



Application for a License to Cross Public Waters

Enbridge Energy, Limited Partnership • Line 3 Replacement Project

November 2020

ENBRIDGE®

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ACRONYMS AND ABBREVIATIONS

AMA	Aquatic Management Area
Application	revised Application for a License to Cross Public Waters
ATWS	additional temporary workspace
BMPs	best management practices
CFR	Code of Federal Regulations
CWA	Clean Water Act
Designated Route	Minnesota Public Utilities Commission Designated Route
DOC	depth of cover
DOC-EERA	Minnesota Department of Commerce, Energy Environmental Review and Analysis
EI	Environmental Inspector
EIS	Environmental Impact Statement
Enbridge	Enbridge Energy, Limited Partnership
EPP	Environmental Protection Plan
EQB	Minnesota Environmental Quality Board
FdL	Fond du Lac Band of Lake Superior Chippewa
FEIS	final Environmental Impact Statement
HDD	horizontal directional drill
IEM	Independent Environmental Monitor
INS	Invasive and Noxious Species
IVP	Intelligent Valve Placement
L3R or Project	Line 3 Replacement Project
May 2020 Order	May 1, 2020 MPUC-issued Order Finding Environmental Impact Statement Adequate, Granting Certificate of Need as Modified, and Granting Routing Permit as Modified
MDNR	Minnesota Department of Natural Resources
MP	milepost
MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utilities Commission
MPUC Application	Enbridge applications for a certificate of need and route permit
MPUC CN Order	September 5, 2018 MPUC-issued written order granting the certificate of need as modified and required filings
MPUC FEIS Order	May 1, 2018 MPUC-issued written order finding the revised FEIS adequate
MPUC RP Order	October 26, 2018 MPUC-issued written route permit order
MWR	Meander Width Ratio
NPCs	Native Plant Communities
NHIS	Natural Heritage Information System
NPDES	National Pollutant Discharge Elimination System
OHWL	ordinary high-water level
OHWM	ordinary high water mark
PCMP	Post-Construction Wetland and Waterbody Monitoring Plan
PHMSA	Pipeline and Hazardous Materials Safety Administration
Procedures	Summary of Construction Methods and Procedures
PWI	Public Water Inventory
RSA	Route Segment Alternative
SDS	State Disposal System
SOBS	Sites of Biodiversity Significance

SSCP	Site-Specific Crossing Plan
SSRP	Site-Specific Restoration Plan
SWPPP	Stormwater Pollution Prevention Plan
TOB	top-of-bank
TWS	temporary workspace
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VMP	Post-Construction Vegetation Management Plan for Public Lands and Waters

1.0 APPLICANT INFORMATION

Enbridge Energy, Limited Partnership ("Enbridge") submits this revised Application for a License to Cross Public Waters ("Application") to the Minnesota Department of Natural Resources ("MDNR") for the passage of utilities[1] under public waters[2] related to the construction and operation of the Line 3 Replacement Project ("L3R" or "Project"). This revised Application incorporates Project updates since the December 2019 submittal that are a result of Enbridge's ongoing coordination with federal, Tribal, and state regulatory agencies (including the MDNR) as well as landowners, other stakeholders, and comments received from the MDNR on application materials. Information on the Project applicant follows in this section.

Line 3 Replacement Project
Enbridge Energy, Limited Partnership
11 East Superior Street, Suite 125
Duluth, Minnesota 55802

Contact: Bobby Hahn
218-522-4751 (office)
Bobby.Hahn@enbridge.com

Barry Simonson
218-522-4825 (office)
Barry.Simonson@enbridge.com

Attachment A of this Application contains a table that lists each Minnesota public water crossed by or within the Project construction workspace. Each public water has been assigned a unique Project ID number based on its location from west-to-east across the state.

Attachment B contains construction and restoration plans that have been developed for each public water crossing following consultation with MDNR. Plans depict the corresponding extent of the construction workspace[3] that crosses the public water and associated construction and restoration details. Data gathered during field survey (e.g., wetlands, waterbodies, geomorphological and civil stream survey, and invasive and noxious weeds ["INS"]) are also depicted where relevant.

2.0 PROJECT BACKGROUND

The Project is a pipeline integrity- and maintenance-driven program designed to address identified mechanical integrity deficiencies on the existing Line 3 pipeline and to return the pipeline to the operating capabilities for which it was designed. L3R consists of approximately 355 miles of new 36-inch-diameter pipeline traversing the states of North Dakota, Minnesota, and Wisconsin, and terminating at the existing Enbridge Superior terminal facility near Superior, Wisconsin. This Application includes activities in public waters resulting from replacement of the existing 34-inch-

[1] Utilities means lines, cables, and conduits for telephone, telegraph, or electric power, and pipelines for gases, liquids, or solids in suspension, and any other such item covered by the licensing requirements of Minnesota Statues, section 84.415 (Minnesota Rules 6135.0200, Subp. 3)

[2] Public water or public waters means those waters of the state identified under Minnesota Statutes, section 103G.005, subdivision 15 or 15a, or 103G.201, as shown on the public water inventory maps.

[3] The terms "construction right-of-way," "temporary construction right-of-way," "construction workspace," and "temporary construction workspace" define the primary mainline workspace area required for installation of L3R. For clarity, Enbridge will generically use "construction workspace" instead of "temporary construction right-of-way, temporary construction workspace," or "construction right-of-way" as the terminology for 1) the operational right-of-way and 2) temporary construction area (which includes the following defined terms: Temporary Workspace and Additional Temporary Workspace. All construction equipment and vehicles will be confined to this approved construction workspace.

diameter Line 3 pipeline with 36-inch[4]-diameter pipeline and associated facilities in Minnesota. Enbridge's route generally follows the existing Line 3 pipeline along the Enbridge Mainline System right-of-way from the North Dakota/Minnesota border in Kittson County to the Clearbrook Terminal in Clearwater County. Next, L3R turns south from Clearbrook to generally follow an existing third-party crude oil pipeline right-of-way to Hubbard County. The route then turns east to generally follow other existing electric transmission lines until it rejoins the Enbridge Mainline System right-of-way in St. Louis County, through the Fond du Lac Band of Lake Superior Chippewa ("FdL") Reservation to the Minnesota/Wisconsin border in Carlton County (see Figure 2.0-1).

2.1 ENVIRONMENTAL REVIEW

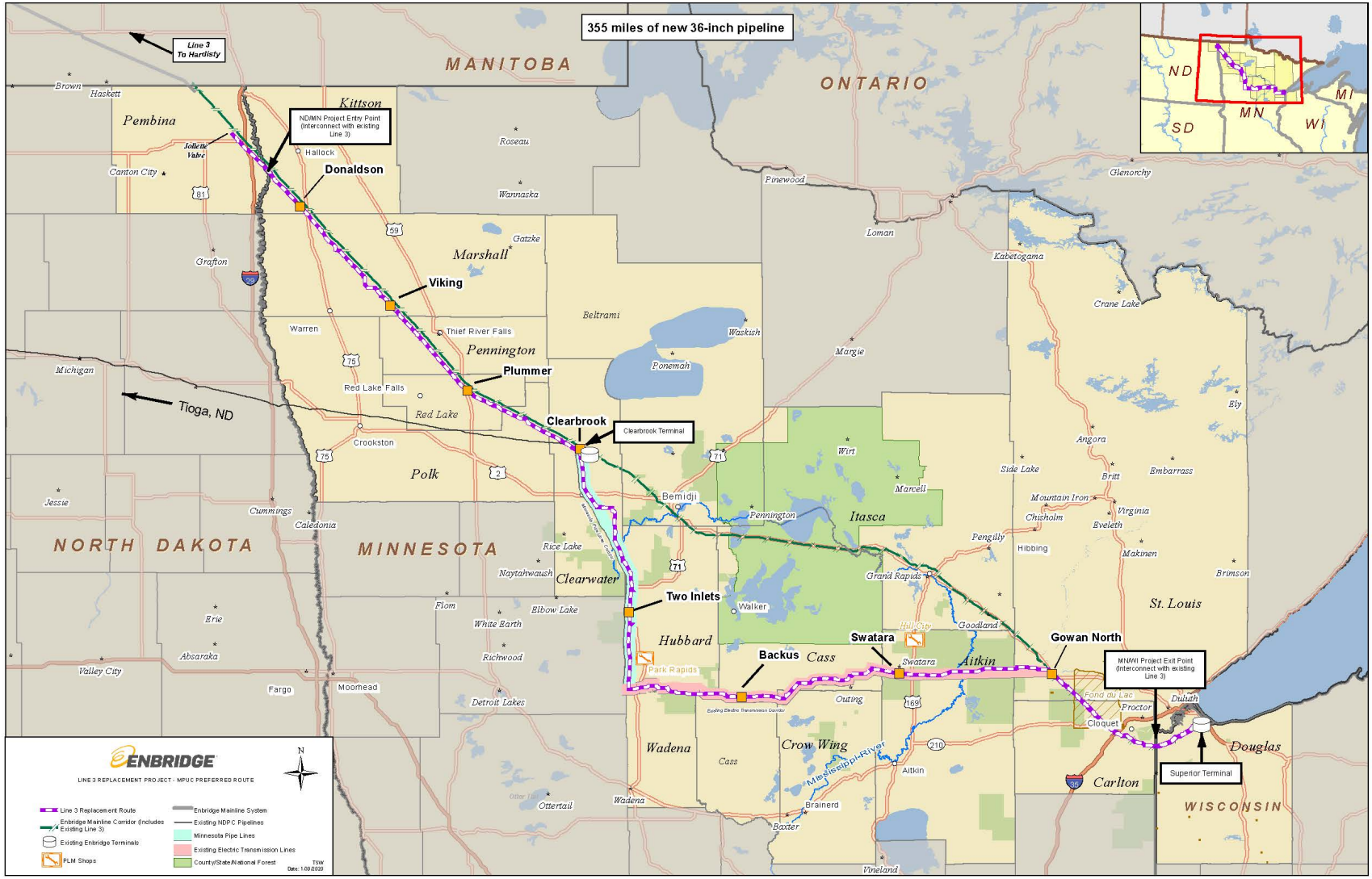
In accordance with Minnesota Rules Chapter 4410, the Minnesota Department of Commerce, Energy Environmental Review and Analysis ("DOC-EERA") staff prepared an Environmental Impact Statement ("EIS") in cooperation with the MDNR and Minnesota Pollution Control Agency ("MPCA") to facilitate the Minnesota Public Utilities Commission's ("MPUC") consideration of Enbridge's Certificate of Need and Route Permit Applications for the Project. DOC-EERA issued the draft EIS on May 15, 2017 and the final EIS ("FEIS") on August 17, 2017. On December 7, 2017, the MPUC deemed the FEIS inadequate solely on the basis of four specific and narrow issues, and a revised FEIS was published on February 12, 2018. On May 1, 2018, the MPUC issued a written order finding the revised FEIS adequate ("MPUC FEIS Order").

The MPUC issued a written order on September 5, 2018, granting the Certificate of Need as modified and requiring filings ("MPUC CN Order"). On October 26, 2018, the MPUC issued a written Route Permit order ("MPUC RP Order") identifying the Project's Designated Route. The Designated Route is a 750-foot wide corridor, which allows for minor adjustments to the pipeline alignment and operational right-of-way within the Project.

On June 3, 2019, the Minnesota Court of Appeals reversed the MPUC FEIS Order upon determining the failure to address the potential impacts of an oil spill into the Lake Superior Watershed constituted an inadequacy in the FEIS. On October 8, 2019, MPUC issued a written order finding the FEIS inadequate because it did not sufficiently address the potential impact of an oil spill into the Lake Superior Watershed. The order requested DOC-EERA to revise the FEIS to include an analysis of the potential impact of an oil spill into the Lake Superior Watershed and to submit the revised FEIS to the MPUC within 60 days.

[4] 36-inch-diameter steel pipeline is a more standard pipeline than 34-inch in the industry and among the Enbridge Mainline System. The decision to replace with 36-inch-diameter pipeline makes pipe, pipefitting, valves, and maintenance equipment more readily available. A 36-inch pipeline is more energy efficient than a 34-inch pipeline.

Figure 2.0-1 General Project Location Map



On December 9, 2019, the DOC-EERA issued the second revised FEIS. Notice of availability of the second revised FEIS and the procedures for written comments were also published in the December 9, 2019 Minnesota Environmental Quality Board ("EQB") Monitor. The MPUC accepted written and oral comments on the second revised FEIS through January 31, 2020. The MPUC met to discuss the adequacy of the second revised FEIS on February 3, 2020, found it adequate, and reaffirmed its previous MPUC CN Order and MPUC RP Order with a minor change related to the public safety escrow condition within the Route Permit. The MPUC's written orders were issued on May 1, 2020.

3.0 PROJECT COMPONENTS AND ASSOCIATED CONSTRUCTION ACTIVITIES

Enbridge plans to commence construction of the new pipeline and associated facilities as soon as all construction related regulatory approvals have been obtained.

3.1 GENERAL CONSTRUCTION PLANS

Enbridge has developed an Environmental Protection Plan ("EPP") (Attachment C) that contains elements of industry and company-wide best management practices ("BMPs") that will be implemented during construction, such as erosion and sediment control measures, construction spill prevention, containment, and control measures; measures to prevent and contain inadvertent drilling fluid releases; INS management; and restoration/revegetation measures. Enbridge will implement standardized construction and restoration measures across the Project to avoid and minimize potentially adverse effects to public waters resulting from construction workspace preparation, construction activities, and maintenance of the pipeline. The EPP contains additional requirements for construction activities on lands administered by the MDNR which are underlined for efficient identification by pipeline construction staff.

Appendix A of the EPP contains Enbridge's Summary of Construction Methods and Procedures document ("Procedures"), which provides a more complete description of the construction techniques that are outlined in Enbridge's EPP. It describes the various construction methods Enbridge will utilize to construct through public waters and the decision-making process that occurs during design and in the field when identifying the appropriate crossing technique.

Appendix B of the EPP contains Enbridge's INS Management Plan which describes the BMPs that will be utilized to manage aquatic and terrestrial INS, and tree pests/diseases. Enbridge's INS Management Plan describes the strategies that will be used to minimize the spread of target terrestrial INS species identified within the Project construction workspace, access roads and improved haul routes that occur on public lands.

Enbridge is proposing winter construction at select public waters (see Section 3.5). Enbridge will follow the procedures and construction techniques outlined in its Winter Construction Plan (see Attachment D) that differ or are additive to those described in the EPP.

Enbridge has developed a Post-Construction Vegetation Management Plan for Public Lands and Waters ("VMP") (Attachment E) that describes the post-construction monitoring for uplands on public lands, and operation-related vegetation management procedures on public land and at public waters. Appendix A of the VMP includes the Planting Plan, which describes the seed mixes to be used on public lands and waters and a map set identifying which seed mixes will be applied at public land crossings. Enbridge will also conduct post-construction monitoring at wetland and

waterbody features in accordance with the Post-Construction Wetland and Waterbody Monitoring Plan ("PCMP;" Attachment F). The VMP and PCMP are further discussed in Section 6.10.

3.2 PIPELINE

Pipeline construction will typically follow the sequential process presented in Section 2.6 of the Procedures (Appendix A of Attachment C). The pipeline will typically be installed in uplands using the trenching techniques described in Sections 1.8 through 1.21 of the EPP; in wetlands using the procedures described in Section 3.0 of the EPP and Section 3.0 of the Procedures; and across waterbodies using the methods described in Section 2.0 of the EPP and in Section 4.0 of the Procedures.

The Project will require the acquisition of new temporary workspace ("TWS")[5] and operational right-of-way[6] in Minnesota. The Project will also require additional temporary workspace ("ATWS").[7]

3.2.1 Temporary and Operational Rights-of-Way

Section 2.3 and Table 2.3-1 of the Procedures present the typical construction workspace and operational right-of-way dimensions that will be used for pipeline construction and operation in Minnesota. Construction in upland[8] areas will generally require a 120-foot-wide construction workspace. Enbridge will generally use a 95-foot-wide construction workspace in field-delineated wetland areas. Vegetation clearing at waterbody crossings is depicted in Figures 4.1-1 and 4.5-1 of the Procedures in Appendix A of Attachment C. The boundaries of the construction workspace will be flagged prior to clearing as outlined in Section 1.1 of the EPP (see Attachment C). The construction workspace will allow for temporary storage of topsoil and trench spoil, as well as accommodate safe operation of construction equipment and a travel lane. Temporary equipment bridges may be installed within the travel lane at waterbody crossings (see additional discussion in Section 6.4 of this Application).

A standard 50-foot-wide operational right-of-way in both uplands and wetlands is assumed for calculating impacts, which will be wholly contained within the 120-foot-wide and 95-foot-wide construction rights-of-way. Figure 5 of the EPP presents the temporary construction workspace and operational right-of-way configurations in both upland, wetland, and when co-located[9] with existing Enbridge or third-party pipelines or utilities, and in greenfield[10] locations. Overall, L3R will be co-located with other Enbridge pipelines; third-party pipelines or utilities; or roads, railroads, or highways for approximately 91 percent of the route. Where co-located with Enbridge's existing pipelines, Enbridge will use approximately 40 feet of existing operational right-of-way as temporary workspace that will revert back to operational right-of-way after construction (see

5 TWS is land located adjacent to and contiguous with the proposed right-of-way.

6 The operational right-of-way is the legally acquired land rights used to install, maintain, operate, and access L3R.

7 ATWS is temporary construction workspace needed when encountering environmental features that require special construction methods.

8 Uplands are defined as an elevated region of land lying above the level where water flows or collects in basins.

9 Co-located is any portion of the route that is within 250-feet from the centerline of a known utility.

10 The term "greenfield" refers to land that has not previously been used for another pipeline, utility, road, or railroad right-of-way. For the purposes of this document, the term greenfield is applied to land that is more than 250 feet away from an existing parallel pipeline, utility, road, or railroad right-of-way.

Figure 5 of the EPP). The offset distance between L3R and the existing third-party pipeline or utility will vary, as presented on Figure 5 of the EPP.

A more detailed description of Enbridge's plans for construction across wetlands and waterbodies can be found in Sections 3.0 and 4.0 of the Procedures (see Appendix A of Attachment C).

3.2.2 Additional Temporary Workspace

ATWS will be required outside of the construction workspace to facilitate specific aspects of construction. ATWS are planned in areas needed to stage equipment and materials, hold spoil material, and where construction methods will require additional workspace. There are no ATWS located within the ordinary high-water level ("OHWL") of public waters presented in this Application. Additional information regarding ATWS is presented in Section 2.5 of the Procedures (see Appendix A of Attachment C).

3.3 RIGHT-OF-WAY ACCESS

Enbridge will utilize haul routes,[11] access roads,[12] or shoo-flies[13] to obtain access to the construction workspace. Right-of-way access is presented in more detail in Section 1.4 of the EPP and Section 2.1 of the Procedures (see Appendix A of Attachment C).

Roads on public lands, including permanent roads to valves, will be permitted through the MDNR's Lease process. Enbridge has submitted Lease applications to authorize the use of short-term and long-term access roads under MDNR jurisdiction.

Enbridge has reviewed all temporary access roads that cross public water watercourses and basins and has determined that in most cases improvements will not occur within the public water boundaries; therefore, no additional public waters permitting will be required. Table 3.3-1 identifies the access roads that will cross public watercourses/basins and the extent of the modifications that will be required, and if additional permitting is needed. A number of haul routes also cross public waters; however, these are existing public roads that will not be improved.

Table 3.3-1
Public Waters Crossed by Access Roads on the Line 3 Replacement Project

Approximate Milepost	Access Road ID	Public Waterbody Name (Kittle Number when Assigned)	County	Description of Modification / Improvements [a]
904.0	AR1055	Lost River (H-026-030-019-007)	Clearwater	Existing gravel road – no impacts to public waters
925.4	AR306	Unnamed Creek (H-026-030-019-029-001)	Clearwater	Existing two-track – no impacts to public waters - beaver dam proposed for manual removal
1041.3	AR711	Spring Brook (M-106-004-002-001)	Cass	Existing paved and gravel road – no impacts to public waters
1048.0	AR704	Unnamed Stream (M-117-012	Cass	Existing gravel road – no impacts to public waters

[11] Existing public roads will typically be used as haul routes, which are used to deliver equipment and materials to the workspace during construction.

[12] An access road is a road used to access the pipeline construction workspace, operational right-of-way, or associated facility. Access roads can be public roads or private drives and can be existing, modified, or newly constructed.

[13] A shoo-fly is a short detour off the main access road or construction workspace used to avoid impacts to sensitive features, such as existing trails or wetland features.

Approximate Milepost	Access Road ID	Public Waterbody Name (Kittle Number when Assigned)	County	Description of Modification / Improvements [a]
1056.0	AR624	Unnamed Stream(M-117-012)	Aitkin	Existing Soo Line Trail – no impacts to public waters
1066.3	AR708	Willow River (M-117)	Aitkin	Existing bridge over river – no impacts to public waters
1066.3	AR541	Willow River (M-117)	Aitkin	A new access road and permanent bridge to a valve site. Enbridge has filed a Work in Public Waters Application for the public water crossing
1071.1	AR546	Unnamed Stream (M-122-001)	Aitkin	Existing road – beaver dam proposed for manual removal
1076.8	AR556	Cornish Flowage	Aitkin	Hedbom State Forest Road – no impacts to public waters
1077.0	AR556	West Savanna River (M-120-005-001)	Aitkin	Hedbom State Forest Road – no impacts to public waters
1102.7	AR703	Unnamed Stream (S-002-017-006	St. Louis	Maintained, unpaved road – no impacts to public waters

[a] The level of improvement needed is dependent upon conditions at the time of construction.

3.4 ASSOCIATED FACILITIES

Enbridge will construct a number of associated facilities to support pipeline operations. The following associated facilities will have no impacts to public waters:

- Clearbrook Terminal expansion;
- Pump stations (see Section 2.8.1 of Appendix A of Attachment C);
- Corrosion protection (see Section 2.8.3 of Appendix A of Attachment C);
- Construction yards (see Section 2.2 of Appendix A of Attachment C); and
- Pipeline maintenance shops (see Section 2.8.4 of Appendix A of Attachment C).

Enbridge will place mainline valves along the pipeline.[14] A valve is a remotely controlled shutoff mechanism that will be used to isolate a segment of pipeline for maintenance purposes or in the rare case of a release. Enbridge will also construct and maintain a permanent access road to each valve site. Valve construction is presented in more detail in Section 2.8.2 of Appendix A of Attachment C. Enbridge has not placed valves within public waters.

Enbridge completed an Intelligent Valve Placement ("IVP") analysis as part of the Project design to determine optimal valve locations. Based on the IVP analysis and current design, 32 mainline valves will be installed in Minnesota. Valves will be installed near major rivers, other environmentally sensitive areas, population centers, and pump stations. Enbridge also considered the topography and elevation profiles near these features when determining valve placement. These valves will protect the public waters presented in this Application.

[14] Pipeline safety, including valve placement requirements, is regulated by the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA") under Title 49 Code of Federal Regulations ("CFR") Parts 100-199. Specifically, 49 CFR Part 195 prescribes safety standards and reporting requirements for hazardous liquid transportation pipeline facilities and 49 CFR Part 195.260 presents the minimum standards for valve installations. Enbridge consulted with PHMSA on the preliminary design of the Project and will comply with these and all other required federal safety regulations.

3.5 WINTER CONSTRUCTION

The MDNR has identified six public water crossings where winter construction is preferred. None of these crossings are located on lands subject to a MDNR Utility License to Cross Public Lands. Enbridge committed to completing these crossings in winter to the extent feasible and has prioritized these areas within its winter work program (see Attachment A):

- Water ID No. 41: milepost ("MP") 1000.5, Big Swamp Creek
- Water ID No. 50, MP 1053.4, Unnamed Stream
- Water ID No. 51, MP 1056.6, Moose Lake Public Water Basin/Tributary to Moose Lake
- Water ID No. 54, MP 1070.9, Unnamed Stream
- Water ID No. 55, MP 1075.5, Unnamed Stream
- Water ID No. 56, MP 1076.9, West Savanna River

The feasibility of winter/frozen construction will be dependent on the construction start date. If Enbridge begins construction at a date which does not allow construction of the public waters identified above, Enbridge will provide MDNR with an updated winter/frozen construction proposal that maximizes the extent of winter/frozen construction that can be completed given the revised construction schedule.

Regardless of construction start date, not all construction activities can be completed during winter within these areas. When a full winter season is available, clearing, construction mat installation, and pipe installation will be completed to the extent possible, weather permitting. However, the areas constructed in winter will also need to be revisited following spring thaw to complete activities such as final grading, seedbank preparation and permanent seeding. Final grading may be required, as winter construction areas may have a crown remaining along the trench line and minor elevation differences after frozen soil thaws. This means that construction mats and some temporary bridges will be left in until final restoration is complete to avoid additional disturbance associated with installing and removing the mats in winter, and then re-installing and removing following spring thaw. Enbridge will conduct winter construction as outlined in its Winter Construction Plan (Attachment D).

Enbridge will monitor these areas following construction as described in the PCMP (see Section 6.10). For those areas that are not constructed during winter conditions, an additional Independent Environmental Monitor ("IEM") will be dedicated to the spread and an additional MDNR staff monitor will be required as described further in Section 7.0. Finally, the Utility License will include a requirement that Enbridge post financial assurance that MDNR could access if Enbridge is unable to meet site restoration requirements.

4.0 OPERATIONS ACTIVITIES

Enbridge will maintain the Project's permanent right-of-way for the life of the Project and will comply with the terms and conditions of the License to Cross Public Waters. In scenarios where there may be overlap of easements between Enbridge and a foreign utility, Enbridge will be responsible for maintaining the entirety of its easement, including any overlap.

As discussed in Section 3.2.1, Enbridge will generally maintain a 50-foot operational right-of-way centered over the pipeline following restoration. At trenched waterbodies, Enbridge will maintain a 10-foot-wide corridor centered on the pipeline free of woody shrubs, and a 30-foot-wide corridor

free of trees within the riparian area of the waterbody crossing to maintain the integrity of the pipeline. At horizontal directional drill ("HDD") crossings, Enbridge will maintain a 30-foot-wide corridor centered on the pipeline free of all woody vegetation to maintain the integrity of the pipeline and to facilitate aerial inspection. This clearing is depicted in Figures 4.1-1 and 4.5-1 of the of the Procedures (see Appendix A of Attachment C).

Section 2.0 of Enbridge's VMP addresses operational management of vegetation on public lands and at waters (see Attachment E). Enbridge will maintain the operational right-of-way by removing woody shrubs and trimming branches overhanging the right-of-way approximately every 5 years to preserve pipeline integrity and to facilitate inspection of the pipeline. Title 49 CFR 195.412(a) states that "each operator shall, at intervals not exceeding 3 weeks, but at least 26 times each calendar year, inspect the surface conditions on or adjacent to each pipeline right-of-way. Methods of inspection include walking, driving, flying or other appropriate means of traversing the right-of-way." Enbridge's preferred method to perform these required inspections is flying. To perform these inspections aerially, the right-of-way needs to be adequately cleared to be able to identify abnormal surface conditions. Other maintenance activities (e.g., maintenance digs) may occur as necessary over the life of the pipeline. Routine vegetation maintenance along the operational right-of-way may include mowing, grubbing, and treatment/mitigation of undesirable species once identified, including herbicide treatment as approved by the appropriate agencies.

Within 1 year prior to the initiation of maintenance or repair activities associated with public waters on public lands, Enbridge Operations staff managing the maintenance or repair efforts will check the Natural Heritage Information System ("NHIS") Rare Features Data for new records of state-listed endangered and threatened species. If any are identified, Enbridge will contact the MDNR Endangered Species Review Coordinator before proceeding with activities.

5.0 DEACTIVATION

5.1 PERMANENT DEACTIVATION OF EXISTING LINE 3

PHMSA regulations consider a pipeline that is permanently removed from service as "abandoned."[15] PHMSA regulations prescribe certain steps for formal abandonment of pipelines.[16]

Enbridge has an existing Utility Crossing License from the MDNR for the operation of the existing Line 3. Enbridge will consult with the MDNR and apply for the appropriate permit(s) to conduct activities prior to commencing permanent deactivation of existing Line 3, as needed.

5.2 PERMANENT DEACTIVATION OF L3R

At such a time that the permanent deactivation of the proposed L3R is necessary, Enbridge will work with the appropriate agencies to determine expectations for deactivation across agency-administered lands. Enbridge will consult with the appropriate agencies and apply for the appropriate permit(s) to conduct these activities prior to commencing permanent deactivation of L3R.

[15] Operations & Maintenance Enforcement Guidance, 49 CFR Part 195, Subpart F.

[16] 49 CFR 192.3, 195.2.

6.0 PROJECT ACTIVITIES AT PUBLIC WATER CROSSINGS

This Application addresses the Project's impacts on 66 public water crossings,[17] including the following:

- 61 natural watercourse and altered natural watercourse crossings;[18]
    - 5 of these watercourse crossings are MDNR-designated trout streams;[19]
    - 3 of these watercourse crossings are public waters that are not MDNR-designated trout streams where Enbridge will follow trout-stream timing restrictions; and
- 5 water basin crossings.[20]

Attachment A of this Application contains a table that lists each public water crossed by or within the Project construction right-of-way. Each public water crossing has been assigned a unique Project ID number based on its location from west-to-east across the state. Attachment A also presents the width and length of the public water crossing under the jurisdiction of the MDNR (to the OHWL). The crossing length is based on the distance between surveyed top-of-bank ("TOB" for watercourses and wetland survey boundary for basins[21]). Attachment A also presents:

- Applicable work-exclusion dates for public water fisheries that require in-channel work.[22]
- Enbridge's proposed crossing method for each feature and an alternate method, if applicable. In all cases, Enbridge will install the pipeline "under" public waters, or below-ground, as opposed to "over," or aboveground. Low-impact crossing types (i.e., the HDD or bore method) are presented in Attachment A, when applicable.
- Enbridge's proposed temporary bridge types (clear span or in-stream support).
- Depth of cover commitments, including extent of the depth of cover (see Section 6.3).

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[17] Enbridge's November 2018 application ("Revision 1") presented 67 public water crossings. On November 21, 2019, MDNR advised Enbridge that crossing Nos. 43, 61, 62, 64, and 66 could be removed from the application, as they are not public waters defined in Minnesota Statutes, section 103G.005, subdivision 15 or 15a, and shown on the PWI maps (Minnesota Statutes, section 103G.201). Enbridge has included crossings where the Project crosses a public water across a meander, thus resulting in two crossings in the same vicinity. See Attachment A, ID Nos. 4a/4b, 5a/5b, 18a/18b, and 63a/63b. Crossings at 5 public water wetlands on private lands have not been included in this application and are included in Enbridge's application for a Work in Public Waters permit (MPARS 2018-3419).

[18] Minnesota Statutes, section 103G.005, subd. 13 (definition of "natural watercourse") and 103G.005, subd. 3 (definition of "altered natural watercourse").

[19] See Minnesota Rules 6264.0050, subp. 4.

[20] Minnesota Statutes, section 103G.005, subd. 16 (definition of "water basin").

[21] Minnesota Statutes 103G.005, subd. 14 defines the OHWL: "the boundary of water basins, watercourses, public waters, and public waters wetlands, and (1) the ordinary high-water level is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial; (2) for watercourses, the ordinary high-water level is the elevation of the top of the bank of the channel…" Enbridge completed additional waterbody field survey in 2020, updating the crossing length for many features.

[22] In-channel work that results in the alteration of the course, current, or cross-section of the public water; this restriction does not apply to or trenchless crossings (i.e. HDD or bore) or water appropriation activities.

- Additional comments that describe any unique features associated with the public water (e.g., winter construction commitment, canoe routes, beaver dams, Native Plant Communities ["NPCs"], Sites of Biodiversity Significance ["SOBS"], or applicable NHIS-related mitigation measures).

- Identification of associated crossing plans and restoration approaches as discussed further below.

Attachment B contains a compiled set of construction and restoration plans presented by public water crossing and includes an index of the type of plans prepared for each crossing. Generally, the plans fall into one of six categories:

Construction Plans:

- HDD Plans for 21 public water crossings using the HDD method, which include results of Enbridge's geotechnical investigations to support the crossing method.

- HDD Bridge Plans for 3 public water crossings where an engineered span bridge will be used.

- Site-specific Crossing Plan ("SSCPs") for 54 public water crossings, including the 21 HDD crossings. These SSCPs were developed using Rosgen geomorphic stream surveys when available, streambed and bank profile field data gathered in 2020, and the locations of the thalweg, pools, riffles, and meanders. The SSCPs show construction-related information for each crossing, including but not limited to the proposed crossing method, depth of cover, and bridge type.

- Crossing Plans for the 12 remaining public water crossings, which include field collected wetland and waterbody survey data.

Restoration Plans:

- Site-Specific Restoration Plans ("SSRPs") for 31 public water crossings, which include site-specific restoration techniques for the construction workspace as it crosses public waters, including restoration of the pipeline trench, bridge setting, and adjacent areas within the construction workspace.

- Restoration typical drawings for the 35 remaining public water crossings.

Enbridge has prepared detailed construction and restoration plans for the LaSalle Creek (Water ID No. 29) and Spring Brook (Water ID No. 48) crossings in coordination with the MDNR (and the MPCA and U.S. Army Corps of Engineers ("USACE") for LaSalle Creek). These plans are also included in Attachment B.

As described in Section 1.2 of the EPP, Enbridge will prepare detailed alignment sheets of the L3R construction workspace prior to construction. The alignment sheets will depict the plan and profile of the construction workspace, tract (property) boundaries, and environmental features such as wetlands, waterbodies, and buffer zones for sensitive features. Notations will be included in the alignment sheets to direct the personnel to the appropriate environmental plans/or permit

conditions that stipulate the activities, restrictions, and/or BMPs to be employed at each environmental feature.

For purposes of MDNR's License to Cross Public Waters for the Project, Enbridge is requesting TWS across public waters in accordance with the proposed dimensions presented in Attachments A and B. Enbridge is also requesting an operational right-of-way of up to 50 feet centered on the pipeline as it crosses the boundaries of public waters. TWS dimensions and locations associated with public water crossings can be reviewed using the maps provided in Attachment B.

6.1 WATERBODY CROSSING METHODS

Enbridge's Procedures (see Section 4.0 of Appendix A of Attachment C) outline the various construction methods that Enbridge may utilize to construct through waterbodies on the Project. Table 4.0-1 of the Procedures describes the waterbody crossing methods and site-specific characteristics that are most suitable for these different construction methods. The discussion of each method includes a description of the construction procedures; conditions required to employ the method (applicability of the method, and equipment needs); the extent of vegetation clearing necessary to accomplish the crossing; and environmental and/or constructability advantages and disadvantages associated with the method.

Section 2.0 of the EPP (Attachment C) describe the BMPs that Enbridge will implement to avoid or reduce impacts associated with pipeline installation at waterbodies. Enbridge has identified primary and alternate crossing methods for all public watercourse crossings and has presented those methods in Attachment A. The workspace needed to accomplish the primary method is presented on the crossing plans for each feature in Attachment B. Note that Enbridge has not presented an alternate crossing method for proposed HDD crossings. If the primary drill path fails during the crossing, Enbridge will consider an alternate drill path before abandoning use of the HDD method for an alternative, non-HDD crossing method. Unforeseen conditions which impact waterbody crossing methods are presented in Section 4.6 of the Procedures. In the case of an unforeseen condition that makes the primary crossing method not practicable, Enbridge will proceed with an alternate crossing method after obtaining agency approval as outlined in Section 6.0 of Enbridge's Environmental Control Monitor Plan.

Sixty public waters will be crossed using waterbody crossing methods (see Table 6.1-1). The following methods are proposed as primary or alternate methods for the public waters crossed using waterbody crossing methods:

- Open Trench:
  - Open Cut (Non-Isolated) Method
  - Open Cut Push-Pull Method
  - Dry (Isolated) Method: Dam and Pump
  - Dry (Isolated) Method: Flume
  - Modified Dry Crossing Method
- Trenchless:
  - Bore Method (non-pressurized)
  - HDD Method (pressurized)

Table 6.1-1
Waterbody Crossing Primary Method Summary for the Line 3 Replacement Project

Construction Method	Number of Proposed Public Water Crossings
Waterbody/Watercourse	
Trench: Dry (Isolated) Method	29
Trench: Modified Dry Crossing	8
Trenchless: Bore Method	2
Trenchless: HDD Method	21
Total	**60**

Descriptions of each waterbody crossing method are included in Sections 6.1.1 through 6.1.6. BMPs for waterbody crossings are presented in Section 6.1.7.

6.1.1 Trench: Open Cut (Non-Isolated) Method

There are no public watercourse crossings where Enbridge is proposing to use the open cut (non-isolated) method as the primary method, but it is presented as the alternate method at 25 waterbodies.

The open cut (non-isolated) method is described in Section 4.1 of Appendix A of Attachment C, and Section 2.5.1 and Figure 24 of the EPP (Attachment C). Open cut crossings are typically completed within 24 to 48 hours depending on the size of the watercourse, as described in Section 2.1 of the EPP (Attachment C). Open cut crossing methods typically involve trenching through the waterbody while it is dry or frozen to the bottom (no perceptible flow) and direct excavation of the trench through the banks and bed of the watercourse can proceed similar to upland construction techniques. Construction while the waterbody is dry or frozen prevents the potential for sediment release during in-channel work.

As described in Sections 2.5.1.2 and 3.7.2 of the EPP (Attachment C), Enbridge will install in-stream BMPs (e.g., silt curtains) downstream of all open cut crossing locations where there is water prior to initiation of the crossing. The type of in-stream BMP utilized will depend on waterbody conditions (flow velocity, water depth, and the width of the waterbody) and will be selected in the field depending upon the site-specific conditions at the time of crossing. There may be some situations where surrounding saturated wetlands may limit the ability to install in-stream BMPs and the effort may actually extend the duration of activity and create additional disturbance.

6.1.2 Trench: Push-Pull Method

Enbridge is not currently proposing to use the push-pull method as a primary method at any public water waterbody crossings, but it is an alternate at two watercourse crossings if winter conditions are not present at the time of construction. The push-pull method is described in Section 3.4 of Appendix A of Attachment C, and Section 3.7.1 and Figures 35 and 36 of the EPP (Attachment C). The push-pull technique is used to cross large (longer than 200 feet) or wetland/waterbody complexes with greater than 12 inches of inundation and relatively competent peat soils as described in Section 3.4 of the Procedures. A dry crossing of the waterbody feature within these complexes is generally not feasible given that the crossing cannot be isolated from the surface water or high water table of the adjacent wetlands. This method can only be used in non-frozen conditions where there is sufficient inundation to push-pull or float the pipe. If these conditions do not exist at the time of the crossing, then an alternate waterbody crossing method will be used.

Enbridge will install in-stream BMPs (e.g., silt curtains) downstream of all push-pull crossing locations within the waterbody where site-specific conditions allow access for BMP installation.

Generally, to prevent the flotation of the pipe in saturated environments, Enbridge will utilize buoyancy control methods described in Section 3.7.3 of the EPP. Enbridge will utilize buoyancy control of the pipeline by utilizing concrete-coated pipe or bag weights. Enbridge calculates the amount of buoyancy control required based on an empty pipe.

6.1.3 Trench: Dry (Isolated) Methods

Dry crossing (isolated) methods are described Sections 4.3 of the Procedures (see Appendix A of Attachment C), and in Sections 2.5.2 and 2.5.3 and Figures 23 and 24 of the EPP (Attachment C). Dry crossing methods are used at waterbodies with a well-defined channel and stable stream banks that are consistently sloped and can be dammed to dewater the construction area and isolate the crossing from the flow of water. Dry (isolated) crossings use either the dam and pump or flume technique. Both methods involve damming the stream both upstream and downstream of the crossing location and digging a trench in the dry work area to install the pipe. Water is routed around the work area either by pumping water around the work area through hoses, or by water flowing through a flume pipe. The trench and construction work area will be dewatered and discharged into a well-vegetated area on an adjacent stream bank as described in Section 5.1 of the EPP. Dry crossings are typically completed within 24 to 48 hours depending on the size of the watercourse as described in Section 2.1 of the EPP.

6.1.4 Modified Dry Crossing Method

In situations where the stream banks are stable, but conditions are too saturated to effectively dewater from the construction workspace, Enbridge will conduct a modified dry crossing method using a dam and pump. The only difference from the standard dam and pump method and this modified technique is that Enbridge will not dewater the trench and will utilize buoyancy control methods (see Section 3.7.3 of the EPP in Attachment C) as appropriate to sink the pipe to the bottom of the trench. Enbridge will install in-stream BMPs downstream of these crossing locations prior to initiating the crossing to mitigate the potential for downstream sedimentation. The type of in-stream BMP utilized will depend on waterbody conditions (flow velocity, water depth, and the width of the waterbody) and will be selected by in the field depending upon the site-specific conditions at the time of crossing.

The dry and modified dry crossing techniques can also be implemented in frozen conditions if there is perceptible flow. Winter construction procedures for dry crossing techniques are described in Section 2.5.2 of the Winter Construction Plan (Attachment D).

Enbridge will consider switching to the alternate open cut crossing technique (see Section 6.1.1) at a waterbody previously identified as a dry or modified dry crossing if:

- the waterbody is dry or frozen at the time of crossing as described in Section 2.5.1 of the Winter Construction Plan; or
- when there are water management concerns based on field conditions at the time of the crossing, such as downstream obstructions that cause ponding, or a high water table.

In either case, Enbridge will seek agency approval for any changes to crossing methods prior to initiating an alternative crossing method.

6.1.5 Trenchless: Bore Method

The bore method (non-pressurized) is described in Section 3.5 of the Procedures (see Appendix A of Attachment C), and Section 4.0 of the EPP (Attachment C). The bore method is typically used to cross narrow transportation corridors, such as roads and railroads, or narrow and stable watercourses. Waterbodies adjacent to these features may also be crossed; however, the bore method is not generally used to specifically cross surface water features because it is not suitable for areas with high water tables or loose substrates. Pressurized water or drilling mud are not used to hold the hole open, as it will be during an HDD (see Section 6.1.5); therefore, there is no risk for an inadvertent return of drilling mud at these locations.

6.1.6 Trenchless: Horizontal Directional Drill Method

The HDD method is described in Section 3.6 of Appendix A of Attachment C, and in Sections 2.5.4 and 11.0 of the EPP (Attachment C). HDD is a trenchless crossing method that involves no direct excavation to the banks or beds of the wetland or watercourse being crossed. This method can be implemented during frozen or non-frozen conditions. There is no difference in technique in frozen vs. non-frozen conditions; however, execution may take longer during frozen conditions related to equipment maintenance in extreme temperatures, snow removal, etc.

Before Enbridge determines that an HDD crossing technique is prudent and feasible at a given location, geotechnical surveys are conducted at the proposed site to determine the subsurface conditions. Section 3.6.1 of Appendix A of Attachment C describes the factors that must be evaluated to determine the technical feasibility of an HDD. This information, along with the HDD design and layout and any other available data, is used to determine if the HDD can be successfully installed. Enbridge has determined that the subsurface conditions at all the proposed HDD locations are amenable to successful installation of a drill.

Enbridge uses the geotechnical data gathered to determine the feasibility of an HDD, and to model the capacity of the soil to withstand the pressures of the drill and avoid widening or creating a fracture (hydraulic fracturing) through which drilling mud fluid will migrate. This information is utilized to identify where additional engineering controls should be implemented to minimize inadvertent releases.

6.1.7 Waterbody Crossing Best Management Practices

The EPP (Attachment C) and Winter Construction Plan (Attachment D) describe the BMPs to avoid and minimize impacts to waterbodies crossed by the Project. In addition, Enbridge will:

- Comply with the conditions of the MPCA National Pollutant Discharge Elimination System (“NPDES”)/ State Disposal System (“SDS”) Construction Stormwater General Permit and the Stormwater Pollution Prevention Plan (“SWPPP”), including the use of erosion and sediment control BMPs as outlined in Sections 1.9 and 2.2 of the EPP.

- Conduct post-construction monitoring at waterbody features in accordance with the PCMP. The PCMP is further discussed in Section 6.10 and is included as Attachment F.

In order to meet Enbridge's requirements to inspect the pipeline during operations as discussed in Section 7.3, and also to provide access to the waterbody during installation of an HDD for monitoring and response in the case of an inadvertent release of drilling mud (see Section 6.1.5), Enbridge will only clear 30 feet of vegetation within the 50-foot operational right-of-way along the drill path (see Figure 4.5-1 of the Procedures, Appendix A of Attachment C), except where additional construction workspace is required for the installation of a bridge. This will not generally require removal of vegetation on the stream banks. Where, vegetation will be cleared, but roots will be maintained, which will aid in stabilizing the soils and reducing erosion potential. No grading or stump removal will occur over the HDD path except at limited locations where free-span engineered bridges will be installed, or as needed to assist with staging to respond to an inadvertent release of drilling mud.

6.2 WETLAND CROSSING METHODS

Section 3.0 of Enbridge's Procedures (see Appendix A of Attachment C) outline the various construction methods that Enbridge may utilize to construct through wetlands on the Project. Table 3.2-1 of the Procedures describes the crossing methods and site-specific characteristics that are most suitable for these different construction methods. The discussion of each method includes a description of the construction procedures; conditions required to employ the method (applicability of the method, and equipment needs, such as construction mats for wetland feature crossings); the extent of vegetation clearing necessary to accomplish the crossing; and environmental and/or constructability advantages and disadvantages associated with the method.

Six public waters will be crossed using the modified upland construction method (also referred to as the open cut or standard wetland crossing method): five public water basins and one public water watercourse features delineated as wetland during field surveys. The wetland portion of the Moose Lake (Water ID No. 51) public water basin will be crossed using the modified upland construction crossing method. However, the tributary to Moose Lake, which is located within the Moose Lake wetland basin complex, will be crossed using the modified dry crossing method (see Section 6.1.4).

6.2.1 Trench: Modified Upland Construction Method

The modified upland construction method is described in Section 3.3 of Appendix A of Attachment C, and Section 3.0 and Figures 30 to 34 of the EPP (Attachment C). This construction technique can be implemented in non-frozen and frozen conditions working off of construction mats or ice roads. Winter construction procedures in wetlands are further described in Section 3.0 of the Winter Construction Plan in Attachment D. This method is used in wetlands with unsaturated mineral soils if constructed during non-frozen conditions, or in saturated soils with less than 12 inches of inundation with moderate to high bearing strength soils in frozen conditions. Relative to the other wetland construction techniques, this is the quickest installation method. There are advantages and disadvantages associated with this construction technique during frozen vs. non-frozen conditions.

6.2.2 Trench: Push-Pull Method

Enbridge is not currently proposing to use the push-pull method as a primary method at any public water basin crossings, but it is an alternate at two basin crossings if winter conditions are not present at the time of construction. The push-pull method is described in Section 3.4 of Appendix A of Attachment C, and Section 3.7.1 and Figures 35 and 36 of the EPP (Attachment C). The

push-pull technique is used to cross large (longer than 200 feet) or wetland/waterbody complexes with greater than 12 inches of inundation and relatively competent peat soils as described in Section 3.4 of the Procedures. A dry crossing of the waterbody feature within these complexes is generally not feasible given that the crossing cannot be isolated from the surface water or high water table of the adjacent wetlands. This method can only be used in non-frozen conditions where there is sufficient inundation to push-pull or float the pipe. If these conditions do not exist at the time of the crossing, then an alternate waterbody crossing method will be used. Enbridge will install in-stream BMPs (e.g., silt curtains) downstream of all push-pull crossing locations within the waterbody where site-specific conditions allow access for BMP installation.

Generally, to prevent the flotation of the pipe in saturated environments, Enbridge will utilize buoyancy control methods described in Section 3.7.3 of the EPP. Enbridge will utilize buoyancy control of the pipeline by utilizing concrete-coated pipe or bag weights. Enbridge calculates the amount of buoyancy control required based on an empty pipe.

6.2.3 Wetland/Basin Best Management Practices

The EPP (Attachment C) and Winter Construction Plan (Attachment D) describe the BMPs that will be implemented during the installation of the pipeline through wetland features (including public water basins), regardless of pipeline installation method (except where noted). In wetlands, Enbridge will employ the following additional BMPs:

- Implementation of temporary erosion and sediment control BMPs in accordance with MPCA NPDES/SDS Construction Stormwater General Permit requirements and described in Sections 1.9 and 3.4 of the EPP.

- Conduct post-construction monitoring at wetland features in accordance with the PCMP. The PCMP is further discussed in Section 6.10 and is included in Attachment F.

To access the construction workspace across wetlands, Enbridge will install construction mats along the travel lane, and at portions of access roads or improved haul routes that cross wetlands. Section 3.1 of Appendix A of Attachment C describes the different construction mat types that may be utilized, and their suitability based on construction activity and site conditions. Mat travel lanes are typically a single layer (Figures 30 and 31 of the EPP); however, there may be cases in saturated areas where more than one layer of mats must be placed to provide a stable working surface (Figures 32 and 33). Enbridge may use multiple mat configurations in inundated areas depending upon the depth of inundation and presence of channelized flow to maintain surface flow. These different mat configurations are illustrated in Figure 49 of the EPP. Enbridge will remove the mats during final cleanup activities. If there are multiple layers of mats, Enbridge will probe the soil after mats have been removed to verify that no additional mats remain. During frozen conditions, Enbridge may develop ice roads to access wetlands where conditions allow as described in Section 1.4 of the Winter Construction Plan (Attachment D). There are also situations where conditions will not allow the installation of a construction mat travel lane, in which case Enbridge may utilize an alternative access. As mentioned above, Section 3.4.1 of the EPP describes when and where erosion and sediment control measures will be installed relative to wetland features. Enbridge is currently developing a SWPPP associated with the MPCA NPDES/ SDS Construction Stormwater General Permit for the Project. The SWPPP identifies the types of materials that may be installed according to:

- type of construction activity proposed;

- topographic conditions;
- hydrology and seasonality; and
- proximity to sensitive resources.

The erosion and sediment control BMPs may be installed based on these factors; however, the specific BMP will be selected in the field based on the site-specific conditions at the time of construction. Additionally, in some saturated wetland conditions, the ability to install erosion and sediment control BMPs may be limited and the effort to install such BMPs may both extend the duration of activity and create additional disturbance.

6.3 PIPELINE DEPTH OF COVER

Enbridge understands that the MDNR's root concern regarding depth of cover is related to pipe integrity and exposure concerns that could result in potential impacts on the resource, as stated in its February 2019 comments to the USACE, to "protect the pipeline in the event of stream scour at or near the pipeline crossing."

Enbridge performed a geotechnical hazard assessment of the entire pipeline route during engineering design and planning. Types of hazards considered in the initial study included slope instability, seismic activity, ground subsidence areas, areas prone to flooding, scour potential, and areas of buoyancy concern. All known waterbody crossings were reviewed as part of this assessment. The largest potential for geohazard risk is associated with hydrologic features. Flooding, bank erosion and scour, lateral migration, vertical incision, preferred drainage flows, and dynamic farming activities can all cause migration of soils from above and below buried pipelines. Each potential location was ranked low, medium, or high. Enbridge then conducted further investigation at medium and high locations. Mitigations ranging from additional depth of cover to environmental controls (e.g., concrete-coated pipe for buoyancy control) were recommended from this second study and incorporated into the Project design.

All watercourses that are 100 feet or wider will be crossed utilizing the HDD technique. The HDD technique, which is described more extensively in Section 3.6 of the Summary of Construction Methods and Procedures will not result in an alteration of the bed or bank of the waterbody, and will result in the installation of the pipe an average of 30 to 40 feet below the bed of the watercourse, eliminating the potential for pipe exposure resulting from stream scour during the operational life of the Project.

During the routing process, Enbridge also considered the following routing design criteria, when possible, in order to avoid and minimize hydrotechnical hazard impacts on the pipe:

1) avoid paralleling the pipeline to watercourses to avoid the potential for encroachment;
2) align the centerline perpendicular to the watercourse and at the shortest crossing location;
3) avoid placement over meander cutoffs and avoid crossing multiple meander belts;
4) appropriate placement of bag weights or concrete coated pipe for buoyancy control; and
5) the use of concrete coated pipe as an extra protection of the pipe against scouring.

Due to other constraints and/or site characteristics (e.g., avoidance of other environmentally sensitive features, landowner permissions), the implementation of these design criteria were not possible in all cases.

In accordance with federal requirements (49 CFR 195.248), the depth of cover ("DOC") between the top of the pipe and the ground level, road bed, or river bottom can range between 18 to 48 inches, depending on the location of the pipe and the presence of rock. Minnesota Statute § 216G.07, Subd. 1 also provides guidance for pipeline depth of cover. Additional information regarding DOC is presented in Section 2.7 of the Procedures (see Appendix A of Attachment C). In wetlands and waterbodies, depth of cover is measured from the top of the pipe and ground level as defined in 49 CFR 195.248 and illustrated in Figure 18 of the EPP, not the surface water level. In wetlands with standing water, this would be from the "underwater natural bottom (as determined by recognized and generally accepted practices)" as required in 49 CFR 195.248. While Enbridge will seek waivers for Minnesota state DOC requirements in some circumstances, it will meet all federal DOC requirements and also target a nominal 48 inches of cover across the Project.

Enbridge will also utilize concrete coated pipe at many of these crossings, which will both provide buoyancy control of the pipe to maintain that depth of cover and provide another level of pipe protection.

6.3.1 Additional Depth of Cover Commitments at Public Waters

MDNR has advised that to minimize potential future scour and erosion issues at public waters, Enbridge should use its Rosgen geomorphological survey data gathered between 2015 and 2019 to plan for additional DOC at some public water crossings. MDNR has recommended that Enbridge install the pipeline to ensure that 4 feet DOC is maintained using the depth of the deepest upstream or downstream pool within the surveyed reach. MDNR also requested that where additional DOC is proposed, Enbridge extend the DOC outside of the OHWL and across the waterbody floodplain, or to the location of the "meander belt width."[23]

Enbridge first reviewed the Rosgen pool data to determine if it will be possible to increase the DOC at the point of crossing to the bottom elevation of the deepest pool within the Rosgen survey reach. Then, to determine the possibility of extending DOC outside of the OHWL, Enbridge analyzed data gathered during Rosgen surveys at each feature, including Rosgen Stream Type, Mean Meander Belt Width, Meander Width Ratio ("MWR"),[24] and the "Stability Adjective" rating (Excellent, Good, Fair, or Poor) based on the Modified Pfankuch Channel Stability Evaluation (a rating system based on 15 stability parameters gathered from a stream's reach). The MWR provides insight into lateral channel adjustment processes. As described in each stream's Rosgen Geomorphic Survey report, in cases where the MWR is less than a value of 3.0, lateral movement is probable. As the MDNR's concerns regarding DOC have been based on the potential for stream lateral movement over time, Enbridge initially identified crossing locations with an MWR less than 5.0 as candidates for extended DOC.

Enbridge then used the Mean Meander Belt Width and aerial imagery to identify the meander belt at the proposed centerline at these crossings, followed by an assessment of natural grade collected from LIDAR surveys in 2019 to determine feasibility of extending the DOC for the entirety of the meander belt width, recognizing the trench spoil storage constraints of the proposed workspace. Carrying additional DOC through significant elevation change can present constructability and workspace concerns as the elevation rises from the TOB. The footprint of the

[23] The Meander Belt Width is the area that confines the outer bends of a waterbody channel and represents the outer constraints of potential lateral movement of a stream channel.

[24] The MWR is the Meander Belt Width divided by the bankfull channel width.

construction workspace will need to be expanded to allow for soil storage and equipment movement, and significant amounts of sheet piling will need to be used to maintain a safe open trench with stable walls.

Following this analysis, Enbridge concluded that at all increased DOC locations, Enbridge would either commit to a DOC extent 2 lateral feet from the TOB on either side of the waterbody, or to a DOC extent that generally aligns with the meander belt width of the waterbody within the surveyed reach. Enbridge continued to consult with the MDNR on this topic in 2020 and has increased DOC and DOC extent at one additional public water crossing (Water ID No. 54, an Unnamed Stream) and has extended DOC at another public water crossing (Water ID No. 63a/63b, an Unnamed Stream).

Attachment A of this Application contains a "Depth of Cover" column that indicates the specific DOC commitment for each public water crossing. The "Depth of Cover Extent from TOB" column indicates how far past the TOB Enbridge proposes to carry the increased DOC. The SSCPs in Attachment B show Rosgen pool data, when available, and the proposed DOC and the extent of the DOC outside of the TOB at each public water crossing. Of the 66 public water crossings, Enbridge has committed to an increased DOC that exceeds its construction standards and federal regulations at 27 public water crossings. Twenty-one (21) crossing are HDDs where DOC is not a concern.

Eighteen (18) public water crossings will be installed to the standard 4-foot (48-inch) DOC, which meets or exceeds the federal DOC requirements for inland bodies of water by 18 inches (1.5 feet) (49 CFR 195.248).

6.3.2 Construction Inspections of Depth of Cover

49 CFR 195.204 requires that the pipe be inspected prior to backfill to ensure that the installation of the pipe or pipeline systems is in accordance with the requirements of 49 CFR 195.248. Enbridge must maintain a complete record for the life of the pipe facility that documents the amount, location, and cover of each size of pipe installed (49 CFR 195.266). In order to comply with these regulations, once the pipeline is installed and prior to backfill, Enbridge civil survey crews will confirm the depth of cover for each pipeline section and record this data as part of the as-built survey data. This information will be maintained by Enbridge in its Pipeline Integrity Program database.

6.3.3 Depth of Cover During Operations

As part of Enbridge's Pipeline Integrity Program, annual depth of cover surveys, annual flood monitoring, and annual geohazard inspection are performed on the pipeline. If these surveys or inspections identify additional potential geotechnical or hydrotechnical hazards, Enbridge will engage with a qualified Geohazard Consultant to determine if additional remediations are needed. Should the depth of cover for a pipe segment be reduced to 36 inches of cover, the pipe section would be flagged for an on-the-ground maintenance inspection and repairs would be made, as appropriate.

6.4 TEMPORARY EQUIPMENT BRIDGES

Temporary equipment bridges will be used to cross 40 public waters, including engineered clear-span bridges at 3 HDD crossings. Enbridge identifies the need for temporary bridges in the

waterbody crossing table in Attachment A and presents bridge details on construction and restoration plans in Attachment B, where applicable.

Sections 1.4.1 and 2.4 of Enbridge's EPP and Section 2.1 of the Procedures (Appendix A of the EPP) describe the types of temporary bridges that will be utilized on the Project at public waters, which will include:

- Clear span bridges: Temporary clear span bridges will typically be used to cross waterbodies that are less than 13 feet from top of bank to top of bank with stable banks. No direct excavation of the waterbody bed or in-stream supports are required.

- Non-clear span bridges: Typically used to cross waterbodies with top of bank to top of bank 13 feet wide or greater as required by Enbridge's engineering specifications, or where additional stabilization is required to ensure the bridge installation allows for the safe passage of construction equipment and vehicles. Installation of infrastructure or supports within the ordinary high water mark ("OHWM") are required.

Figures 3 and 4 of the EPP provide typical figures of a clear span bridge, and a non-clear span bridge with in-stream supports (construction mat or culvert/flume in-stream support type). Table 2-1 of the Summary of Construction Methods and Procedures describe the advantages and disadvantages of the various temporary bridge types.

BMPs that will apply to all bridge types include:

- Erosion and sediment control BMPs will be implemented prior to or at the same time as ground disturbing activities associated with bridge installation.

- Equipment bridges and culverts will be designed to meet the requirements of the applicable agencies and local authorities. Equipment bridges and culverts will also be maintained in accordance with the applicable permits.

- Debris or vegetation that becomes lodged on the bridge support will be removed and disposed of in an upland area.

- Bridges will be maintained to prevent soil from entering the waterbody (refer to Figures 3 and 4). Soil that accumulates on the bridge decking will be removed daily, or as deemed necessary by the Environmental Inspector ("EI").

- Bridges will be installed parallel to the pipeline centerline so that equipment does not need to turn while working or crossing the bridge.

- For bridges that are installed on designated canoe routes, the bridge height will be designed to allow for adequate clearance to allow recreational users to pass safely under the bridge.

- In-stream supports will not be installed in or removed from waterbodies during agency-timing restrictions unless approved by the agency.

- Bridges will not restrict flow or pool water while the bridge is in place and will be constructed with clean materials.

Bridges will be removed during final cleanup or after restoration as described in Section 2.6.3 of the EPP. During frozen conditions, Enbridge may develop ice bridges to cross narrow waterbodies where conditions allow as described in Section 1.4 of the Winter Construction Plan. Only vehicles used by Enbridge or its contractors will be permitted to use these bridges.

Attachment G provides a site-specific bridge analysis for each public water (excluding engineered span bridges at HDD crossings and delineated wetland crossings where a construction mat road will be used per EPP Figure 49) where a bridge is used. This analysis was conducted by civil engineers trained in stream geomorphology that were also involved in collecting Rosgen geomorphic survey data for the Project. Temporary bridge crossings are intended to support construction access and activities while minimizing the potential for localized adverse stream channel impacts both during and post-construction. Adverse stream impacts can include erosive flow velocities and/or vectors, altered sediment transport resulting in channel degradation or aggradation, and/or impeding fish movement. Since 2013 Enbridge has coordinated with MDNR and performed Rosgen based stream geomorphic surveys at various proposed L3R public water watercourse crossings. For the surveyed sites geomorphic data parameters included stream type, valley type, bankfull elevation, bankfull width, channel slope, channel stability rating, and special conditions; each of these were reviewed and used to develop crossing recommendations. Similarly, using aerial imagery and other survey data collected by Enbridge along the L3R corridor (channel width, profile, slope, etc.), Enbridge can extrapolate key stream parameters, specifically stream type and valley type, for the analysis and development of crossing recommendations for non-public water course crossings and those public waters where a Rosgen based survey was not performed.

In addition to the geomorphic survey stream parameters listed above, the bridge review and analysis considered the role that vegetation plays in maintaining channel stability. Vegetation management interpretations, originally developed by Rosgen as part of grazing management, identify the relationship between specific stream types and the influence of vegetation on channel stability and the potential for natural recovery once the cause of the instability or disturbance is corrected. The guidance qualitatively interprets sensitivity to disturbance, recovery potential, stream bank erosion potential, and vegetation as a controlling influence for each stream type using a range of descriptions from very low to extreme, very poor to excellent, or negligible to very high.

These recommendations are provided as guidance to allow for flexibility based on site-specific conditions at the time of installation, equipment, and the type of construction activities performed. Additional information about how the above geomorphic parameters were considered when making bridge crossing recommendations, as well as additional stream characteristics, can be found in Enbridge's July 2020 Bridge Memo to MDNR.

Equipment bridges will be removed during final cleanup or, if access is needed, after final cleanup and permanent seeding. Alternatively, bridges may be removed prior to spring melt, the area will be stabilized, and then the bridges may be reinstalled outside of applicable timing restrictions. Bridge decking will be removed to ensure sediment and debris are collected by geotextile fabric secured below decking during bridge construction. Subsequently, geotextile fabric will be removed to prevent debris from entering the watercourse.

Once the bridge is removed, Enbridge will conduct additional grading to restore the banks to as near as practicable to pre-construction conditions as needed. Because bridge headers will typically be placed on top of the vegetation, grading will be limited. Additional seeding and/or

installation of erosion and sediment control BMPs will also be implemented as required. Enbridge will follow the revegetation procedures described in Section 7.0 of the EPP, SSRPs for the applicable waterbodies, and the Planting Plan within the VMP for waterbodies on public lands. Bridge restoration will also be monitored as described in Enbridge's PCMP.

6.5 RECREATIONAL ACCESS

Five public waters (six crossings) are designated as MDNR recreational canoe routes:

- Red River of the North (Water ID No. 1);
- Red Lake River (Water ID No. 8);
- Mississippi River (Water ID Nos. 28 and 53);
- Crow Wing River (Water ID No. 40); and
- Pine River (Water ID No. 44).

These crossings are noted in Attachment A. The Red River, Red Lake River, Crow Wing River, and Mississippi River (Water ID No. 53) will be crossed by HDD with no temporary clear span bridge; therefore, no impacts on users of these public waters are anticipated. The Mississippi River (Water ID No. 28) and Pine River will be crossed by HDD with a temporary clear span bridge. HDD bridges will be designed to allow for recreational passage as outlined in HDD Bridge Plans in Attachment B.

During construction, Enbridge will maintain existing public access to public waters for recreational activities to the extent safe and practicable, except for brief interruptions during trenched public water crossings. Enbridge will adhere to work-exclusion dates for public water cool- and warm-water fisheries that require in-channel work in accordance with Section 2.1 of the EPP. Enbridge will work with the MDNR to post signs upstream and downstream of all listed canoe routes to notify the public of pipeline construction activities and potential detour routes, and at additional locations as suggested by MDNR (e.g., upstream boat launches). Enbridge will also work with MDNR and other land management groups to arrange for other appropriate user notifications. After the short period when the pipeline is being installed, Enbridge will allow flow to resume and allow river users to cross the construction area.

6.6 BLASTING

Blasting is currently proposed from approximate MPs 1118.1 to 1118.6, which includes the Little Otter Creek crossing at MP 1118.4 (Water ID No. 65). This crossing is located on Enbridge-owned land and is adjacent to the existing Enbridge Mainline System. Enbridge conducted blasting activities at the Little Otter Creek crossing and approximately 800 feet on either side of the crossing during the 2009 construction of the Line 67/Alberta Clipper Project. Enbridge has developed a Blasting Plan (see Attachment H) outlining the procedures for these activities. Enbridge will adhere to the work-exclusion dates for public water fisheries as discussed in Section 2.1 of the EPP (Attachment C).

6.7 BEAVER DAMS

Enbridge reviewed locations where beaver dams are known to exist based on field survey notes and interagency comments on the Project provided by regulatory agencies (i.e., the MDNR, MPCA). Enbridge also conducted field visits to the beaver dams to gather additional data to

understand potential construction concerns, whether or not removal will require additional workspace not already in the Project design, and if removal of the dam will be beneficial to construction by reducing water management concerns and/or allowing for a lower impact crossing method. Enbridge met with MDNR staff in June 2020 to understand animal and dam permitting requirements. Enbridge will need to obtain beaver trapping permits should trapping occur outside of the season. Beaver dams would be removed once all required permits and authorizations, including landowner approval, are obtained.

Enbridge will need to remove one beaver dam within the construction workspace as part of a public water crossing. The pipeline centerline and construction workspace cross a 110-foot-wide dam on Water ID No. 54 (an Unnamed Stream at MP 1070.9). The dam within the construction workspace is holding 2 to 3 feet of water on the construction workspace and along the centerline. There are two additional dams north of the construction workspace, and one on a nearby access road (see SSCP in Attachment B). Removal of this dam is unavoidable because it will be trenched through when the pipeline is installed. It will be removed by hand prior to construction. Enbridge will remove the farthest downstream dam first, then the middle dam, and then the dam within the construction workspace. Enbridge will meter water out slowly as to not overload the downstream channel and release sediment. The dam along the access road will be removed last. The waterbody crossing method is currently proposed as a modified dry crossing and the method will not change with removal of the dam.

Enbridge has also identified seven beaver dams that are located within or nearby public waters that are not within the construction workspace considered in this Application. These dams are shown on SSCPs in Attachment B and are noted in Attachment A. Removal of these dams will be beneficial to construction by reducing water management concerns. Enbridge will not require separate Work in Public Waters permits for these activities because removal of the dams by hand will not change the course, current or cross-section of these public waters.

- Water ID No. 22, Unnamed Stream at MP 925.4: One dam to the northwest of the workspace, one along an access road.

- Water ID No. 27, Bear Creek: Within the construction workspace but not within the public water north of the public water crossing.

- Water ID No. 29, LaSalle Creek: Withing the construction workspace but not within the public water southeast of the public water crossing.

- Water ID No. 49, Unnamed Stream at MP 1048.0: Historical beaver dams north of the construction workspace that have been recently breached and may need to be removed depending on conditions at the time of construction.

- Water ID No. 55, Unnamed Stream at MP 1075.5: Two dams to the south of the construction workspace.

- Water ID No. 56, West Savanna River at MP 1076.9: One dam to the south of the construction workspace.

- Water ID No. 65, Little Otter Creek at MP 1118.4: One dam to the north of the construction workspace.

Enbridge will conduct dam removal activities carefully to prevent downstream sedimentation and scouring impacts. The following BMPs will be implemented during removal of beaver dams:

- Enbridge will obtain landowner permission and will contact downstream landowners prior to removal activities;
- Enbridge will monitor weather conditions prior to removal;
- Removal will be limited to the removal of the debris that comprises the dam structure;
- Waterbody bed and bank material will not be removed or disturbed during debris removal;
- Materials will be removed incrementally by hand using hand tools to minimize the adverse effects of sudden water release on downstream waters/landowners;
- Ponded water will be released slowly to minimize potential downstream sedimentation. After each drop in dam height, Enbridge will allow the water level and sediment plume to stabilize;
- Downstream conditions will be monitored by construction staff to ensure incremental release of water;
- No mechanized removal will occur outside of the construction workspace when activities could impact public waters;
- In areas where multiple dams are located, Enbridge will remove the dam farthest downstream first;
- Work will be halted, and the situation reassessed should removal result in unexpected conditions (e.g. ponding); and
- Due to Enbridge's plan to remove only material necessary and to do it gradually to maintain water quality, Enbridge does not anticipate the need for any additional contingency measures to manage water flow.

Should Enbridge discover a new beaver dam in public waters during construction that must be removed, or identify the need to trap a beaver, activities will not commence until all required permits and authorizations, including landowner approval, are obtained.

6.8 WATER APPROPRIATION

Enbridge will appropriate surface water from public waters for mainline and HDD hydrostatic tests, drilling mud, and HDD buoyancy water and for fugitive dust suppression. These uses will be permitted by the MDNR through surface water appropriations permits and a Lease for use of public water access sites, separate from this licensing effort. Water appropriations will be conducted in accordance with MDNR permit conditions and Section 6.0 of the EPP (see Attachment C).

6.9 RESTORATION

Permanent and temporary revegetation of disturbed areas within the construction workspace will proceed in accordance with Section 7.0 of the EPP. Seed mixes that will be used for restoration at public waters are specified in the SSRPs and/or in the Planting Plan, which is contained within Appendix A of the VMP. Enbridge's stabilization methods and associated timing, and erosion and sediment control BMPs are described in Sections 1.9, 1.17, 2.6, and 3.9 of Enbridge's EPP (Attachment C). Sections 2.6 describes additional stabilization and restoration efforts for waterbody crossings, as identified during construction and/or required by restoration plans.

Enbridge has developed SSRPs for 31 public water crossings subject to the License to Cross Public Waters following consultation with the MDNR. Enbridge gathered additional field survey data at these crossing locations in the summer of 2020 to inform the SSRPs, including:

- Detailed longitudinal survey of the OHWL on both sides of the waterbody within the construction workspace;
- Detailed longitudinal survey of the top of bank at 1-foot intervals on both sides of the waterbody within the construction workspace;
- At the centerline, detailed elevation profile at 1-foot intervals of the bed and banks of the public water (assuming conditions are wadeable at the time of survey);
- Outside of the centerline but within the 95-foot-wide construction workspace, a 5-foot plotted grid pattern of elevation reference points of bed and banks of the public water (assuming conditions are wadeable at the time of survey);
- Pre-construction photos from multiple vantagepoints; and
- Information on existing vegetation (type, location).

SSRPs are contained in Attachment B. SSRPs present the following information to assist with restoration following pipeline construction. Proposed restoration activities will be reviewed by MDNR and Enbridge during a site visit and may be changed to reflect site conditions at the time of construction. Information includes:

- Revegetation plan and streambank/streambed cross-section, including areas for woody vegetation planting and use of natural materials for streambank stabilization;
- Restoration information for areas outside of the OHWL for a subset of public waters;
- Bank restoration cross-sections for centerline excavation as well as bridge settings and in-stream supports;
- Streambed restoration plan view that shows the thalweg and stream features such as riffles, runs, and pools;
- Pre-construction photos; and
- Restoration typicals used for implementation of restoration methods;

35 public water crossings did not require a SSRP and can be restored using typicals presented in Attachment B as well as standardized measures in Section 7.0 of the EPP. These include typicals for the following types of crossings:

- Public water HDD/bore crossings;
- Public water watercourse (surveyed as a waterbody); and
- Public water basin or watercourse (surveyed as a wetland).

6.10 POST-CONSTRUCTION MONITORING

The PCMP focuses on monitoring of aquatic resources affected by the Project after construction and restoration are complete. The plan also includes performance standards related to INS within wetland and riparian features. This plan has been developed with input from the USACE, MPCA, and MDNR. All public water crossings subject to this License to Cross Public Waters will be monitored in accordance with the PCMP. The PCMP: (i) requires pre-construction data collected to establish aquatic resources baseline conditions; (ii) establishes the data, analyses, and procedures required to monitor topography, hydrology and vegetation following completion of Project construction; (iii) establishes objective and verifiable ecological performance standards to evaluate the success of restoration of aquatic resources to pre-construction conditions; (iv) requires the submission of annual monitoring reports to the USACE, MPCA, and MDNR and an annual meeting with the agencies to review the results; and (v) includes an adaptive management approach which specifies types of corrective actions that may be employed in the event that monitoring identifies a problem in achieving the final goal of restoring the temporarily impacted wetlands to pre-construction conditions. Enbridge is currently working with these agencies to finalize the vegetation monitoring methodology and specific monitoring locations to be used at peatlands, and wetlands that overlap with High or Outstanding SOBS, S1-S3 ranked NPCs and/or that contain state-listed plant species crossed by the Project.

In addition to the INS performance standards contained within the PCMP, Enbridge will be required to monitor for INS within its operational right-of-way over the life of the pipeline as a condition of its Utility License. Section 2.0 of the VMP addresses vegetation management over the operating term of the pipeline, including addressing INS throughout the license term in Section 2.2.

6.11 SPECIAL FEATURES AT PUBLIC WATER CROSSINGS

6.11.1 Infested Waters

MDNR maintains a list of Minnesota waterbodies infested with aquatic invasive plants, animals, and diseases. The list is periodically updated as invasive species are observed in new waterbodies. Activities within these waters are regulated by the MDNR to prevent spread to non-infested waters. Enbridge reviewed the most recent infested waters list,[25] which indicated that three public waters proposed for crossing are designated as infested waters. The Red River (Water ID No. 1) is infested with zebra mussels. The Crow Wing River (Water ID No. 40), downstream of Highway 87 to its confluence with the Mississippi River and including 500 feet upstream into its tributaries, is infested with the faucet snail. In addition, the Shell River (Water ID No. 39), from Upper Twin to Crow Wing River and including 500 feet upstream into its tributaries, is also infested with the faucet snail. Enbridge will continue to monitor the status of this list and

[25] http://www.dnr.state.mn.us/invasives/ais/infested.html; Data updated September 4, 2020.

will plan construction activities accordingly if additional waterbodies are added to the list. Aquatic invasive species will be managed according to the INS Management Plan included as Appendix B of the EPP (Attachment C).

6.11.2 Trout Streams and Fisheries Restrictions

Construction across public waters and removal/installation of in-stream supports for temporary bridges within public waters will be subject to applicable extended work-exclusion dates in cool- and warm-water fisheries and in designated Minnesota trout streams and their designated tributaries as presented in Section 2.1 of the EPP. Specific restrictions for each public water crossed also are presented in Attachment A.

The Project will cross five public waters that are MDNR-designated trout streams that will be subject to work-exclusion dates for in-channel work:[26]

- LaSalle Creek (Water ID No. 29);
    - MDNR has granted Enbridge a waiver from trout stream restrictions between November 1 – March 31 so that construction may occur during winter conditions, depending on construction schedule.
- Straight River (Water ID No. 33);
    - MDNR will apply its work-exclusion date for the trenchless HDD crossing method.
- Spring Brook (Water ID No. 48).
- Unnamed Stream (Water ID No. 54);
    - MDNR has granted Enbridge a waiver from trout stream restrictions so that construction may occur during winter conditions.
- Little Otter Creek (Water ID No. 65).

In addition, MDNR will apply the trout stream timing restrictions at three public water crossings that are not formally designated as trout streams:

- Unnamed Stream (Water ID Nos. 63a and 63b); and
- Unnamed Stream at MP 1126.2 (Water ID No. 67).

Trout streams are considered Special Waters as defined by the MPCA NPDES/SDS Construction Stormwater General Permit (MNR100001). Enbridge will install and maintain redundant erosion and sediment control measures immediately after clearing and prior to initial disturbance at special waters located within 100 feet of the Project as described in Section 2.2.2 of the EPP. This will also be included in Enbridge's SWPPP.

[26] As designated in Minnesota Rules 6264.0050 Subp. 4

Enbridge requested and received waivers from fisheries work-exclusion dates at the following non-trout stream locations, as they represent delineated wetland communities that likely do not support fish spawning and habitat:

- Unnamed Creek (Water ID No. 9);
- Unnamed Creek (Water ID Nos. 18a/18b);
- Portage Lake Basin (Water ID No 32).
- Unnamed Basin (Water ID No. 36)

6.11.3 Aquatic Management Areas

The Project will cross the LaSalle Creek Aquatic Management Area ("AMA") (ID No. 29) and two public lands administered by the MDNR Fisheries Division and the Little Otter AMA (ID No. 63). Enbridge has prepared the LaSalle Creek Construction and Restoration Plan which contains detailed information about the crossing and restoration of LaSalle Creek (Water ID No. 29). Enbridge will cross LaSalle Creek using the dry crossing method. This plan is presented in Attachment B.

Attachment B contains an SSCP and SSRP for the Unnamed Stream Crossing on the Little Otter AMA. Enbridge committed to additional depth of cover at the Unnamed Stream crossing as presented in Attachment A. In addition, Enbridge extended the depth of cover to the wetland boundaries surrounding the stream following communication from MDNR in August 2020. Enbridge will cross the Unnamed Creek using the dry crossing method.

6.11.4 Spring Brook/Spire Valley Fish Hatchery

Enbridge has prepared the Spring Brook Construction and Restoration Plan which contains detailed information about the crossing and restoration of Spring Brook (Water ID No. 48) south of the Spire Valley Fish Hatchery. Enbridge will cross Spring Brook using the dry crossing method. This plan is presented in Attachment B.

6.11.5 Sensitive Species and Plant Communities

Enbridge initiated consultation in early 2013 with the Midwest Region Ecological Services Field Office of the U.S. Fish and Wildlife Service ("USFWS") for the Minnesota portion of the Project. The initial consultation letter included a list of federally endangered, threatened, and candidate species that may occur in the Project area in Minnesota. Three federally listed species may be affected by the Project: gray wolf, Canada lynx, and northern long-eared bat. The Project's action agencies under Section 7 of the Endangered Species Act, the USACE and Bureau of Indian Affairs, submitted a Biological Assessment to the USFWS on March 25, 2019 that assessed potential impacts and described the conservation measures that Enbridge will implement to avoid and minimize impacts on these federally listed species. The USFWS responded with a letter of concurrence on August 6, 2019. In the letter, the USFWS concurred that the Project will not adversely affect the gray wolf and Canada lynx and may affect, but incidental take is not prohibited for northern long-eared bat. With this letter of concurrence, the USFWS concluded informal consultation for the Project under Section 7 of the federal Endangered Species Act.

Enbridge also initiated consultation with the MDNR Endangered Species Review Coordinator in early 2013 to understand the potential presence of state-threatened and state-endangered species near the Project. Enbridge has conducted periodic reviews of Minnesota NHIS data

provided by the MDNR. Enbridge's NHIS Review and Avoidance Plan (Attachment I) contains a review of NHIS data and other MDNR data sources for rare or sensitive ecological resources along the Project; an assessment of the potential for impacts on those resources; and a description of measures for avoiding or minimizing impacts. Enbridge will implement the following BMPs which are additive to standard construction measures at public waters on public lands to address NHIS-related commitments. Where relevant, the locations where these additional BMPs will apply are presented in Attachment A (see "Comments" column) and on maps in Attachment B.

Reptiles and Amphibians (Section 4.4.1.2 of Attachment I)

- Several of Enbridge's existing BMPs will help to avoid and minimize impacts on Blanding's turtles during construction. L3R design measures and standard Project-wide construction practices that correspond to MDNR's requirements to avoid inadvertent take of Blanding's turtles in the counties of occurrence are described in detail in Table D-1 of Attachment I.

- Enbridge is using the HDD installation technique at the [Locational Information Removed]. This is a trenchless crossing method that avoids excavation of the banks or beds of the waterbody; therefore, no in-stream work or trench dewatering will occur. Enbridge is proposing a clear span engineered bridge over the [Locational Information Removed]; the bridge will have no in-stream supports.

- Enbridge proposes to walk ahead of heavy equipment during clearing and fencing activities to clear the area of Blanding's turtle between [Locational Information Removed].

- Enbridge will not conduct clearing activities [Locational Information Removed] between mid-April to mid-October during the construction phase.

- During the operational period, Enbridge will not conduct maintenance activities [Locational Information Removed], including mowing, from mid-April to mid-October.

Mammals (Section 4.4.2.2 of Attachment I)

- Enbridge will not remove trees during the months of June and July at public waters on lands administered by MDNR, unless a bat protection plan has been approved by MDNR.

Colonial Waterbirds (Section 5.1.2.2 of Attachment I)

- Enbridge is using the HDD installation technique at the Daggett Brook crossing (Water ID No. 47). This is a trenchless crossing method that avoids excavation of the banks or beds of the waterbody and in the vicinity of the colony.

- Enbridge will use noise mitigation measures during Daggett Brook water appropriation activities.

Attachment A presents the crossings which cross NPCs ranked S1-S3 and SOBS ranked Outstanding or High. These locations are also shown on plans in Attachment B. No public waters are located on public lands within these communities.

Enbridge's Endangered Species Permit for Minnesota State-Listed Species application presents state-listed species identified during field surveys and describes Enbridge's efforts to avoid, minimize, and mitigate for impacts on those species. Enbridge has not identified take of any protected species associated with a public water crossing.

6.11.6 Archaeological and Historic Resources

Enbridge conducted archaeological and historic resources surveys along the L3R route from 2013 through 2020. In addition, Tribal Cultural Resources Surveys have been conducted along the entire L3R route. The results of archaeological and architectural history surveys conducted by Enbridge and Tribal Cultural Resources Surveys, and applicable mitigation and avoidance procedures have been provided to the MDNR for review under the Field Archaeology Act (Minnesota Statutes 138.31-138.42). Enbridge has submitted the Final Avoidance, Mitigation, and Implementation Plan for Construction to the MDNR Archaeologist for this Project. This Plan also includes an Unanticipated Discoveries Plan, which describes the procedures related to an unanticipated discovery of an archaeological or historic resource or human remains.

7.0 ENVIRONMENTAL INSPECTION AND MONITORING

Enbridge will comply with applicable federal, state, and local rules and regulations, and take all appropriate precautions to protect against environmental degradation. Enbridge will provide appropriate construction oversight to confirm and document compliance with the measures of the EPP and requirements of applicable federal, state, Tribal, and local permits. Enbridge's Environmental Inspectors will assist in interpreting and implementing the requirements of the EPP, including additional requirements at public waters, and verify compliance with these procedures for Enbridge. Enbridge has also committed to applicable agencies to fund a comprehensive third-party monitoring program to be deployed during Project construction. The details of this inspection and monitoring program are described in Enbridge's Environmental Monitor Control Plan.

Additional environmental monitoring of construction activities will be required for any of the public waters identified in Section 3.5 where pipeline construction is not conducted in winter/frozen conditions. Each construction spread where non-winter/frozen construction occurs within the identified areas will have one additional dedicated IEM beyond the minimum that are planned for each applicable spread. Additional MDNR monitoring staff will also be required to address unforeseen circumstances and authorize adjustments to construction approaches in compliance with license conditions.

8.0 COMPLIANCE WITH ENVIRONMENTAL STANDARDS

Enbridge applied for a certificate of need and a route permit ("MPUC Applications") from the MPUC to construct and operate the Project on April 24, 2015. The DOC-EERA staff prepared an EIS in cooperation with the MDNR and MPCA to facilitate the MPUC's review of the MPUC Applications in accordance with Minnesota Rules Chapter 4410. The EIS considered numerous certificate of need alternatives, route permit alternatives, and route segment alternatives for the Project.

At the conclusion of contested case proceedings, the MPUC issued its MPUC CN Order on September 5, 2018, granting the certificate of need as modified and requiring filings. On October 26, 2018, the MPUC issued its MPUC RP Order identifying the Project's Preferred Route inclusive

of Route Segment Alternative ("RSA")-05 and RSA-22 through the FdL Reservation as the MPUC Designated Route (hereafter referred to as the "Designated Route" or "Project"). The Project is a 750-foot wide corridor, which allows for minor adjustments to the pipeline alignment and operational right-of-way within the Project.

As discussed in Section 2.1, on December 9, 2019, the Minnesota Department of Commerce issued the second revised FEIS. Notice of availability of the second revised FEIS and the procedures for written comments were also published in the December 9, 2019 EQB Monitor. The MPUC accepted comments regarding the Second Revised FEIS and its certificate of need and route permit decisions through January 31, 2020.

On February 3, 2020, the MPUC found that the Second Revised FEIS was adequate and reaffirmed its previous certificate of need and route permit orders with a minor change related to the public safety escrow condition within the route permit. On May 1, 2020, the MPUC issued its Order Finding Environmental Impact Statement Adequate, Granting Certificate of Need as Modified, and Granting Routing Permit as Modified ("May 2020 Order"). In the May 2020 Order, the Commission found that the Second Revised FEIS is adequate under the applicable rules, approved a certificate of need for the Project by reissuing several prior orders with modifications, and reissued the routing permit for the Project by reissuing several prior orders with modifications.[27]

On May 21, 2020, several parties filed petitions for reconsideration of the May 2020 Order. On July 20, 2020, the MPUC issued its Order Denying Reconsideration.

The Designated Route approved by the MPUC in its May 2020 Order crosses the public waters contained within this Application. Enbridge must comply with the routing provisions of the May 2020 Order. In adopting its May 2020 Order, (which reissued the September 5, 2018 MPUC CN Order) the MPUC found that the Project satisfies the following applicable criteria (Minn. Rules, part 7853.0130) for granting a certificate of need for a large petroleum pipeline: (1) the probable result of denial would adversely affect the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering five enumerated sub-factors; (2) a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record by parties or persons other than the applicant, considering four enumerated sub-factors, including the effects upon the natural and socioeconomic environments; (3) the consequences to society of granting the certificate of need are more favorable than the consequences of denying the certificate, considering four enumerated sub-factors, also including the effects upon the natural and socioeconomic environments; and (4) it has not been demonstrated on the record that the design, construction, or operation of the proposed facility will fail to comply with those relevant policies, rules, and regulations of other state and federal agencies and local governments.

Minnesota Rules, 6135.1100-6135.1500 provide a "basic framework,"[28] environmental standards and criteria for utility crossings of public waters. These standards deal with route design, structure design, construction methods, safety considerations, and right-of-way maintenance. Minnesota Rules, 6135.1000, subp. 2 requires that the Application indicate whether the applicant is satisfying

[27] The Commission's Order Accepting Tribal Economic Opportunity and Labor Education Plan as Modified was reissued through an Erratum Notice dated May 13, 2020.

[28] Minn. R. 6135.1000, subp. 1.

the standard, where applicable, or if not, why not. Except when MDNR determines that it is not feasible and prudent, or not in the best interests of the environment, the applicant shall comply with these environmental standards in designing, constructing, and maintaining utility crossings.

The Project along the Designated Route complies with environmental standards applicable to the public water crossings except where it is not feasible and prudent or in the best interests of the environment. As described in the following sections, where strict compliance with a particular standard is not feasible and prudent or in the best interests of the environment, Project design, plans, and BMPs minimize potential adverse environmental effects. Additionally, environmental effects to public water crossings are subject to mitigation by ongoing public regulatory authority.[29]

8.1 STANDARDS FOR ROUTE DESIGN

8.1.1 Topography

Minnesota Rules 6135.1100 Standard for Route Design, subp. 1 states that, with regard to topography:

A. avoid steep slopes;

B. avoid scenic intrusions into stream valleys and open exposures to water;

C. avoid scenic intrusions by avoiding ridge crests and high points; and

D. avoid creating tunnel vistas by, for example, building deflections into the route or using acceptable screening techniques.

Strict compliance with the topography route design standards is not feasible and prudent because the Designated Route for this large linear infrastructure Project crosses many steep slope areas and some greenfield areas in northern Minnesota. Approximately 91 percent of the Project is co-located with an existing pipeline, utility, or transportation corridor. The remaining portion of the Project is located in greenfield areas. Attachment J identifies the existing utility or transportation corridor within which L3R will be co-located at each public water crossing. Only nine (9) of the 62 public water crossings are not co-located with existing utilities for the reasons presented in Attachment J. Typical workspace configurations for construction of the Project when co-located with an existing Enbridge pipeline are provided in Figure 5 of Attachment C. Enbridge has depicted co-located utilities on the maps in Attachment B where digital data is available. By co-locating the pipeline with other utilities, Enbridge minimizes scenic intrusions to stream valleys, open exposures to water, and ridge crests and high points.

Enbridge is proposing the installation of the pipeline under public waters, and vegetation will be restored within the cleared construction workspace following construction, which will also further minimize scenic intrusions. However, pipeline inspection requirements discussed in Section 4.0 will require that the operational right-of-way be maintained clear of woody vegetation. Enbridge has minimized this clearing to 30 feet over HDD paths. Following restoration, Enbridge will maintain a 10-foot-wide corridor centered on the pipeline free of woody shrubs, and a 30-foot-

[29] This includes, but is not limited to, the Clean Water Act ("CWA") Section 404 and Section 10 Rivers and Harbors Act permit; the MPCA CWA Section 401 water quality certification; MPCA NPDES/SDS industrial wastewater permit; MPCA NPDES/SDS construction stormwater general permit; and other related MDNR licenses and permits.

wide corridor free of trees within the riparian area of trenched waterbody crossings to maintain the integrity of the pipeline (see Section 4.1 and Figure 4.1-1 of the Procedures [see Appendix A of Attachment C]).

Additional measures to minimize scenic intrusions and impacts on steep slopes at public water crossings, include but are not limited to, the following:

- Temporary erosion and sediment control devices BMPs will be installed prior to or at the same time as ground disturbing activities (e.g., grading, topsoiling) at the base of sloped approaches to streams, wetlands, water conveyances (e.g., ditches, swales) and improved access roads. Temporary erosion and sediment control BMPs will also be installed at the downgradient edge of the construction workspace and temporary access roads as needed, and/or in other areas determined by the EI to slow water leaving the site and prevent siltation of waterbodies and wetlands down slope or outside of the construction workspace (e.g., swales and side slopes). Temporary erosion and sediment control BMPs will be placed across the entire construction workspace and temporary access roads at the base of slopes greater than 5 percent and at site-specific locations identified in the SWPPP until the area is revegetated and there is no potential scouring of, or sediment transport to surface waters. Temporary erosion and sediment control BMPs will be maintained until permanent cover[30] is established (Section 1.9 of the EPP).

- Temporary slope breakers will be installed at public water crossings to minimize concentrated or sheet flow runoff in disturbed areas at maximum allowable spacing ranging from 250 feet (3-5% slope), 200 feet (5-15% slopes), to 150 feet (15-25% slopes), to <100 feet (25% slopes) unless otherwise specified in permit conditions (Section 1.9.4 of the EPP).

- The location of trench breakers will be selected based on field conditions at the time of construction and will consider the degree and length of slope, presence of downslope sensitive resource areas such as wetland and waterbodies, and proximity to other features such as roads and/or railroads. Enbridge will install trench breakers according to the following conditions:

    - Trench breakers will be installed on slopes greater than 5 percent adjacent to streams, wetlands, or other waterbodies.

    - Where the pipeline exits a wetland towards areas of lower relief, trench breakers will be installed (within the upland) where there is a potential for underground drainage along the pipe in order to prevent wetland or waterbody drainage.

    - At all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep accumulated trench water out of the waterbody.

[30] Permanent cover means surface types that will prevent soil failure under erosive conditions. Examples include: gravel, concrete, perennial cover, or other landscaped material that will permanently arrest soil erosion. Permittees must establish a uniform perennial vegetative cover (i.e., evenly distributed, without large bare areas) with a density of 70 percent of the native background vegetative cover on all areas not covered by permanent structures, or equivalent permanent stabilization measures. Permanent cover does not include temporary BMPs such as wood fiber blanket, mulch, and rolled erosion control products (Minnesota Rules 7090).

- Adjacent to Minnesota public watercourses[31] with poorly defined bed and banks located within wetland complexes.

- Enbridge will not use foam trench breakers or pillows outside of the external boundaries of the FdL Reservation in Minnesota. Further, Enbridge will not use foam trench breakers or pillows on public lands and public waters within the external boundaries of the FdL Reservation in Minnesota.

- The general location of trench breakers will be identified on construction alignment sheets with a note to "Field Verify," the precise location through coordination between Enbridge's EIs, Enbridge's Craft Inspectors, and the Contractor's Foreman. Additional trench breakers may also be added depending on site-specific conditions (See Trench Breaker Memo provided in May 2020, and Section 1.13 of the EPP).

- During final grading, slopes at public water crossings in areas other than cropland will be stabilized with erosion and sediment control BMPs. Except for actively cultivated areas, permanent berms (diversion dikes or slope breakers) will be installed in steep slope areas at public water crossings at maximum allowable spacing ranging from 250 feet (5%), 200 feet (5-15% slopes), to 150 feet (15-25% slopes), to <100 feet (25% slopes) unless otherwise specified in permit conditions (Section 1.17 of the EPP).

- Restoration of the stream bank and bed contours will be initiated immediately after the installation of the crossing using the open cut trench method and prior to restoring flow using the standard or modified dam and pump or flume method, unless site and permit conditions delay permanent installation. Enbridge will restore the stream banks as near as practicable to pre-construction conditions unless that slope is determined to be unstable. If the slope is considered unstable, Enbridge will reshape the banks to prevent slumping. For public waters, Enbridge will return the bank to pre-construction contours, unless otherwise directed by the site-specific restoration plan. If Enbridge cannot restore to pre-construction contours at a public water, Enbridge will consult with the MDNR before proceeding further. Once the banks have been reshaped, Enbridge will commence soil stabilization activities as described in Section 1.9.1 of the EPP. Temporary slope breakers will be installed on all sloped approaches to streams in accordance with the spacing requirements identified in Section 1.9.4 of the EPP and the outlet of the slope breaker will be directed away from the stream into a well-vegetated area (Section 2.6 of the EPP). Enbridge has developed prepared SSRPs for public water crossings as described in Section 6.9.

- Enbridge will utilize the seed mixes identified in the SSRPs and/or Planting Plan to restore and stabilize steep eroding slopes where appropriate based on site-specific conditions at public waters.

[31] Public waters as defined in Minnesota Statutes 103G.005, Subd. 15 and depicted in Public Waters Inventory maps authorized by Minnesota Statutes 103G.201.

8.1.2 Vegetation

Minnesota Rules 6135.1100 Standard for Route Design, subp. 2 states that, with regard to vegetation:

A. Avoid wetlands; and

B. Run along fringe of forests rather than through them, but if it is necessary to route through forests, then utilize open areas in order to minimize destruction of commercial forest resources.

Strict compliance with the vegetation route design standards is not feasible and prudent because the Designated Route for this large linear infrastructure Project crosses numerous wetlands interspersed along the route and many forested areas. Total avoidance of all wetlands is not possible, but the Project will only affect seven public waters that were field-delineated as wetlands shown on the Public Water Inventory ("PWI") inventory maps. When the full construction workspace crosses these areas, the width will be reduced to 95 feet.

Section 6.2.2 describes Project wetland/basin BMPs that minimize wetland impacts at public water crossings. Additional measures to minimize wetland impacts, include but are not limited to, the following:

- Prior to the commencement of clearing activities, survey crews will flag wetland boundaries and the boundaries of the construction workspace and improved access roads so they can be easily identified by Project personnel and managed as described in applicable plans and permit requirements (Section 1.1 of the EPP).

- Vegetation and trees within wetlands will be cut off at ground level, leaving existing root systems intact (Section 3.2 of the EPP).

- ATWS will be located outside of wetlands wherever feasible and prudent. However, ATWS may be sited in select wetlands where the wetland is adjacent to a public water or waterbody, road, railroads, foreign utility crossings, pipeline cross-overs, and/or where required based on site-specific conditions with prior approval from the applicable regulatory agencies. Staging areas, additional spoil storage areas, and other ATWS will be located in upland areas at least 50 feet away from wetland boundaries, where safe work practices or site conditions permit, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land or where ATWS are required to address MDNR waterbody crossing requirements. If site conditions do not permit a 50-foot setback, then these areas will be located as far away from the wetland as is practicable. Vegetation will not be cleared between these areas and the wetland in any event. No construction activities including vegetation clearing or earthwork will occur between the ATWS and the wetland (Section 3.3 of the EPP).

In some cases, the Project's Designated Route runs through forests, rather than along forest fringes. Further, approximately 91 percent of the route is co-located with an existing pipeline, utility, or transportation corridor, thereby minimizing forest fragmentation (see Attachment J).

Clearing of forested wetlands for ATWS will be avoided as much as possible. Following construction in wetlands and forests, the construction workspace will be restored to pre-

construction contours, and the workspace will be revegetated as described in Section 7.0 of the EPP. Trees will be allowed to regenerate outside of the operational right-of-way. Enbridge will compensate MDNR for reestablishment of woody vegetation outside of the operational right-of-way on Division of Forestry lands and will replant woody vegetation on Division of Fisheries and Division of Parks and Trails lands in accordance with the Planting Plan.

All merchantable timber will be managed in accordance with Project contract specifications and applicable permits and licenses (Section 1.8.2 of the EPP). Non-merchantable timber and slash will generally be disposed of by mowing, chipping, grinding, and/or hauling off-site to an approved location or used in stabilizing erodible slopes or construction entrances (Section 1.8.1 of the EPP). Chips, mulch, or mechanically cut woody debris will not be stockpiled in a wetland; further, chipping is not allowed on public lands (Section 3.2 of the EPP).

8.1.3 Soil

Minnesota Rules 6135.1100 Standard for Route Design, subp. 3 states that, with regard to soil characteristics:

A. Avoid soils whose high susceptibility to erosion would create sedimentation and pollution problems during and after construction;

B. Avoid areas of plastic soils which would be subject to extensive slippage; and

C. Avoid areas with high water tables, especially if construction requires excavation.

Strict compliance with the soils route design standards is not feasible and prudent because the Designated Route crosses some areas of soils with high susceptibility to erosion, high plastic soils, or areas with high water tables (see Section 6.0). However, the EPP describes BMPs and other measures to minimize soil impacts at public water crossings. These measures include but are not limited to, the following:

- Topsoil will be segregated in accordance with the method described in Section 1.10.1 of the EPP. Topsoil will not be typically segregated in standing water wetlands, unless specifically requested by the landowner or managing land agency in accordance with applicable permit conditions (Section 1.10.1 of the EPP).

- During construction, certain activities may be suspended in wet weather conditions to prevent soil rutting and compaction (Section 1.3 of the EPP).

- Temporary and permanent erosion and sediment BMPs will be implemented to prevent sedimentation and minimize soil erosion (Sections 1.9 and 1.17 of the EPP).

- Spill prevention, containment and control measures will be implemented to avoid soil contamination (Section 10.0 of the EPP).

8.1.4 Crossing Public Waters

Minnesota Rules 6135.1100 Standard for Route Design, subp. 4 states that, with regard to crossing public waters:

A. Avoid streams, but if that is not feasible and prudent, cross at the narrowest places wherever feasible and prudent, or at existing crossings of roads, bridges, or utilities; and

B. Avoid lakes, but where there is no feasible and prudent alternative route, minimize the extent of encroachment by crossing under the water.

The Project does not cross any lakes shown on the PWI inventory maps. Strict compliance with the crossing public waters route design standards for streams is not feasible and prudent because the Designated Route for this large linear infrastructure Project crosses several watercourses, including five designed trout streams (see Section 6.11.2). Stream crossings have been designed to follow existing co-located infrastructure, when possible.

Crossings on or under the beds of streams designated by the commissioner as trout waters shall be avoided unless there is no feasible alternative. Enbridge has adopted construction measures to minimize damage to trout habitat. Enbridge has developed Site-Specific Construction and Restoration Plans at two trout streams (LaSalle Creek, Water ID No. 29 and Spring Brook, Water ID No. 48). Enbridge will abide by work-restriction dates for the trenchless crossing of the Straight River (Water ID No. 33) although the crossing will not require in-channel work. Enbridge has committed to constructing the Unnamed Stream (Water ID No. 54) during the winter to minimize impacts and has developed an SSRP. Enbridge has developed a SSCP and SSRP for Little Otter Creek (Water ID No. 65) and special measures to limit impacts from blasting. In addition, Enbridge will apply the trout stream timing restrictions at three public water crossings that are not formally designated as trout streams but contain trout habitat: Unnamed Stream (Water ID Nos. 63a and 63b) and Unnamed Stream at MP 1126.2 (Water ID No. 67).

Wherever feasible and prudent consistent with site-specific conditions, sound engineering and environmental practices (see Table 4.0-1 of the Procedures), and agency input, the lowest impact crossing will be employed at each public water crossing covered by this Application. Attachment J provides a justification for the crossing method selected at each public water. The HDD crossing method will be employed at 21 public water crossings where feasible and prudent. HDD entry and exit ATWS are sited to prevent or reduce physical alteration of forested wetlands and/or riparian habitat at the following public water crossings described in Attachment J:

- Red River of the North
- Tamarac River
- Middle River
- Snake River
- Red Lake River
- Clearwater River
- Shell River (M-096-035), Oxbow Pond (M-096-035)
- Pine River
- Daggett Brook

At several public water crossings identified below, the HDD crossing method would result in greater environmental impact on a wetland, forested vegetation community, or other sensitive resources. In these situations, a lower impact crossing method that minimizes environmental impacts, such as a dry crossing or modified dry crossing is proposed:

- South Branch Snake River
- Bear Creek

- LaSalle Creek
- Spring Brook
- Moose River
- Unnamed Stream (M-120-005-001-005)
- West Savanna River
- Ahmik River
- Little Otter Creek

8.1.5 Special Use Areas

The Project does not cross any special use areas designated under Minnesota Statutes, section 84.033, as scientific natural areas; or those areas designated pursuant to Minnesota Statutes, section 103F.325, as units of the Minnesota Wild and Scenic River System; nor any areas subject to special regulation for recreational, scenic, natural, scientific, or environmental purposes. Therefore, Enbridge complies with the environmental standard for special use areas. (Minnesota Rules 6135.1100, subp. 5).

8.2 STANDARDS FOR STRUCTURE DESIGN

8.2.1 Location of Utility

Minnesota Rules 6135.1200 Standard for Structure Design, subp. 1 states that, with regard to locating the utility overhead or under the ground or water:

A. Primary consideration shall be given to underground and underwater placement in order to minimize visual impact. If the proposal is for overhead placement, the application shall explain the economic, technological, or land characteristic factors, which make underground placement infeasible. Economic considerations alone shall not be the major determinant.

B. If overhead placement is necessary, the crossing shall be hidden from view as much as practicable.

Enbridge will install the pipeline underground at public water crossings in compliance with this environmental standard.

8.2.2 Appearance

Minnesota Rules 6135.1200 Standard for Structure Design, subp. 2 states that, with regard to appearance of the structures, they shall be made as compatible as practicable with the natural area with regard to: height and width, materials used, and color.

As described in Section 8.2.1, Enbridge will install the pipeline underground across public waters, in compliance with this environmental standard.

8.2.3 Right-of-Way

Minnesota Rules 6135.1200 Standard for Structure Design, subp. 3 states that the right-of-way width shall be kept to a minimum.

The Project complies with the right-of-way width minimization standard. Section 3.2.1 describes the temporary and operational rights-of-way widths for the Project. At wetlands, Enbridge will reduce the right-of-way width 25 feet to 95 feet wide. At waterbody crossings, Enbridge will neck down the right-of-way 25 feet starting 20 feet from the OHWM.

8.3 STANDARDS FOR CONSTRUCTION METHODS

Minnesota Rules 6135.1300 Standard for Construction Methods, states that:

- When crossing roads or rivers, leave a screen of vegetation between the structures and the road or river.

- When crossing under public waters, take steps to prevent excessive erosion of lake or stream banks and construct temporary sediment traps to reduce sedimentation.

- Construction across wetlands in the winter in order to minimize damage to vegetation and in order to prevent erosion and sedimentation.

- Construct at times when local fish and wildlife are not spawning or nesting.

Wherever and to the extent feasible and prudent, the Project complies with this crossing construction method standard. Vegetative clearing to minimize impacts at stream crossings is described in Figures 4.1-1 and 4.5-1 of the Procedures in Appendix A of Attachment C. Temporary and permanent erosion and sediment control BMPs will be employed at public water crossings and wetlands as described in Sections 1.9, 1.17, 2.2, and 3.4.1 of the EPP. Enbridge is proposing winter construction in select locations and will utilize winter construction techniques as described in its Winter Construction Plan (see Section 3.5 and Attachment D).

The Project complies with the construction time window restrictions applicable to public water crossings (Section 2.1 of the EPP) as follows:

Enbridge will adhere to the following work-exclusion dates for PWI cool- and warm-water fisheries that require in-channel work,[32] or will seek a waiver from the MDNR:

- Region 1 (Northwest) Non-Trout Streams: March 15 – June 30;
- Region 1 Lakes: March 15 – June 30; and
- Region 2 (Northeast) Non-Trout Stream and Lakes: March 15 – June 30.

In addition, Enbridge will adhere to the following work-exclusion dates in designated Minnesota trout streams and their designated tributaries that require in-channel work to allow for spawning and migration, or will seek a waiver from the MDNR:

- Region 1 (Northwest): September 1 – June 30;
- Region 2 (Northeast): September 15 – June 30; and
- Region 2 within the Lake Superior watershed: September 15 – June 30.

[32] In-channel work that results in the alteration of the course, current, or cross-section of the public water; this restriction does not apply to water appropriation activities (see Section 6.0).

Fisheries waivers requested by Enbridge and granted by MDNR are presented in Section 6.11.2.

8.4 SAFETY CONSIDERATIONS

Minnesota Rules 6135.1400 Safety Considerations, states that:

- Applicants for crossings of electrical transmission lines and pipelines shall adhere to federal and state safety regulation, both with regard to prevention (such as safety valves and circuit breakers) and with regard to emergency procedures in the event of failure (fire suppression, oil spill cleanup).

- In order to ensure adequate safety for commercial or recreational navigational uses of waterways, overhead crossings shall be constructed at adequate heights to provide maximum safety compatible with existing or potential navigational uses.

Enbridge will comply with all federal and state pipeline safety regulations. Title 49 CFR establishes reporting, design and construction requirements, pressure testing, operation and maintenance requirements, integrity management and corrosion requirements and specifies required qualifications of pipeline personnel. For a new hazardous liquid pipeline high consequence areas must be identified prior to construction and hazardous liquid pipeline operators must develop and submit to the PHMSA a written Integrity Management Plan within 1 year of the start of construction (49 CFR 195.452) (see Section 3.4 for a description of safety considerations, including mainline valve placement). Additionally, MPCA reviews the Project's oil and hazardous substance discharge prevention and response plan in accordance with Minnesota Statutes, section 115E.04. The pipeline will be installed underground and will not obstruct navigational uses. As described in Section 6.5, temporary bridges across designated canoe routes will be positioned 3 feet higher than the 50-year flood event to ensure sufficient passage under the bridge.

8.5 RIGHT-OF-WAY MAINTENANCE

Minnesota Rules 6135.1500 Right-of-Way Maintenance, states that:

- Natural vegetation of value to fish or wildlife, which does not pose a hazard to or restrict reasonable use of the utility, shall be allowed to grow in the right-of-way.

- Where vegetation has been removed, new vegetation consisting of native grasses, herbs, shrubs, and trees recommended by the commissioner shall be planted and maintained on the right-of-way.

- Chemical control of vegetation shall be in accordance with rules, regulations, and other requirements of all state and federal agencies with authority over the use.

Maintenance during operations will proceed as described in Section 4.0, and Section 2.0 of the VMP (Attachment E). Section 7.0 of the EPP (Attachment C) and the Planting Plan in Attachment A of the VMP (Attachment E) describe revegetation of the construction workspace following construction. Enbridge will replant woody vegetation at some public water crossings as directed by the SSRPs in Attachment B. Chemical control of INS will only be used if approved by the landowner or land-managing agency as described in the INS Management Plan (Appendix B of Attachment C).