Natural Resource Interest (ASNRI) waters and wetlands in ASNRI;
 - ii. Workspace boundaries and restricted areas;
 - iii. Mapped floodways and 100-year flood boundaries;
 - iv. Timing restrictions;
 - v. Seasonal considerations;
 - vi. Permit compliance;
 - vii. Erosion and sediment control practices;
 - viii. HDD Summary, Spill Plan, and IR Plan;
 - ix. Monitoring, recordkeeping and reporting;
 - x. Chain of command protocol; and
 - xi. Restoration and final stabilization
122. For each drill path, the HDD operator, HDD locator, an Enbridge representative, and the IEM(s) assigned to the HDD crew shall physically walk or observe the HDD site prior to starting the drill. Any remote sensing equipment used to monitor for IRs in less accessible portions of the drill path shall be tested as part of the observation. During the observation, you shall identify potential obstacles and note the location of site-specific risk factors, environmental conditions, and water resources within the HDD site. For projects with only small drill paths, you shall discuss the IR Plan with the IEM. If erosion and sediment control practices have been installed prior to the observation, you shall confirm that practices are in operational condition. You shall identify situations where a boat and/or drone is necessary to monitor for and respond to IRs. You shall modify the IR Plan to include additional equipment and supplies needed for monitoring and response as needed based on site conditions.
123. You shall conduct visual inspections of the drilling path at least every 4 hours. During pilot hole drilling, only the portion of the drilling path between the entry and the estimated location of the drill head is required to be inspected visually. At least once per day the inspection shall be conducted by Enbridge's construction or environmental inspector. You shall maintain a record of monitoring and inspections that includes the name of the inspector, the date, the time, the stage of installation (pilot hole, reaming, or pullback), and any observations that were made along with the location of the observation. You shall maintain documentation for the duration of the Project and provide it to regulatory authorities upon request.
124. You shall document and report to the IEMs and Department Spills Hotline (1-800-943-0003) within 24-hours of any drilling fluid losses or gains that are estimated to exceed the lesser of 50% of the drill path volume

or 500 gallons. If fluid loss is recovered within a few hours due to adjustments to drilling operations, only the unrecoverable amount is considered when assessing if a substantial fluid reduction has occurred.

125. You shall notify the Department Spills Hotline (1-800-943-0003) and IEMs immediately if drilling fluid enters a designated ASNRI waterway.
126. You shall keep the Written Plans (HDD Summary, Spill Plan, and Inadvertent Release Plan) described in the Department's HDD Technical Standard 1072 HDD (https://dnr.wisconsin.gov/sites/default/files/topic/Stormwater/1072_HorizDirectionalDrilling_10-2022.pdf) on-site or accessible from the site during construction.
127. You shall have vacuum trucks readily available on site at all times during boring operations. If more than one HDD or direct bore is occurring simultaneously, there shall be at least one vacuum truck available per drill path.
128. You shall have spill and IR response materials as specified in the ECP at the entry and exit workspaces prior to beginning HDD or direct bore installation.
129. You shall replenish materials used for spill and IR response before proceeding with HDD installation.
130. If used, you shall provide drill fluid containment pits with sufficient capacity to avoid overflowing during rain events.
131. You shall dispose of drilling fluid and cuttings in compliance with state and local requirements in locations identified in advance and provided to the Department.
132. You shall submit drilling fluid additive information, as required under a Department WPDES permit, for HDD fluid that is disposed of in locations other than a licensed landfill. HDD fluid shall be solidified prior to disposal in a licensed landfill.
133. You shall install trench breakers capable of restricting the horizontal movement of water as shown on the erosion control plan used to obtain Department Construction Site Storm Water Permit coverage to minimize the potential for subsurface drainage along the backfilled trench in bedrock areas. You shall install trench breakers to minimize the potential for subsurface drainage along the backfilled trench.

Justification: Pursuant to s. NR 102.04(1), Wis. Adm. Code, substances that will cause objectionable deposits on the shore or in the bed of a body of water may not be present in amounts that interfere with public rights in water of the state. Pursuant to s. NR 103.03(2)(a), Wis. Adm. Code, liquids, fill, or other solids or gas may not be present in amounts that may cause significant adverse impacts to wetlands. Pursuant to ss. NR 103.03(2)(e) and (f), hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be maintained, and existing habitats and the populations of wetland animals and vegetation shall be protected. These conditions ensure construction operation, including for HDD, will not result in a violation of state water quality standards under ss. NR 103.03, 102.04 and 102.06, Wis. Adm. Code.

XI. Dewatering.

134. Unless specified and approved by the Department, dewatering of excavated work areas shall be conducted in accordance with the standards of the applicable general permit under WPDES and Department-approved Technical Standards.
135. Where dewatering eventually discharges to wetlands or waterways, if the discharge is cloudy or has field turbidity conditions exceeding 12 NTU or 40 mg/L, you shall immediately stop dewatering and contact the IEM to determine an adequate dewatering method. At no time shall the dewatering discharge cause a violation of Bad River Band of Lake Superior Chippewa water quality standards at the point that it enters the Reservation of the Bad River Band of Lake Superior Chippewa. You shall monitor dewatering discharge at a rate that is sufficient to meet the turbidity standards at all times.
136. You shall not discharge at a rate or volume that will increase erosion in the receiving water.
137. You shall identify effective water applied additives, as described in Technical Standard 1051, prior to initiating dewatering activities in areas where the dewatering discharge may reach surface water after treatment. Jar testing of onsite water samples shall be used to identify an additive that may be used in combination with dewatering bags or sediment basins to meet the discharge standards described in Condition 135. You shall use additives for which the Department has established maximum usage rates. A list of previously reviewed additives with maximum usage rates is available at <https://apps.dnr.wi.gov/swims/Documents/DownloadDocument?id=326415944>. You shall use additives per manufacturer recommendations but shall not exceed maximum usage rates. You shall conduct additional jar testing in areas with differing soil types. You shall maintain a log of the applied additives, including product name, date and time, location, and concentration. This shall be made available to any Department personnel upon request.
138. To the greatest extent practicable, dewatering structures shall be placed in uplands. Dewatering structures shall only be placed in wetlands when the IEM has determined it is not practicable to place dewatering structures in upland areas.
139. If dewatering structures are placed in wetlands, the IEM shall first approve the dewatering location. You shall monitor all dewatering activities in wetlands throughout the duration of dewatering. Following the completion of dewatering activities, you shall ensure no deposited or accumulated sediment from dewatering remains in wetlands.
140. Dewatering structures within and adjacent to wetlands or adjacent to waterways shall utilize secondary containment measures.
141. You shall have portable treatment systems (e.g., sand or carbon) available at the dewatering site that shall be used if the other proposed BMPs fail to adequately treat the discharge. The portable treatment systems must be sufficiently sized to treat all dewatering volume if other proposed BMPs fail.
142. Dewatering structures shall not be located on or discharge over bare or disturbed soil. Dewatering structures shall be located in either graveled areas or vegetated areas and shall discharge over densely vegetated areas.

Justification: Pursuant to s. NR 102.04(1), Wis. Adm. Code, substances that will cause objectionable deposits on the shore or in the bed of a body of water may not be present in amounts that interfere with public rights in water of the state. Pursuant to s. NR 103.03(2)(a), Wis. Adm. Code, liquids, fill, or other solids or gas may not be present in amounts that may cause significant adverse impacts to wetlands. Pursuant to ss. NR 103.03(2)(e) and (f), Wis. Adm. Code, hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be maintained, and existing habitats and the populations of wetland animals and vegetation shall be protected. Controlling the quantity and quality of dewatering discharges ensure excessive sedimentation, TSS, and nutrient loadings will not result in a violation of state water quality standards under ss. NR 102.04, 102.06, and 103.03, Wis. Adm. Code. Monitoring requirements that the Department determines to be necessary may be imposed under s. NR 299.05(3)(d)2., Wis. Adm. Code.

XII. Water Quality Monitoring.

143. You shall perform water quality monitoring in accordance with the ECP's Water Quality Monitoring Plan.

Justification: Monitoring requirements that the Department determines to be necessary may be imposed under s. NR 299.05(3)(d)2., Wis. Adm. Code, and are a critical element to ensure continuing compliance with state water quality standards.

XIII. Restoration.

144. Except where permanent wetland fill material is authorized, all wetlands shall be restored to pre-existing elevations and hydrology as specified in the ECP. Preconstruction wetland elevation data shall be utilized to ensure post-construction wetland elevations are properly restored.

145. You shall restore areas of blasting in wetlands and waterways to preconstruction hydrology and elevations immediately after installation of the pipe.

146. You shall conduct wetland hydrological monitoring as described in the ECP's Wetland and Waterbody Restoration and Post-Construction Monitoring Plan and as proposed by Enbridge to the USACE. Monitoring shall be conducted until USACE has determined performance standards are met.

147. Where permanent wetland fill material is authorized, the Project shall be constructed in a manner that will maintain wetland hydrology in the remaining portions of the wetland complexes.

148. You shall implement the ECP's Wetland and Waterbody Restoration and Post-Construction Monitoring Plan. This plan incorporates native seed mix as well as bare root stock to reestablish wetland vegetation.

149. You shall conduct post-construction monitoring for each wetland within the Project's permanent ROW, TWSs, ATWSs, and the access roads needed to access those sites for a minimum of six consecutive years following construction and until performance standards are met as specified in the ECP, unless otherwise determined by the Department.

150. You shall conduct post-construction monitoring for each wetland within the Project's valve sites, pipeyards, and access roads that will not be used to access permanent ROW, TWS, or ATWS during post-construction monitoring for a minimum of three consecutive years post-construction and until performance standards are met as specified in the ECP, unless otherwise determined by the Department.
151. You shall conduct post-construction monitoring for each PFO and PSS wetland within the Project area that was cleared outside of the permanent corridor as part of the Project in Years 9, 12, and 15 post-construction to evaluate the success of the reestablishment of woody species, as specified in the ECP's Wetland and Waterbody Restoration and Post-Construction Monitoring Plan.
152. For wetlands that had standing water at the time of initial restoration, if standing water is not observed during site stabilization monitoring, you shall seed that portion of wetland with wetland seed mix. You shall utilize the wetland seed mix described in the ECP's Wetland and Waterbody Restoration and Post-Construction Monitoring Plan.
153. A qualified wetland professional shall confirm post-construction monitoring plot locations are representative of the wetland during the initial post-construction monitoring event.
154. In addition to the performance standards specified in the ECP, you shall achieve performance standards for PFO wetlands in the TWS and ATWS that include:
- i. >70% survival of planted woody stock OR >300 live woody species per acre for ≥ 2 consecutive growing seasons;
 - ii. By year 9, >250 live woody species per acre ≥ 4.0 feet in height for ≥ 3 consecutive growing seasons after step i is met;
 - iii. By year 15, PFO wetlands shall have at least 30% non-invasive forestry canopy cover (crown cover)

If the TWSs and ATWSs of PFO wetlands are not meeting the performance standard criteria for step ii or step iii, you shall provide a management plan to the Department addressing how performance standards will be met, which may include additional plantings. The plan shall be provided to the Department for review and approval prior to implementing the plan.

155. During post-construction monitoring and site stabilization within wetlands and adjacent to waterways, you shall implement corrective actions as soon as practicable to support the restoration of wetlands. This may include minor grading, supplemental seeding or plantings, treatment/control of invasive species, removal of debris, etc., as specified in the ECP.
156. You shall use locally sourced seed mixes. If locally sourced seed mixes are not used, you shall utilize seed sources from Wisconsin, Minnesota, and/or Michigan that source the genotypes found within the Project area or the local nurseries near the Project area, unless otherwise approved by the Department.
157. Pipeline easements shall not include language that prevents waterway and wetland restoration and management activities as required by this WQC.

Justification: Pursuant to ss. NR 103.03(2)(e) and (f), Wis. Adm. Code, hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be maintained, and existing habitats and the populations of wetland animals and vegetation shall be protected. Successful restoration of affected wetlands pursuant to these conditions ensures that wetland water quality standards are met.

XIV. Independent Environmental Monitor.

158. In coordination with the Department, you shall hire IEMs for the purpose of ensuring adherence to the requirements of the Department's regulatory approvals for this Project. IEMs shall be approved by the Department and shall report directly to, and be under the exclusive direction of, the Department. You shall organize at least one meeting between the Department, IEMs, and Enbridge prior to beginning clearing and construction. You shall provide a minimum of three IEMs for the Project. IEMs shall be staffed at all times Enbridge is actively working on the Project. IEMs shall be equipped the same as Enbridge's Environmental Inspectors and have access to data collection, management, reporting, and sharing software systems.

Justification: Necessary in order to allow the Department to ensure compliance with state water quality standards in chs. NR 102 and 103, Wis. Adm. Code, and to impose necessary monitoring requirements, pursuant to s. NR 299.05(3)(d)2, Wis. Adm. Code.

XV. Water Quality in Waterways

159. The construction of the new, drivable path for Bay City Creek (WBIC 2891100, near milepost 0.631) shall not result in the placement of gravel, fill, structures, or other material within wetlands or below the ordinary high water mark (OHWM).

160. You shall not straighten or change the course of any navigable waterway.

161. Prior to commencing in-water activities, you shall monitor for changes to water levels and/or flows to avoid working during high flows. You shall not begin in-water work within 24 hours of forecasted rain events exceeding ½ inch and all in-water work and restoration shall be completed prior to any such event.

162. You shall not install temporary bridges or conduct in-water work during periods of high water levels or flooding if the water level or flooding could overwhelm the proposed crossing or construction techniques.

163. For each waterway crossing, you shall have appropriate equipment available to handle anticipated flow conditions.

164. You shall allow safe portage around restricted areas of the Project area within navigable waters to anyone legally navigating the waterway. You shall install navigational warning signs for the waterways identified in the ECP.

165. Work below the OHWM shall be completed as quickly as possible as specified in the ECP to minimize waterway disruption.
166. Activity below the OHWM shall be minimized as specified in the ECP to complete the work.
167. You shall not deposit or store any of the graded or excavated materials below the OHWM of any waterway.
168. Disturbance to the waterway banks from use of equipment and/or vehicles shall be minimized as specified in the ECP. All waterway banks shall be protected from the bank collapsing and from erosion due to equipment operation.
169. Removal of trees, shrubs, and bank vegetation shall be minimized as specified in the ECP. If woody vegetation is cleared outside of the trench line, the stumps and root structures shall remain intact.
170. Large woody debris or brush piles resulting from clearing activities shall not be deposited in waterways or floodways.
171. In-water work shall be conducted in a manner that minimizes the re-suspension of sediment as specified in the ECP.
172. Upon completion of pipeline installation, all streambed elevations shall be restored to pre-existing conditions as specified in the ECP. Preconstruction waterway bed elevations shall be determined, and data shall be utilized to ensure post-construction waterway elevations are properly restored.
173. Waterway banks shall be restored to pre-existing conditions as specified in the ECP. If pre-existing bank conditions are determined to be unstable, the banks shall be restored to stable slopes.
174. Pools, riffles, and runs shall be restored to pre-existing locations and conditions as specified in the ECP.
175. No more than 30 days after the Project is completed, you shall submit to the Department clear and labeled photographs of all restored waterway crossings. Photos shall be taken from the same general location and direction as pre-construction photos submitted with your application.
176. You shall perform macroinvertebrate sampling in accordance with the ECP's Water Quality Monitoring Plan unless modified in coordination with U.S. Environmental Protection Agency.
177. If needed to facilitate safe construction, you shall breach beaver dams in a manner that results in a slow draining of impounded water to minimize silt flushing and channel erosion downstream. Dams shall not be breached using explosives, unless approved in writing by the Department.
178. Prior to dam removal, you shall have a contingency plan in place to manage any uncontrollable flow from beaver dam removal.
179. You shall not dredge, drive on the bed, or place structures or fill below the OHWM or within wetlands as part of beaver dam removal activities, unless approved in writing by the Department.

180. Except for the existing ford crossing at Tyler Forks near access road AR-085, you shall not drive any vehicles on the bed of any navigable waterway to cross the waterway unless approved in writing by the Department.
181. Except during dry stream bed conditions within the boundaries of the trenchline, equipment and vehicles shall not drive or operate on the bed of the waterway during pipeline installation, including bank restoration and stabilization, unless approved in writing by the Department.
182. Waterways within the Project area that do not have an existing waterway crossing (existing ford, existing culvert, TCSB) shall have signs installed on both banks alerting crews that the waterway cannot be traversed. These signs shall be installed prior to clearing activities and shall remain in place throughout all phases of construction, including restoration.
183. TCSBs shall be removed within 30 days after the TCSB is no longer needed to complete construction or site stabilization monitoring. If TCSB removal conflicts with a required fish timing restriction, the TCSB shall be removed within 30 days after fish timing restrictions cease. If TCSBs are requested to remain post-construction to conduct inspections or final site stabilization, pursuant to your Department Construction Site Storm Water Permit, you shall provide a list of proposed TCSB locations for Department approval. The TCSBs shall not remain in place past the expiration date of this permit, unless approved in writing by the Department.
184. Installation and removal of the TCSB shall be conducted in a manner that minimizes the removal of trees, shrubs, and other shoreline vegetation, as specified in the ECP.
185. Installation, removal, and use of the TCSB shall be conducted in a manner that prevents sediment and debris from entering the waterway, as specified in the ECP.
186. Appropriate barriers, as specified in the ECP, such as geotextile fabric and silt sock, shall be installed and anchored to the TCSB to prevent sediment and materials from entering the waterway during the installation, use, and removal of the TCSB.
187. Bridge approaches shall not consist of earthen material or debris. No bridge approach fill shall be placed below the OHWM of any waterway.
188. Bridge supports and headers shall be located at least three feet landward from the top of the bank.
189. The TCSB shall completely span the waterway from top of channel to top of channel with no support pilings in the waterway. This WQC does not authorize any in-stream supports for TCSBs.
190. Equipment used to install and remove TCSBs shall not enter or operate on the bed of the waterway. The equipment to install and remove TCSBs shall not disturb the bed of the waterway.
191. Grading of banks to install the TCSBs shall be minimized as specified in the ECP.
192. TCSBs shall be securely anchored to prevent them from being transported downstream during high flow conditions.

193. You shall inspect TCSB openings for debris and obstructions weekly and within three days following any rainfall exceeding ½ inch. You shall remove any restriction of flow, and any debris shall be deposited in an upland site and out of any floodplain, wetland, or waterway.
194. TCSBs shall be monitored and maintained regularly and shall be cleaned of mud and/or debris immediately, if observed. The removal of mud and/or debris from the TCSB shall not result in a discharge into a waterway.
195. All vehicles and equipment traversing the TCSB shall be checked prior to crossing the TCSB for fluid (e.g. fuel, oil, hydraulic, coolant, etc.) leaks. If fluid leaks are observed, the leaks shall be corrected, and the equipment shall be cleaned prior to crossing the TCSB.
196. Upon removal of the TCSBs, waterway banks shall be restored to pre-existing conditions as specified in the ECP. If pre-existing bank conditions are not stable, you shall restore waterway banks to stable slopes.
197. Prior to conducting any open-cut trenching of waterways, you shall follow the high flow contingency as specified in the ECP in the event the flow bypass system would be overwhelmed by incoming flows. You shall implement the high flow contingency as specified in the event the flow bypass system is overwhelmed by incoming flows.
198. Pump intakes and discharges shall be placed to prevent the disturbance, removal, and scour of bed material.
199. Pump discharges shall utilize energy dissipation devices to prevent disturbance and scour of bed material.
200. Pump intakes and discharges shall be used in a manner that prevents impacts to aquatic organisms, wildlife, and their habitat.
201. You shall remove all work zone isolation systems and flow bypass systems gradually, in such a way that minimizes the downstream sediment impacts, as specified in the ECP.
202. You shall inspect and maintain the work zone isolation systems and flow bypass systems regularly each day they are in place.
203. Upon isolation of the waterway and/or prior to dredging, you shall visually survey the workspace for aquatic organisms (e.g., fish, mussels, turtles, crayfish). If aquatic organisms are observed, you shall immediately and safely relocate them.
204. There shall be no long-term impacts to the bed of the waterways from the placement, operation, and/or removal of the work zone isolation system and flow bypass system structures.
205. All temporary work zone isolation system and flow bypass system structures placed on the bed of the waterway shall be clean and free of debris.
206. All temporary structures placed below the OHWM shall be removed immediately upon completion of the pipeline installation.

207. No concrete, grout, or other sealants shall be used to seal temporary cofferdams or similar structures.
208. Sheet pilings shall not be installed to a depth that would intersect known artesian aquifers based on available geotechnical information and well drilling logs. If new, discernable ground water flow is observed during or after installation of sheet piling at the existing ground level outside of the trench, it shall be reported immediately to the IEM and reported within 24 hours to the Department. You shall notify IEMs at least 24 hours in advance of sheet pile driving between MP 10 to MP 18 and MP 37 to MP 40. In these areas, the contractor shall have additional erosion and sediment control materials as specified in the ECP at the site sufficient to limit impacts from any unanticipated ground water flows.
209. Bank stabilization structures shall be installed following the design plans in the Wetland and Waterway Restoration and Post-Construction Monitoring Plan in the ECP, as conditioned in this WQC, and as approved by the Department.
210. Installation of permanent bank stabilization structures shall be completed immediately after pipe installation to minimize waterway disruption. Installation shall be completed in a way that minimizes impacts to the resource.
211. The bank stabilization installation shall follow the natural contour of the shoreline. No waterward extension of the shoreline is permitted other than what is reasonably necessary to conduct the Project and protect the existing bank.
212. The placement of soil below the OHWM shall be limited to the material required to establish biological materials.
213. All bank stabilization materials shall be clean and free of debris prior to installation.
214. The amount of dredging to install structures shall be limited to the maximum extent practicable, and the dredging shall be completed immediately after pipe installation to minimize waterway disruption.
215. For riprap installation, you shall use clean field or quarry riprap rock/stone. Rock fill shall not include concrete or reused materials. Riprap materials shall be appropriately sized.
216. All riprap placed above the OHWM shall be top dressed with a minimum of six inches of topsoil.
217. For biostabilization installation, native vegetation shall be seeded/planted above the OHWM. Vegetation, such as seeding, plant plugs, and dormant plantings shall be plant species native to the area of Wisconsin where the Project is located.
218. Except for placement of biostabilization materials, no soil or similar fill material may be placed in a wetland or below the OHWM.
219. For biostabilization and integrated stabilization installation, bank stabilization structures (such as tree limbs, branches, etc.) shall not be sourced from waterways.
220. Unless the waterway is completely dry (no standing water, no flowing water) for the entire duration of the activity below the OHWM, including accounting for rain events during construction, trenching in the

waterway shall be completed using a work zone isolation system or flow bypass system, such as a dam and pump or dam and flume technique, to isolate the in-water work zone from the waterway.

221. If a waterway is completely dry (no standing water, no flowing water) at the time of construction for work below the OHWM, you shall have work zone isolation or flow bypass system materials (such as dam and pump or dam and flume materials) on site and ready to install if conditions change during construction and standing or flowing water becomes present in the waterway.
222. Bypass flows shall be maintained in the waterway during all phases of construction.
223. You shall minimize the width of the trench through waterways as specified in the ECP. Where support is needed in the trench due to depth, soil type, or soil saturation, use of trench boxes shall be considered first. Sheet piling shall only be used where necessary for personnel safety.
224. The amount of dredging shall be limited as specified in the ECP, and the dredging shall be completed in the timeframe specified in the ECP.
225. Bed materials shall be removed by equipment that is designed to minimize the amount of sediment that can escape into the water. Equipment shall be properly sized so that excavation complies with the ECP and allows the work to be done from the banks rather than in the waterway.
226. You shall segregate the upper foot of streambed material during excavation to properly restore the bed substrate and profile.
227. Unless the pre-construction substrate is silt, backfill material of the trench shall consist of the originally removed bed material and the substrate features shall be returned to pre-construction conditions. If the existing substrate is silt, you shall backfill with clean, washed gravel, crushed stone, or clean river stone to replace the excavated material. If the stream bed in the crossing location has a unique substrate feature (i.e. cobbles, boulders, riffles, etc.), it shall be returned to preconstruction conditions.
228. Any remaining native fill that will not be used as backfill (surplus excavated material that has been displaced by the new pipeline, pipeline bedding, and pipeline installation materials) shall not be re-dispersed in the waterway or in wetlands. Any remaining native fill shall be removed from the waterway and disposed in an upland area or at an authorized facility.
229. The trench shall be backfilled no later than 48 hours after completion of pipeline installation, unless approved in writing by the Department.
230. You shall visit each waterway crossing where pipeline installation occurred via open-cut trenching (dredging) for a minimum of six consecutive years, and until performance standards are met, to confirm the successful stabilization of streambanks during high and low flow regimes and to document the physical waterbody parameters. This includes confirming general bed and bank elevations match adjacent, undisturbed areas and bed composition is restored.
231. For all dredged waterways, as part of your annual wetland and waterway post-construction monitoring report, you shall provide the Department with documentation demonstrating streambed and banks have

been restored to pre-construction conditions and elevations and slopes have not materially changed due to the construction of this Project.

Justification: Pursuant to ss. NR 102.04(1) and NR 102.06, Wis. Adm. Code, objectionable deposits and nutrients may not be present in amounts that interfere with public rights and interests or exceed state standards for surface water. In-water BMPs help ensure excessive sedimentation, TSS, and nutrient loadings will not result in a violation of state water quality standards under Ch. NR 102, Wis. Adm. Code. Physical alterations can degrade surface waters through the filling, dredging or stockpiling of materials. Pursuant to ss. NR 102.05 and NR 103.03, Wis. Adm. Codes, no waters of the state including wetlands shall be lowered in quality. To satisfy these antidegradation and water quality protection requirements, these conditions are warranted to properly demonstrate that any waterway alterations comply with these standards.

FINDINGS OF FACT

1. On February 11, 2020, Enbridge Energy, Limited Partnership (Enbridge Energy or Enbridge) applied to the Department of Natural Resources (Department) for permits to place temporary structures in navigable waterways, temporarily bridge navigable waterways, dredge navigable waterways, drive on the bed of navigable waterways, and to discharge fill in wetlands listed in Permit Table 1 for the purpose of relocating 41.1 miles of 30-inch diameter crude petroleum and natural gas liquids (NGLs) pipeline (known as "Line 5"), collectively referred to as the "Line 5 Wisconsin Segment Relocation Project," or the "Project."
2. The Project is located in Township 45 North, Range 1 West, Sections 5, 6, 8, 18; Township 45 North, Range 2 West, Sections 1, 2, 13, 14, 22, 23, 27, 28, 29, 30, 31, 32, and 33; Township 45 North, Range 3 West, Sections 6, 7, 8, 9, 14, 15, 16, 22, 23, 24, 25, and 36; Township 45 North, Range 4 West, Sections 1, 2; Township 46 North, Range 1 West, Sections 3, 4, 10, 15, 16, 17, 20, 21, 22, 27, 28, 29, 32, and 33; Township 46 North, Range 4 West, Sections 5, 6, 7, 8, 17, 18, 20, 27, 28, 29, 34, and 35; Township 47 North, Range 1 West, Sections 33, 34, and 35; Township 47 North, Range 4 West, Sections 3, 8, 17, 20, 29, and 32; Township 47 North, Range 5 West, Sections 8 and 10; Township 48 North, Range 4 West, Section 34.
3. The Project will cross the City of Ashland, City of Mellen, Town of Ashland, Town of Gingles, Town of Marengo, Town of Morse, and Town of White River in Ashland County; Town of Anderson, Town of Gurney, and Town of Saxon in Iron County; and Town of Eileen in Bayfield County.
4. Enbridge owns and operates the 645-mile-long Line 5 pipeline, which became operational in 1953. Line 5 traverses northern Wisconsin and the Upper and Lower Peninsulas of Michigan before reaching its terminus at Sarnia, Ontario in Canada. Line 5 currently crosses approximately 12 miles of Bad River Band of Lake Superior Chippewa Reservation land.
5. The Project involves the relocation of approximately 20 miles of existing Line 5 pipeline with 41.1 miles of new 30-inch diameter pipeline and 10 new mainline block valves outside of the Bad River Band of Lake Superior Chippewa Reservation. Enbridge proposes to continue transporting crude oil and NGLs through its Line 5 pipeline, while decommissioning the portion of pipeline that crosses the Bad River Band of Lake Superior Chippewa Reservation.

6. The Department considers the basic purpose of the Project to be continuing the transport of crude oil and natural gas liquids (NGLs) through Line 5 to Enbridge's existing delivery locations in approximately the same capacity as the existing line.
7. The proposed location of the Project is located within the Fish Creek-Frontal Chequamegon Bay (HUC 0401030111), White River (HUC 0401030206), Marengo River (HUC 0401030204), Headwaters Bad River (HUC 0401030203), Tyler Forks (HUC 0401030202), Potato River (HUC 0401030205), and Bad River-Frontal Lake Superior (HUC 0401030207) watersheds.
8. The Department had numerous pre-application and post-application meetings and discussions with Enbridge to address waterway, wetland, and listed species regulations and standards.
9. The Department provided Enbridge with information relative to Department authorities, the need to complete an Environmental Impact Statement, the need to avoid and minimize wetland impacts, appropriately limit waterway impacts, comply with protections for endangered and threatened species and habitats, and other areas of concern as part of a pre-application meeting on December 17, 2019.
10. The Department received an Environmental Impact Report (EIR) from Enbridge with their permit application materials in February 2020 providing a description of the proposed Project and Enbridge's analysis of the potential environmental effects of the proposals. In August 2020, Enbridge submitted a Revised Environmental Impact Report, as part of its application for Department waterway and wetland permits for the Project.
11. Section NR 150.20, Wis. Admin. Code, establishes procedures to fulfill the requirements of s. 1.11(2)(c), Wis. Stats., setting minimum requirements for Wisconsin Environmental Policy Act (WEPA) compliance. The Department followed the EIS process as outlined under s. NR 150.30, Wis. Admin. Code, pursuant to s. NR 150.20 (4)(b), Wis. Admin. Code.
12. The Department issued a notice of pending application/public hearing (NOPA), dated June 8, 2020. The NOPA indicated the Project's application for waterway and wetland permits was considered complete. The NOPA also indicated the Department scheduled a virtual, public informational hearing and Environmental Impact Statement (EIS) scoping meeting on July 1, 2020.
13. By requirement of the Department, Enbridge published the notice as a Class 1 Notice in the Ashland Daily Press, Glidden Enterprise, Mellen Weekly Record, Iron County Miner. Enbridge was also required to mail the notice to all affected and abutting landowners and interested parties.
14. On July 1, 2020, the Department held a virtual public informational hearing and EIS scoping meeting. During the public hearing, the Department received comments on the Project waterway and wetland permit application and comments on the draft EIS for the Project. In addition to oral testimony received at the meeting, the Department received over 2,100 written comments between June 8 and July 11, 2020. Many of the comments received during the public hearing and comment period concerned the completeness of Enbridge's pending waterway and wetland permit application and required language in the public notice regarding the tentative determination to approve with modifications.
15. The scope of the EIS analysis was determined based on comments received during Public Scoping and in consultation with tribal governments and federal agencies.

16. Between August 2020 and January 2021, the Department held a series of technical meetings with staff from the Bad River Band of Lake Superior Chippewa, Red Cliff Band of Lake Superior Chippewa, Lac du Flambeau Band of Lake Superior Chippewa, and the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to share information and address tribal comments on the Draft EIS.
17. Between August 2020 and October 2020, the Department and Bad River Band of Lake Superior Chippewa held three government to government consultation meetings. In September 2020, the Department and Red Cliff Band of Lake Superior Chippewa held one government to government consultation meeting.
18. The Department made Information Requests to Enbridge to provide additional information on November 3, 2020, February 1, 2021, September 1, 2021, and October 29, 2021.
19. On Dec. 16, 2021, the Department posted the Draft EIS on the Department's internet site and initiated a public comment period.
20. On Feb. 2, 2022, the DNR held a virtual Public Hearing on the Draft EIS. Over 160 individuals testified during the hearing. Public statements made during the hearing were recorded. In addition, written comments were received at the hearing, via US Mail, and via email. The public comment period concluded on April 15, 2022. The Department received more than 32,000 written comments on the Draft EIS during the public comment period. Comments received were both in support and opposition to the proposed project. Comments concerned the completeness and accuracy of the Draft EIS, impacts to the Bad River watershed, long-term impacts to wetlands, the potential impacts from a petroleum release or spill, impacts to wildlife, and impacts to groundwater, among other topics. As a component of this permit decision, the Department has considered public comments relevant to the Department's waterway and wetland jurisdiction and standards.
21. The Department reviewed information from Enbridge's waterway and wetland permit application, subsequent data request responses, scoping comments, comments on the Draft EIS, comments from technical meetings with government and tribal representatives, maps, GIS data, aerial imagery, field visits, and information received from Department program staff to develop a Final EIS. The Final EIS considered a broad range of ecological and socioeconomic impacts that could occur as a result of the construction and operation of the Project, including impacts to natural resource areas, cultural resources, archaeological resources, aesthetics, recreation, endangered resources, as well as impacts from invasive species, oil spills, and cumulative impacts. The Final EIS was issued September 6, 2024, and is available, along with the Department's WEPA Compliance Determination, on the Department's website at: <https://dnr.wisconsin.gov/topic/EIA/Enbridge.html>.
22. Enbridge filed an application with the Department for a Wisconsin Pollution Discharge Elimination System (WPDES) Permit for Construction Site Storm Water. The WPDES Construction Site Storm Water permitting decision can be found under Docket # SW-GP-NO-2020-2-X09-23T11-31-30.
23. The U.S. Department of Transportation's Petroleum Hazardous Material Safety Administration (PHMSA) regulates pipeline operations and safety. No state or federal agency has general approval authority over the need for, or the siting of, liquid petroleum pipelines, with the exception of pipelines crossing state or federal lands. The Department does not have the authority to regulate the amount of material flowing in a pipeline. The Department does not have general regulatory authority over the operation of liquid petroleum pipelines.

24. Private pipeline companies determine possible routes for new or relocated pipelines; acquire the rights-of-way (ROWs) to build, operate and maintain the lines; engineer the actual system designs; and construct the lines.
25. Enbridge identified and evaluated several alternatives as part of its proposed pipeline relocation project. Enbridge evaluated and presented its proposed Project and four route alternatives (RA-01, RA-02, RA-03, No Action) to the Department. Enbridge's evaluations were based on its stated approach of minimizing the length of the pipeline to the extent practicable, while also minimizing the environmental impacts to natural and cultural resources. The Department analyzed the effects of four alternative Line 5 relocation routes considered by Enbridge and No-Build alternatives:
- RA-01
 - (a)** RA-01 crosses the same watersheds as proposed Project but does not extend into the Fish Creek watershed. RA-01 is approximately 9.7 miles shorter than the proposed Project. RA-01 crosses approximately 0.5 miles of state-owned Copper Falls State Park (CFSP), including a portion listed on the National Register of Historic Places and the Wisconsin Register of Historic Places and a portion designated by the Department as Area of Special Natural Resource Interest (ASNRI) and State Natural Area (SNA). RA-01 has the potential to impact approximately 141.5 fewer acres for construction, requiring approximately 74.8 fewer acres of forest clearing, would cross approximately 13 fewer waterways, and would cross approximately 12.6 more acres of wetland than the proposed Project.
 - (b)** RA-01 meets the project objectives and need and is a technically and economically feasible alternative. Even though less expensive, route RA-01 is more environmentally damaging than the proposed route. Additionally, RA-01 introduces additional environmental impacts to state owned lands that the proposed route avoids and is in closer proximity to the Bad River Band of Lake Superior Chippewa Reservation.
 - (c)** During its review of Enbridge's CWA permit application, the USACE requested Enbridge evaluate minor variants of RA-01 route (RA-01A and RA-01B) that would reduce the effects on public lands and potentially reduce the overall project length and associated environmental disturbance.
 - RA-01A would be approximately 4.3 miles shorter than the proposed Project. RA-01A crosses approximately 13 fewer waterways and crosses approximately 15.3 acres more of wetland than the proposed Project.
 - RA-01B would be approximately 3.1 miles shorter than the proposed Project. RA-01B crosses approximately 8 fewer waterways and crosses approximately 27.9 acres more of wetland than the proposed Project.

The USACE and Department evaluated the additional information and concluded that the variants would be closer to the Bad River Band of Lake Superior Chippewa Reservation, result in greater impacts to wetlands, increase forest clearing, and did not convey an environmental advantage over the proposed Project.

- RA-02
 - (a)** RA-02 crosses the same watersheds as the selected route. RA-02 is approximately 16.9 miles longer than the proposed Project but does not cross DNR-owned Copper Falls State Park. RA-02 has the potential to impact approximately 245.7 additional acres for construction, requiring approximately 207.6 additional acres of forest clearing, would cross approximately 19 more waterways, and would cross approximately 33.7 more acres of wetland than the proposed Project.
 - (b)** RA-02 would meet the project objectives and need and would be a technically feasible alternative. The RA-02 route would be more expensive and is more environmentally damaging than the proposed Project.
- RA-03
 - (a)** RA-03 is outside of the Bad River watershed, but would be located within the Montreal River, Bois Brule River, and Iron River watersheds of the Lake Superior Basin, the East Fork Chippewa River and West Fork Chippewa River watersheds of the Upper Chippewa River Basin, and the Upper Namekagon River, Totagatic River, Upper St. Croix and Eau Claire Rivers watersheds of the St. Croix River Basin. RA-03 is approximately 60.5 miles longer than the proposed Project. RA-03 crosses the Island Lake Hemlocks SNA and the Namekagon River, which is a Wild and Scenic River. RA-03 has the potential to impact approximately 878.9 additional acres for construction, requiring approximately 711.2 additional acres of forest clearing, would cross approximately 8 fewer waterways, and would cross approximately 319.7 more acres of wetland than the proposed Project.
 - (b)** RA-03 meets the project objectives and need and is a technically feasible alternative. The RA-03 route would be more expensive due to the longer route length and RA-03 is more environmentally damaging than the selected route.
- No-Build Alternatives
 - (a)** The continued operation of the existing Line 5 segment that crosses the Bad River Band of Lake Superior Chippewa Reservation land would not result in regulated wetland or waterway activities. However, this alternative is not reasonably available and capable of being implemented, as Enbridge's easements within the Bad River Band of Lake Superior Chippewa Reservation have expired and Enbridge was not granted authorization to continue to site the line through the reservation.
 - (b)** Constructing an all-Canadian pipeline or using existing Canadian pipelines to replace Line 5 would not result in regulated wetland or waterway impacts within Wisconsin. Enbridge determined this alternative infeasible. This alternative is not in proximity to the Project and would not be consistent with the scope of the Project or its purpose of continuing to transport crude oil and NGLs through Enbridge's Line 5 pipeline.
 - (c)** Switching to other existing pipelines to carry Line 5 products may avoid regulated wetland and waterway impacts, except where needed to upgrade or alter existing pipelines. This alternative presents logistical and technological challenges and would not be located in proximity to the Project. This alternative is considered infeasible because there are no other existing Enbridge pipelines that are geographically situated to serve all the receipt and delivery points that are served by Line 5's existing routing from Superior, through the

Upper and Lower Peninsulas of Michigan, to Sarnia. There are also capacity constraints on existing pipelines. Existing Enbridge pipelines are limited to transporting either NGLs or crude oil, but not both; Line 5 is unique in that the pipeline has been installed with equipment to allow the transport of both crude oil and NGLs. The use of existing pipelines to transport Line 5 product would interrupt or otherwise deter the transportation of the original product in order to instead transport Line 5 product. This alternative would not be consistent with the scope of the Project or its purpose of continuing to transport crude oil and NGLs through Enbridge's Line 5 pipeline. This alternative is also impracticable when considering cost, logistics, and available technology.

- (d)** Transporting Line 5 products by other methods, such as rail cars, tanker trucks, or barges may avoid regulated wetland and waterway impacts. At present, there are no existing railroad routes that connect Enbridge's Superior Terminal to delivery locations; the use of barges would be dependent on seasonal and weather conditions; and the cost, logistics, and capacities utilizing alternative methods of transport would not be practicable. This alternative would not be consistent with the scope of the Project or its purpose of continuing to transport crude oil and NGLs through Enbridge's Line 5 pipeline.
- (e)** Entirely replacing Line 5 products with alternative energies or entirely offsetting the demand for Line 5 products through conservation and efficiency may avoid regulated wetland and waterway impacts. This alternative would not be consistent with the scope of the Project or its purpose of continuing to transport crude oil and NGLs through Enbridge's Line 5 pipeline to existing delivery points.
- (f)** A No-Build alternative which would discontinue the transport of oil and NGLs through Line 5 would avoid regulated wetland and waterway impacts. This alternative would not be consistent with the scope of the Project or its purpose of continuing to transport crude oil and NGLs through its Line 5 pipeline to existing delivery points.

26. The Project includes a new, permanent pipeline corridor that will parallel an existing overhead, electrical transmission corridor for the first approximate 3.6 miles. Most of the remaining new, permanent pipeline corridor will not be co-located or adjacent to existing utility corridors. There are no discernable linear utility corridors that the pipeline could follow along the eastern portion of the route.
27. Enbridge conducted wetland delineations during the growing seasons in 2019 and 2020. During the wetland delineations, Enbridge also conducted WDNR Wetland Rapid Assessment Methodologies (WRAMs). This evaluation is a standardized approach to characterize wetland condition and functional value that relies on observable characteristics by trained professionals. Approximately 50 percent of the wetlands Enbridge delineated in 2019 were completed between October 1 and October 19. In the northern part of the state where the Project is located, vegetation may be senesced or dead at this time of year and floristic conditions can be difficult to fully assess during this period.
28. The Department reviewed a subset of randomly selected wetland WRAMs in greater detail. Enbridge assigned an overall functional value to each wetland based on a compilation of the ratings from the individual functional value categories. The Department's standard WRAM process does not recommend a single, overall WRAM rating approach, but instead assigns individual ratings to each distinct functional value category. Enbridge assessed approximately 26.0 acres of wetland as high functional value, approximately 57.1 acres of medium

functional value, approximately 10.1 acres as low functional value, and approximately 8.0 acres of low-invasive functional value.

29. In between August 2022 and September 2022, Enbridge performed timed meander surveys for the subset of wetlands determined to be of medium to high overall functional value from the delineations completed in 2019-2020. During the timed meander surveys, Enbridge applied cover classes instead of absolute cover levels, as described in the Department's Timed Meander Survey protocol. Enbridge also used the midpoint of each cover class to assign coverage values in the Floristic Quality Assessment Calculators.
30. The Department completed field investigations throughout the proposed Project area in September 2020, August 2021, March 2023, June 2023, July 2023, and October 2023, to independently evaluate wetland boundaries, wetland quality and functions, waterway characteristics, potential geohazards, and potential environmental impacts from the proposed Project. Department fisheries staff completed field surveys within portions of the Project area in July 2023 and August 2023.
31. Enbridge delineated and identified approximately 101.1 acres of wetlands within the Project Area. Of the 101.1 acres of wetlands, approximately 28.1 acres were identified as palustrine emergent (PEM), 10.2 acres were palustrine scrub-shrub (PSS), and 62.8 acres were palustrine forested (PFO). The most common wetland plant communities were hardwood swamp (58.9 acres), fresh (wet) meadow (native subtype, 24.7 acres), and shrub-carr (7.0 acres).
32. Based on WRAM assessments conducted by Enbridge, almost half of the PFO and PSS wetlands that will be permanently cleared provide a "High" wildlife habitat functional value and "High" floristic quality. Almost one quarter of the wetlands provide "High" or "Exceptional" flood and stormwater storage, water quality protection, and ground water processes functional values. Based on Enbridge's timed-meander survey, approximately two-thirds of the PFO wetlands that will be permanently cleared by the proposed project will have a known Floristic Quality Index rating of "High" or "Exceptional." Of the wetlands surveyed during the timed meander surveys, 55% indicated an "Exceptional" Coefficient of Conservatism (mean C-value) rating and 27% indicated a "High" mean C-value rating.
33. Different methodologies used to evaluate wetland condition and functional value can and do produce differing characterization for the same wetlands. To avoid underestimating the functional value of wetlands when reviewing results from these methodologies, the Department selected the highest documented functional value assessment or floristic value calculation as representative of the accurate wetland conditions.
34. The Project will result in in approximately 0.023 acres (998.2 square feet) of permanent wetland fill from the construction of new, permanent access roads to mainline valve sites (MLVs) 1, 4, and 5. The wetland at MLV 1 is described as a lower quality Fresh (Wet) Meadow located within actively pastured farmland. The wetland at MLV 4 is described as a lower quality Fresh (Wet) Meadow located within a roadside ditch surrounded by a road and agricultural land; the wetland is dominated by native vegetation. The wetlands at MLV5 are described as medium quality Fresh (Wet) Meadow and Shrub-Carr located within a depression of a hay field that is regularly maintained and adjacent to a gravel road; the wetlands are dominated by native vegetation, with little invasive plant species.
35. The construction area for the Project includes the permanent ROW, temporary workspace (TWS), and additional temporary workspaces (ATWS). The permanent ROW will be used for pipeline installation and maintained after construction for inspection and maintenance. The TWS is immediately adjacent to the

permanent ROW and is needed to facilitate construction of the pipeline, such as spoil storage and equipment operation. The ATWS are near or adjacent to the permanent ROW and TWS and are needed at discreet locations for additional project components, such as equipment staging and material fabrication.

36. The Project will result in 101.1 acres of direct, temporary wetland impact from clearing and pipeline installation. Direct Project-related disturbance within wetlands will occur throughout the construction area, along access roads, and at valve sites. Project activities that will result in direct impacts to wetlands during construction include wetland conversion from forested and scrub-shrub wetlands to emergent wetlands, grading, trenching, blasting, placement of construction matting, placement and storage of temporary spoils, and equipment/vehicle access.
37. Of the 101.1 acres of wetlands that will be temporarily impacted by the project, approximately 6.3 acres will be disturbed as a result of site preparation associated with trenchless installation (horizontal directional drill (HDD) or direct bore), 76.4 acres will be disturbed via open-cut trenching, and 2.6 acres will be blasted to accommodate pipeline installation. The remaining wetlands would be impacted from construction activities within the TWS and ATWS.
38. A permanent, 50-foot pipeline ROW corridor (30-foot corridor for HDD crossings) will be maintained in wetlands as part of the project along the pipeline. Approximately 30.0 acres of PFO wetland and 3.9 acres of PSS wetland will be permanently converted and maintained as PEM wetland. Enbridge proposes to mitigate for the permanent loss of wetland functional values through Wetland Compensatory Mitigation.
39. Outside of the permanent corridor, approximately 32.8 acres of PFO wetland and 6.3 acres of PSS wetland will be temporarily converted to PEM wetland in the TWS and ATWS as part of construction. These PFO and PSS wetlands will be restored by a combination of natural reforestation (i.e., stump sprouting, root sprouting, and natural recruitment) and supplemental bare root stock plantings. These restoration methods are designed to restore shrub and forested wetlands in the temporary workspace to their pre-construction wetland types. Full restoration of these wetlands will likely require at least a decade, and in some circumstances multiple decades, depending on the age and establishment of the shrub and forested systems pre-construction. The time between conversion and restoration to pre-construction conditions will result in a temporal loss of wetland functional values. Enbridge proposes to mitigate for the temporal loss of wetland functions through Wetland Compensatory Mitigation.
40. There is an abundance of wetlands that are designated as wetlands in Areas of Special Natural Resource Interest (ASNRI) in the Project area that will be impacted by construction. These include wetlands in proximity to, or have a direct hydrologic connection to, cold water communities as defined in s. NR 102.04 (3) (a), including all trout streams and their tributaries and trout lakes; habitat used by state or federally designated threatened or endangered species, s. 29.604, Stat., ch. NR 27 and 16 USC 1531 to 1543; and other surface waters identified as outstanding or exceptional resource waters in ch. NR 102.
41. Based on Enbridge's Wetland Delineation Reports, WRAMs, and the Department's Final EIS, the Project will not cross or otherwise impact Great Lakes ridge and swale complexes, interdunal wetlands, coastal plain marshes, emergent marshes containing wild rice, southern sphagnum bogs, boreal rich fens, or calcareous fens.
42. Most of the Project will occur on private land, except for an approximately 7.5-mile segment on Iron County Forest land.

43. Enbridge captured civil survey and Light Detection and Ranging (LiDAR) elevation data along the Project ROW in 2020 and 2023. These data will be used as a baseline for restoration of preconstruction elevations.
44. Pursuant to 281.36, Wis. Stats., the Department considered all the following factors when it assessed the impacts to wetland functional values:
- a) The direct impacts of excavation, blasting, placement of temporary matting, placement of temporary spoils, placement of permanent fill material, vehicle and equipment operation, and wetland conversion to wetland functional values.
 - b) The cumulative impacts attributable to the proposed project that may occur to wetland functional values based on past impacts or reasonably anticipated impacts caused by this or similar projects in the area affected by the project. Similar projects would primarily consist of other utility projects with long, linear construction areas, such as Xcel Energy's proposed Ashland to Ironwood electric transmission relocation project, natural gas pipelines, and telecommunication/fiber-optic projects. These (and similar transportation) projects are being constructed throughout the state, including within Ashland and Iron Counties, on a regular basis. Additionally, the state has seen an increase in broadband utility projects in recent years. As part of the construction of utility projects, regulated wetland and waterway impacts from construction can include vegetation clearing, trenching and backfill, placement of temporary bridges, and dredging, which are also the activities proposed by this project. Under s. 1.12(6), Wis. Stats., the new permanent ROW corridor could serve as a utility corridor for future utility projects in the region; the permanent corridor may serve as a priority for siting of other utility infrastructure and may be expanded or co-located with other utilities in the future. Although the Project corridor could serve as a siting priority for other utility projects in the future, the Project itself is not expected to promote new development in the area.
 - c) The potential secondary impacts to wetland functional values, including risk of inadvertent sediment releases during construction, recurring vegetation management for ROW maintenance, disturbance for pipeline maintenance, risk of oil spills, aquifer breaches, forest fragmentation and associated edge effect, and the temporal loss as a result of long-term PSS and PFO restoration. Permanent deforestation and conversion to non-forested vegetation can contribute to changes in the landscape's hydrology. Forested canopy intercepts rainfall, facilitates transpiration, and slows the rate of snow melt and runoff that moves across the landscape. Removal of forested canopy can increase the rate of runoff flowing over the land surface and into waterways and can impact groundwater recharge and discharge capabilities; this in turn can increase the risks of flooding and the erosion of soil, particularly the clayey soils. Permanent conversion of upland and wetland forests in the permanent ROW will impact ecosystem hydrology, decrease interior woodland habitat, biodiversity, connectivity, as well as expand invasive species opportunities. The openings created in the cleared linear corridor can also confine species that rely on open habitat. It is not anticipated the permanent wetland fill will result in alterations to the wetland hydrology within the remaining complexes.
 - d) The mitigation that is required to compensate for impacts to wetland functional values under 281.36(3r). Compensatory mitigation is proposed for permanent wetland fill, conversion of PSS and PFO to PEM wetlands, and for temporal loss of wetland functions. Mitigation ratios include the following:

	Functional Value	Temporary Fill	Permanent Conversion	Permanent Fill	Ratio ¹	Ratio ²
PEM	Low-Medium	X			0.1	
	Low-Medium			X	1.2	
	High	X			0.1	
PSS	Low-Medium	X			0.06	
	Low-Medium		X		0.5	
	Low-Medium			X	1.5	
	High	X			0.25	
	High		X		0.6	
PFO	Low-Medium	X			0.25	0.5 / 0.75
	Low-Medium		X		0.6	0.85 / 1.1
	High	X			0.5	0.75 / 1
	High		X		0.7	0.95 / 1.2

¹ Ratio for in service area and in kind, ² Ratios for in service area and out of kind (PSS) / (PEM)

e) The net positive or negative environmental impact of the Project. The Project will accommodate the relocation and operation of reliable, safe, and efficient energy infrastructure while minimizing new environmental impacts. The Project will also accommodate the continued extraction, transportation, and combustion of fossil fuels, land clearing, pipeline construction, ongoing ROW maintenance, and the potential for a pipeline release. Overall, the relationship between Enbridge’s short-term use of Wisconsin’s environment and the long-term productivity of Wisconsin’s environment would be a net negative. The number of net positive projects being conducted in the state may be limited to conservation and restoration projects. Almost any other land disturbing activities could be considered net negative.

45. Wetlands are common in the Superior Coastal Plain and North Central Forest Ecological Landscapes. Within the North Central Forest Ecological Landscape, wetlands are embedded within extensive forest cover and adjoin lakes, rivers, and streams. Wetlands account for approximately 30 percent of the landscape in Ashland and Iron Counties. Due to the considerable abundance and mosaic distribution of wetland networks traversing the region and the linear nature of the Project, wetlands cannot be practicably avoided in the construction of the Project. Enbridge encountered several constraints as part of their route alternative evaluation process.

- a) Lack of connected existing corridors that could be followed along the eastern portion of the route; while several roads and other corridors are present in the area, none of them travel in the direction required by the Project.
- b) Avoiding impacts to communities, including residences, schools, churches, commercial buildings, and traffic.
- c) Modifications in the route, workspace, and pipeline crossing method intended to avoid or minimize impacts on a specific resource area may shift those impacts to other resource areas, increase the overall

length of the route, increase the amount of land disturbance, and/or increase the duration of construction within resources.

- d) Commercial pipeline construction typically favors a more linear design, limiting the distance and number of bends and curves.

46. Wetland functional values likely to be impacted by the Project include

- a) Storm and flood water storage and retention and the moderation of water level fluctuation extremes. Construction disturbance associated with the Project may temporarily limit the ability for wetlands to slow and store runoff from rain and melting snow. It may also temporarily compromise flood storage capacity. Improper wetland restoration or sedimentation would result in long-term impacts.
- b) Hydrologic functions, including the maintenance of dry season streamflow, the discharge of groundwater to a wetland, the recharge of groundwater from a wetland to another area and the flow of groundwater through a wetland. Construction disturbance associated with the Project may temporarily interfere with normal surface water – groundwater interactions and limit the ability for wetlands to store and release water to streams or recharge groundwater. It may also temporarily compromise groundwater flows. Improper wetland restoration or sedimentation would result in long-term impacts.
- c) Filtration or storage of sediments, nutrients, or toxic substances that would otherwise adversely impact the quality of other waters of the state. Construction disturbance associated with the Project may temporarily inhibit wetlands from retaining and filtering compounds associated with runoff and snowmelt. Improper wetland restoration or sedimentation would result in long-term impacts.
- d) Shoreline protection against erosion through the dissipation of wave energy and water velocity and anchoring of sediments. Construction disturbance associated with the Project may temporarily prevent riparian wetlands from maintaining stable streambanks. It may also temporarily increase sediment loading. Improper wetland restoration or sedimentation would result in long-term impacts.
- e) Habitat for aquatic organisms in the food web including, but not limited to fish, crustaceans, mollusks, insects, annelids, planktonic organisms and the plants and animals upon which these aquatic organisms feed and depend upon for their needs in all life stages. Construction disturbance from the Project may temporarily disrupt aquatic organism lifecycles and habitat. Improper wetland restoration or sedimentation would result in long-term impacts.
- f) Habitat for resident and transient wildlife species, including mammals, birds, reptiles and amphibians for breeding, resting, nesting, escape cover, travel corridors and food. Construction disturbance from the Project may temporarily disrupt the lifecycles of aquatic and terrestrial organisms and their habitat. Improper wetland restoration or sedimentation would result in long-term impacts.
- g) Recreational, cultural, educational, scientific, and natural scenic beauty values and uses. Construction disturbance from the Project may temporarily prevent public use and enjoyment of these resources. Improper wetland restoration or sedimentation would result in long-term impacts.

47. The Department has determined that the Project represents the least environmentally damaging practicable alternative taking into consideration practicable alternatives that avoid wetland impacts.

- a) RA-01 is approximately 9.7 miles shorter than the proposed Project and crosses approximately 13 fewer waterways, but crosses approximately 12.6 more acres of wetland, specifically 2.2 more acres of forested wetland. A portion of RA-01 would cross CFSP, including an area of the state park that is designated as ASNRI and SNA. RA-01A would cross approximately 13 fewer waterways and 15.3 more acres of wetland than the proposed Project, including 4.6 additional acres of forested wetland. RA-01B would cross approximately 8 fewer waterways and 27.9 more acres of wetland than the proposed Project, including 16.7 additional acres of forested wetland. In addition, the consideration of RA-01, RA-01A, and RA-01B does not include any access roads that could be utilized, therefore the amount of resource crossings for RA-01, RA-01A, and RA-01B could be underestimated. Routes RA-01, RA-01A, and RA-01B are more environmentally damaging than the proposed route.
 - b) RA-02 is approximately 16.9 miles longer than the proposed Project and does not cross the CFSP property. RA-02 crosses approximately 19 more waterways and 33.7 more acres of wetland, including 18.1 additional acres of forested wetland. RA-02 would result in approximately 207.6 additional acres of forest clearing. In addition, the consideration of RA-02 does not include any access roads that could be utilized for RA-02, therefore the amount of resource crossings for RA-02 could be underestimated. Route RA-02 is more environmentally damaging than the proposed route.
 - c) RA-03 is approximately 60.5 miles longer than the proposed Project but would be outside of the Bad River Watershed and crosses 21 additional perennial waterways. RA-03 crosses approximately 319.7 more acres of wetland, including 272.3 additional acres of forested wetland, and would cross the Island Lake Hemlocks SNA and the Namekagon River, a Wild and Scenic River. RA-03 would result in approximately 711.2 additional acres of forest clearing. This does not consider any access roads that could be utilized for RA-03, therefore the amount of resource crossings for RA-03 could be underestimated. Route RA-03 is more environmentally damaging than the proposed route. Routes longer than RA-03 are also likely to result in greater environmental impacts.
 - d) The No-Build alternative of continued operation of the existing Line 5 is not reasonably available and capable of being implemented, as Enbridge's easements within the Bad River Band of Lake Superior Chippewa Reservation have expired and the Band was not granted authorization to continue to site the line through the reservation.
 - e) The No-Build alternatives which would result in the discontinuation of the transport of oil and NGLs and decommissioning of Line 5, including construction of an all-Canadian pipeline or using existing Canadian pipelines to replace Line 5; switching to other existing pipelines to carry Line 5 products; transporting Line 5 products via rail cars, tanker trucks, or barges; or entirely replacing the Line 5 products with alternative energies or offsetting the demand for Line 5 products would not be consistent with the scope of the Project or its purpose of continuing to transport crude oil and NGLs through its Line 5 pipeline. There is no existing pipeline designed to transport crude oil and NGLs from Enbridge's Superior Terminal to existing delivery points served by Line 5. There is currently no rail system which connects Enbridge's Superior Terminal to existing delivery points and construction of a new rail line is impracticable on account of cost and logistics. Transportation by truck or barge would additionally be impracticable on account of cost and logistics.
48. The amount of permanent wetland fill has been minimized to the extent practicable, taking into consideration the factors for valve siting and placement. Each mainline valve requires a permanent access road for

operational, maintenance, and emergency access. Wetland impacts from access roads have been minimized to the extent practicable to maintain safe ingress/egress of operation equipment as well as emergency equipment (e.g., fire trucks).

49. The Department has determined that if all conditions of this WQC are complied with that all practicable measures to minimize adverse impacts to wetland functional values will be taken.
50. As part of the Project application review process, Department staff collaborated with technical experts representing several government and tribal agencies. Department staff engaged in hundreds of interactions with Enbridge's team regarding the Project application, its alternatives, route modifications, impact minimization options, and the potential impacts. As a result, modifications have been made in the construction footprint, construction techniques, and/or restoration measures to avoid or further minimize wetland impacts.
51. Storage of excavated material in wetlands without adequate visual or physical barriers may prevent complete restoration. Placing excavated soils on construction matting, a thin layer of weed-free straw, a similar biodegradable material, a layer of snow, or a layer of ice during open-cut trenching in wetlands, as required by the conditions of this permit, can facilitate restoration.
52. Excavation, drilling, blasting, stockpiling, pipeline installation, and backfilling can alter groundwater discharge through seeps and springs. Enbridge is conducting hydrology monitoring in select high quality wetlands with shallow bedrock and high groundwater and seeps. Enbridge is required by the conditions of this permit to characterize existing seeps and springs and restore those features to pre-existing conditions.
53. Enbridge proposes and is required by the conditions of this permit to minimize direct impacts of the construction by minimizing the amount of permanent wetland fill, utilizing existing access roads where practicable, reducing the width of the construction workspace in wetlands from 120 feet to 95 feet, utilizing construction matting in travel areas of the corridor, segregating topsoil and subsoil, limiting stump grubbing, grinding, and grading to the trench line, locating staging and additional spoil areas at least 50 feet from wetlands where practicable, limiting the duration of an open trench, maintaining hydrology through the utilization of trench breakers, restoring seeps and springs, and implementing site-specific sediment and erosion control measures as required for compliance with WPDES Construction Site Storm Water permitting.
54. Enbridge proposes and is required by the conditions of this permit to minimize continuing impacts to wetland functional values by restoring wetlands to their pre-existing wetland soil profiles, elevations, and hydrology post-construction. Enbridge is required by the conditions of this permit to install monitoring wells prior to construction to collect baseline hydrologic data for high quality wetlands, wetlands within shallow bedrock and high groundwater and seeps, and wetlands proposed for blasting to ensure restoration of appropriate wetland hydrology. The Restoration and Post-Construction Monitoring plan in the Environmental Construction Plan (ECP) also includes active supplemental planting in disturbed wetlands. PEM wetlands will be seeded to provide temporary cover and supplemental perennial native revegetation. PFO wetlands in the temporary workspace will be seeded to provide temporary cover and planted with a combination of rootstock of balsam fir, black spruce, red maple, swamp white oak, tamarack, white pine, or yellow birch. Trees will be planted at a density of 100-300 stems per acre.
55. Enbridge is required by the conditions of this permit to operate vehicles and equipment in wetlands on construction matting or during stable ground conditions where operation will not result in soil rutting, mixing,

or compaction; avoid placing excavated wetland soils directly on wetlands; minimize the width of the trench through wetlands to the extent practicable; plant supplemental bare root stocks in forested wetlands that are cleared for temporary workspaces; and conduct well monitoring at discrete locations along the trench line.

- 56. Enbridge is required by this permit to restore wetlands directly impacted by the Project to pre-existing elevations and hydrology; utilize a wetland seed mix that was developed in coordination with USEPA; perform post-construction monitoring, implement appropriate and effective BMPs in accordance with the Department’s Construction Storm Water Permit; and plant bare root stocks in forested wetlands that are cleared for temporary workspaces.
- 57. Construction disturbance associated with the Project will impact floristic composition and integrity of wetlands, including fragmentation of forested areas; reduction in the size, integrity, and diversity of plant communities; temporal loss in the return of pre-construction condition and functions; and an increased risk of introducing or spreading invasive species. Enbridge has proposed, and the conditions in this permit require, wetland restoration to minimize long-term impacts to wetlands that are temporarily impacted by the pipeline construction.
- 58. Enbridge proposes to mitigate impacts to wetlands through a Compensatory Wetland Mitigation Strategy dated September 2021, revised in May and October 2024. Compensatory mitigation is proposed for permanent wetland fill, conversion of scrub-shrub and forested wetlands to emergent wetlands, and for temporal loss of wetland functions.

Type	Temporary Fill	Conversion	Permanent Fill	Credits ¹
Emergent	28.14	0	0.02	2.84
Scrub-Shrub	6.31	3.86	0	2.43
Forested	32.76	30.06	0	29.87

¹ Credits for in service area and in kind (credits for in service area and out of kind would differ)

Mitigation would include the purchase of a minimum of 35.14 mitigation credits for the Project from approved wetland mitigation banks in the Lake Superior Wetland Mitigation Service Area. If in-kind credits are available, Enbridge is required by the conditions of this permit to purchase these credits first, which would constitute 2.84 credits for wet meadow impacts, 2.43 credits for scrub-shrub impacts, and 29.87 credits for forested impacts. Additional mitigation credits would need to be acquired if out-of-kind mitigation is utilized in the Lake Superior Bank Service Area (or from the Wisconsin Wetland Conservation Trust in-lieu fee program). The Department has considered wetland mitigation under Chapter 281.36(3n)(d), Wis. Stats., and Chapter NR 350, Wis. Adm. Code. The Department has consulted with the U.S. Army Corps of Engineers (USACE) on its review of a wetland compensation mitigation plan. The Department requires compensatory mitigation for wetland losses associated with the Project and has determined that the proposed mitigation would compensate for the wetland functional values lost due to permanent fill, conversion of wetland types, and temporal impacts from construction. Enbridge is required by the conditions of this permit to obtain and provide proof of appropriate compensatory mitigation credits prior to starting any land-disturbing activities, including clearing.

- 59. The Department has determined the Project, if constructed in accordance with this permit, will not result in significant adverse impacts to wetland functional values, including, wildlife habitat, flood protection, shoreline protection, groundwater recharge and discharge, and recreation. The Project will avoid, minimize, restore,

and mitigate wetland impacts. The restricted ROW width and temporary pipeline construction activities will diminish functional values in the temporary workspaces until the Project is complete and the wetlands are restored. PEM wetlands in the permanent ROW will be maintained and PSS and PFO wetlands in the temporary workspaces will be reestablished. Areas of temporary wetland excavation and fill will be restored, areas of temporary wetland conversion will naturally regenerate over time (supplemented with native bare root stock plantings), and wetland mitigation will be completed through the purchase of credits. Except for the habitat conversion associated with the permanently converted PSS and PFO, wetland functional value impacts are expected to be short in duration.

60. The Department has determined the Project, if conducted in accordance with the conditions of this permit, will not result in significant adverse impacts to water quality, including surface water and groundwater:

- a) Temperature – Stream temperatures are unlikely to increase greatly due to vegetation clearing and construction activities within waterways. Small, groundwater fed streams may experience localized thermal increases due to pipeline operation. These localized thermal increases may also occur where the pipeline is installed closer to the waterway bed (e.g., in areas of shallow bedrock).
- b) Dissolved Oxygen - Major shifts in dissolved oxygen concentration would be unlikely to occur due to pipeline operation temperature increases or due to pipeline construction; dissolved oxygen would likely be affected in currently forested streams as a result of additional sunlight reaching the water, which would stimulate some growth (and therefore respiration) by algae, but the magnitude of this dissolved oxygen change would be unlikely to be large.
- c) Conductivity – Stream conductivity may increase slightly during construction activities but is unlikely to cause biological impacts.
- d) Total Phosphorus – Erosion from pipeline construction activities could contribute phosphorus to waterways. Additionally, soil amendments (e.g., fertilizer) containing phosphorus applied to riparian areas could contribute to loading. These impacts from the Project are expected to be low and short term.
- e) Nitrates – Nitrate, a common nitrogen compound found in the environment, is lost from ecosystems in response to deforestation. The impact of those ecosystem nitrate losses on waterways are expected to be modest. Additionally, soil amendments (e.g., fertilizer) containing nitrogen applied to riparian areas could contribute to nitrate loading. Nitrates can also be introduced to the environment from bedrock blasting. Limiting the amount of ammonium nitrate fuel oil (ANFO) needed for blasting will minimize nitrate release impacts to water resources.
- f) BOD/COD – Neither biological oxygen demand nor chemical oxygen demand is expected to increase substantially due to the Project.
- g) PFAS – If PFAS are present in construction materials or equipment, there could be an increase in background levels after the Project. Standard construction equipment does not carry substantial loads of PFAS and would not likely contribute to PFAS loading in waterways.
- h) Sediment – Vegetation clearing and construction activities associated with the Project will expose soil and create opportunities for runoff and an increased sediment load in waterways. Implementation

and proper maintenance of sediment and erosion control measures will limit impacts to receiving waters. Measures to minimize soil exposure associated with long-term vegetation management in the permanent ROW and pipeline maintenance activities will prevent runoff and increased sediment load in waterways. In-stream activities can disturb existing sediments causing turbidity and water quality impacts. Minimizing the extent and timing of in-stream disruption, avoiding sensitive habitat and life cycle periods for aquatic organisms, and restoring pre-existing geomorphology will minimize long-term impacts. Enbridge is required by the conditions of this permit to conduct water quality monitoring in accordance with the ECP. Enbridge filed an application with the Department for a WPDES Permit for Construction Site Storm Water. The WPDES permit requires Enbridge to implement best management practices to control storm water runoff in accordance with site-specific erosion control and storm water management plans to reduce sediment and other pollutants from entering waters of the state.

- i) Water Flow – Unless the waterways are completely dry for the entire duration of the activity below the ordinary high water mark (OHWM), trenching in the waterways is required to be completed using a work zone isolation system or bypass system to isolate the in-water work zone. Isolating the in-water work zone would minimize turbidity impacts to water quality. Enbridge is also required by this permit to restore streambed elevation to pre-existing conditions. Enbridge is required by this permit to restore waterway banks to stable conditions to prevent post-construction erosion and turbidity.
- j) HDD releases – It is likely that the Project will experience an inadvertent release (IR) during one or more of the proposed trenchless installations. Most IRs occur near entry and exit workspaces and the severity will be reduced by following the requirements in DNR Technical Standard 1072. Continuous monitoring and immediate cessation and containment during an IR in water resources, followed by comprehensive restoration, will reduce the water quality impact. Drilling fluid ingredients are not expected to affect groundwater water quality. Enbridge is required by this permit to only use drilling mud and drilling mud additives that have been approved for use by the Department.

61. The Department has determined the Project, if conducted in accordance with the conditions of this permit, will comply with water quality standards and protect surface water resources for all designated uses.

- a) Unless the waterway is completely dry, trenching in waterways shall be completed using a work zone isolation system or bypass system, such as a dam and pump or dam and flume technique, to isolate the in-water work zone from the waterway. Temporary sediment and erosion control BMPs will be installed prior to beginning in-water work. Although in-water sediment concentrations (above background) may increase as a result of in-stream activities, those impacts are limited to the work zone and nearby downstream reach during construction. Those impacts can also be reduced by limiting the duration of the in-stream activities. BMPs will be inspected and maintained throughout construction and restoration activities and will be removed once final stabilization is achieved. In-water work conducted according to the conditions of this permit will not result in significant lowering of water quality of a waterway.
- b) Implementation and proper maintenance of sediment and erosion control measures as required by the conditions of this permit will reduce sediments and other pollutants from entering receiving waters. Measures to minimize soil exposure associated with long-term vegetation management in the permanent ROW and pipeline maintenance activities will prevent runoff and increased sediment load in surface water resources.

- c) The Project will not directly introduce effluent or new pollutants, including persistent, bioaccumulating toxic substances and pollutants listed in NR 102.12(12), Wis. Adm. Code, to surface water resources associated with construction or operation. In the event that the Project experiences an IR during one or more of the proposed trenchless installations, the severity will be reduced by following the requirements in DNR Technical Standard 1072 and the ECP. Drilling fluid ingredients are not expected to affect water quality.

62. The Department has determined that the proposed Project, if constructed in accordance with this permit, will not result in other significant adverse environmental consequences, including impacts to habitat, native species, recreation, and aesthetics:

- a) Although the Project will accommodate the continued extraction, transportation, and combustion of fossil fuels, the relocated infrastructure is expected to be a comparatively reliable and efficient method of energy transport that minimizes new environmental impacts. The Project will necessitate land clearing, pipeline construction, and ongoing ROW maintenance.
- b) The Department estimates the long-term probability of a spill occurring along the proposed Line 5 route to be low, .00317 spills of any size over 20 years. Safety protocols and operational standards have also greatly reduced the frequency of spills. Enbridge will construct 10 new mainline block valves as part of the project. In the event of a spill, the valve sites on either side of the spill would be turned off, limiting the amount of oil that would be released into the environment. Continuous monitoring and control of Line 5 is carried out by Enbridge personnel and systems housed in an existing Control Center that is staffed by pipeline operators 24 hours per day. Enbridge's Control Center would notify local emergency responders to respond to the site of a suspected spill and, depending on the location of a potential incident along the pipeline route, emergency response timing would typically be 60 minutes or less. Depending on location and response, a spill may present lower risk to certain sensitive receptors. Physical monitoring would also be conducted through line patrols, either by air or on foot, in accordance with federal requirements.
- c) Forest fragmentation is substantial within the Superior Coastal Plain, and the second-growth forest is broken up by agricultural lands and old fields in almost every part of the ecological landscape. Both historically and presently, this region of the state has been impacted by logging practices and forestry business practices. Within the North Central Forest, logging practices resulted in removal of forest cover, physical damages to banks and shoreline vegetation, and a decrease in water quality. Historically, the Superior Coast Plain was almost entirely forested; presently, approximately one-third of this ecological landscape is now non-forested or sparsely forested due to past and present agricultural, logging, and residential development activities. Due to past logging practices, there are now fewer older forests in the northern part of the state and most are now less than 100 years old. Notwithstanding these environmental impacts from past logging practices, the landscape has been regenerating. It is anticipated areas of temporary impact from the Project will regenerate over time, similar to the regeneration that has occurred since historic logging impacts.
- d) Approximately 0.066% of the wetlands in the Project watersheds would be affected, including 0.022% that would include permanent conversion. Areas of temporary wetland excavation and fill will be restored, areas of temporary wetland conversion will naturally regenerate over time, supplemental

bare root stock will be planted for enrichment, and wetland mitigation will be completed through the purchase of credits. The Project will avoid, minimize, restore, and mitigate wetland impacts.

- e) Permanent conversion of upland and wetland forests in the permanent ROW will impact ecosystem hydrology, decrease interior woodland habitat, biodiversity, connectivity, as well as expand invasive species opportunities. Restoration of upland and wetland forests in the temporary ROW will depend on a tailored plan that reflects the natural community characteristics. Proactively remedying anticipated declines in ash-dominated forests can offset the impacts from emerald ash borer. Supplementing natural regeneration with rootstock plantings from genotypes adapted to future climatic conditions, along with persistent monitoring and management will improve the likelihood of success in accordance with the conditions of this permit.
- f) Effects on wildlife during construction and operation could include disturbance from noise and human activities, displacement, stress, lower breeding success, direct mortality, and habitat alteration, loss, and fragmentation. Habitat-related disruptions would persist through construction until the temporary ROW is adequately restored while a subset of these disruptions would persist in the permanent ROW. Motile species will have more opportunities to avoid direct impacts than non-motile species, including flora, microflora, and microfauna. Although the Project will directly impact wildlife and their habitat, especially local populations, no state extirpations are expected.
- g) Vegetation clearing and construction activities associated with the Project will expose soil and create opportunities for runoff and an increased sediment load to water resources. Sedimentation can directly impact aquatic species, degrade water quality, and impair habitat. Sedimentation can also create opportunities for the introduction or establishment of invasive species. Implementation and proper maintenance of sediment and erosion control measures required by the conditions of this permit will reduce sediments and other pollutants from entering receiving waters. Measures to minimize soil exposure associated with long-term vegetation management in the permanent ROW and pipeline maintenance activities will prevent runoff and increased sediment load in waterways.

63. Approximately 200 navigable waterways are present within the Project area.

64. Approximately 30 navigable waterways will be crossed via trenchless methods (HDD or direct bore) and 70 navigable waterways will be crossed via open-cut trenching (dredging) in order to install the pipeline. Enbridge evaluated the suitability and impacts of crossing methods as part of its Pipeline Minimization Design. The Project will not cross Wild Rivers designated under s. 30.26, Wis. Stats, and ch. NR 302, Wis. Adm. Code.

65. The remaining 100 waterways will not be crossed by the pipeline installation directly, but will be located within the permanent ROW corridor, TWS, ATWS, access roads, pipeyards, and valve sites. These remaining 100 waterways may be crossed by temporary bridges, crossed by existing crossings (fords, bridges, culverts), or avoided during construction.

66. Approximately 61 navigable waterways will be crossed by temporary access roads. Enbridge will use existing crossings, modify existing crossing by adding temporary timber mats or gravel/rock, or place new temporary crossings.

67. Approximately 26 navigable waterways (7 perennial, 11 intermittent, 8 ephemeral) may require blasting to accommodate pipeline installation.

68. Construction activities will result in the installation of approximately 187 temporary clear span bridges (TCSBs) over navigable waterways. TCSBs facilitate equipment access but are expected to have less impact on water quality and stream flow than bridges with supports, culverts, or fords by eliminating direct disturbance in the stream or constricting flows. Based on field observations, all but two waterway crossings will be less than or equal to 35 feet wide. Of the 187 TCSBs, two will cross Tyler Forks (WBIC 2923100) near MP 33.43 and MP 34.04, where the waterway crossings are approximately 68-feet and 58-feet wide.
69. The Department determined 4 waterways (WDH-102_x1, WDH-102_x2, WDH-107_x1, WDH-107_x2) are non-navigable and therefore not within the Department's jurisdiction under Chapter 30, Wis. Stats.
70. Impacts to water quality and aquatic habitat from pipeline installation across waterways are minimized if the construction zone is isolated using a dam and pump or flume system or crossed via trenchless methods (boring). Adjacent to waterways, Enbridge is required by the conditions of this permit to maintain sediment control measures 20 feet from the stream prior to ground disturbing activities and to restore streambanks as near as practicable to preconstruction contours and elevations.
71. Pursuant to 30.12, Wis. Stats., the Department finds all of the following will be met by the placement of temporary structures on the bed of waterways, in the form of work zone isolation systems or flow bypass systems:
- a) The structure or deposit will not materially obstruct navigation. Temporal disruption will be limited. Enbridge is required by the conditions of this permit to have pipeline segments assembled and ready for installation prior to excavation. In-stream waterway construction activities from open-cut trenching (coffer dams, bypass system, trenching, pipeline installation, backfilling, and stream restoration) will be completed in approximately 24 hours for waterways less than or equal to 10 feet wide and 48 hours for waterways between 10-100 feet wide. By conditions of this permit, Enbridge is required to allow safe portage around restricted areas of the ROW within navigable waters to anyone legally navigating the waterway. Enbridge is also required to provide navigational warning signs for approximately 17 waterway crossings, as specified in the ECP and Permit Table 1.
 - b) The structure or deposits will not be detrimental to the public interest. Temporal disruption to navigation and public recreation will be limited. Isolating the work zone by installing coffer dams and a streamflow bypass system of flumes or pumps will accommodate anticipated flows. The timing of in stream work will be adjusted to avoid high flows that could overwhelm the bypass system. In-stream waterway construction is likely to result in short-term increases in sedimentation and turbidity. Isolating construction activities from the waterway as required by the conditions of this permit will minimize impacts to water quality, aquatic habitat, and anticipated flows. Pump intakes and discharges will limit impacts to fisheries, wildlife, and their habitat. Pump intakes or flume discharges will be placed and removed in a manner that prevents the disturbance, removal, and scour of bed material.
 - c) The structure or deposits will not materially reduce the flood flow capacity of a stream. Temporal disruption to navigation and public recreation will be limited. In-stream waterway construction activities will isolate the work zone by installing coffer dams and a streamflow bypass system of flumes or pumps that accommodate anticipated flows. The timing of in stream work will be adjusted to avoid high flows that could overwhelm the bypass system or impede run-of-river flows.

72. Pursuant to 30.12, Wis. Stats., the Department finds all of the following will be met by the placement of permanent structures on the bed of waterways:

- a) The structure or deposit will not materially obstruct navigation. Existing physical conditions document bank instability due to erosion, undercutting, and sloughing at seven locations. Permanent riprap, biologs, and root wads placed along the sloped bank and toe of bank are intended to provide long term bank stability and prevent future erosion and scour. The structures will not obstruct flows or the stream channel. Any navigational uses will not be constrained.
- b) The structure or deposits will not be detrimental to the public interest. Existing physical conditions document bank instability due to erosion, undercutting, and sloughing at seven locations. Permanent riprap, biologs, and root wads are engineered to provide long term bank stability and prevent future erosion and scour. Establishing stable banks immediately after construction of the Project as required by the conditions of this permit will limit impacts to water quality, public recreation, and habitat from excess sediment loading.
- c) The structure or deposits will not materially reduce the flood flow capacity of a stream. Permanent riprap, biologs, and root wads placed along the sloped bank and toe of bank are intended to provide long term bank stability and prevent future erosion and scour. The structures will not obstruct flows or create a barrier from the floodplain.

73. Pursuant to 30.123, Wis. Stats., the Department finds all of the following will be met by the placement of temporary bridges across waterways:

- a) The bridges will not materially obstruct navigation. The TCSBs are temporary and will be removed once access is no longer needed. TCSBs will span the waterway from bank to bank and will not require in-stream supports. As required by the conditions of this permit, Enbridge will allow safe portage around restricted areas of the ROW to anyone legally navigating public waterways.
- b) The bridges will not materially reduce the effective flood flow capacity of any streams. The TCSBs are temporary and will be removed once access is no longer needed. Bridges will not be installed during high water levels or flooding if the water level or flooding could overwhelm the TCSB crossing. TCSB installation and removal will not result in dredging the waterway. TCSBs will be anchored to prevent them from being transported downstream during high flow conditions.
- c) The bridges will not be detrimental to the public interest. Temporal disruption to navigation and recreation will be limited. Bridges installed for equipment access will span the waterway from bank to bank, will be placed perpendicular to the channel, and will not require instream supports. All TCSBs will be anchored to prevent them from becoming dislodged during high flows. Placement and removal of TCSBs will comply with timing restrictions approved by Department fisheries staff to avoid impacts to aquatic species movement. Use of TCSBs will minimize impacts to water quality, aquatic habitat, and anticipated flows. As required by the conditions of this permit, Enbridge will provide safe portage around restricted areas of the ROW to anyone legally navigating public waterways. Appropriate barriers, such as geotextile fabric and silt sock, are required by conditions of this permit and will be installed to prevent sediment and materials from entering the waterway during use of the TCSBs. The installation and removal of the TCSBs will be conducted in a manner that prevents sediment and debris from entering the waterway.

74. Pursuant to 30.20, Wis. Stats., the Department has determined the dredging of waterways is consistent with the public interest in navigable waters:
- a) If conducted in accordance with the conditions of this permit, dredging will not result in significant adverse impacts to the public rights and interests. Backfill material of the trench will consist of the originally removed bed material and the substrate features shall be returned to pre-construction conditions. If the stream bed in the crossing location has a unique substrate feature (i.e. cobbles, boulders, etc.), it will be returned to preconstruction conditions. Pools, riffles, and runs will be restored to pre-construction conditions. Banks will be restored to stable conditions. Downstream flow will be maintained in the waterway during all periods of open-trench construction. Dredging will comply with timing restrictions approved by Department fisheries staff to avoid impacts to aquatic species. Enbridge will provide safe portage around restricted areas of the ROW to anyone legally navigating public waterways.
 - b) If conducted in accordance with the conditions of this permit, dredging will not result in environmental pollution, as defined in s. 299.01 (4). Unless the waterway is completely dry (no standing water, no flowing water) for the entire duration of the activity below the OHWM, including accounting for rain events during construction, trenching in the waterway shall be completed using a work zone isolation system or bypass system, such as a dam and pump or dam and flume technique, to isolate the in-water work zone from the waterway. Temporary sediment and erosion control BMPs will be installed prior to beginning in-water work. Enbridge assessed sediment dispersion associated with stream crossing activities. Although in-water sediment concentrations (above background) increase as a result of in-stream activities, those impacts are limited to the work zone and nearby downstream reach during construction. Those impacts can also be reduced by limiting the duration of the in-stream activities. BMPs will be inspected and maintained throughout construction and restoration activities and will be removed once final stabilization is achieved.
75. To avoid disruption to fish species and their habitat, through conditions of this permit, the Department is limiting construction timeframes or methods during specific time periods listed in Permit Table 1.
76. Permit conditions require Independent Environmental Monitors (IEMs) who are approved by the Department to oversee activities related to its authority, document permit compliance, and streamline communication with Enbridge and its contractor.
77. The Project, if constructed in accordance with this permit and protection measures required and recommended by the Department's Office of Energy Endangered Resources Energy Liaison, will avoid and minimize impacts to endangered resources. Enbridge is required by this permit to use upland seed mixes that contain $\geq 99\%$ native species (use of *Lolium perenne* is acceptable). Most recommended actions will be followed by Enbridge using a native seed mix as part of restoration as well as completing tree clearing during winter months. For those state-listed endangered resources that cannot be avoided, an Individual Incidental Take Permit will be issued or a Broad Incidental Take Permit that has already been issued will ensure take of those species is minimized pursuant to Wisconsin's Endangered Species Law (29.604, Wis. Stats.).
78. The proposed Project, if constructed in accordance with this permit, will comply with s. 44.40, Wis. Stats. Sites within USACE jurisdiction are subject to Section 106 of the National Historic Preservation Act review under the authority of USACE.

CONCLUSIONS OF LAW

1. There is a reasonable assurance that, if conducted in accordance with the conditions of this certification, the proposed project will be conducted in a manner which will comply with the standards enumerated in s. NR 299.04, Wis. Adm. Code.
2. The Department has complied with the Wisconsin Environmental Policy Act, s. 1.11, Wis. Stats.

ORDER

IT IS THEREFORE ORDERED THAT the application of Enbridge Energy, LP, for water quality certification, Docket # IP-NO-2020-2-N00471, is hereby approved with conditions.

NOTICE OF APPEAL RIGHTS

Any person whose substantial interests may be affected by the Department’s determination may, within 30 days after publication of this notice in the newspaper, request a contested case hearing on the matter under Ch. 227, Wis. Stats. A request for a contested case hearing shall include a written statement giving specific reasons why the proposed activity violates the standards under s. NR 299.04(1)(b), Wis. Adm. Code, and provide specific information explaining why the petitioner’s interests are adversely affected by the Department’s determination. The request for a hearing shall also include a written statement specifying that the petitioner will appear and present information supporting petitioner’s objections in a contested case hearing.

If no written request for a hearing is filed with the Department within 30 days after publication of the notice in the newspaper, the Department’s determination will become final without a hearing at the end of the 30-day period.

Dated at Madison, WI on November 14, 2024

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By 
 Benjamin Callan
 Director, Waterways Program