From:	Haller, Macaulay G - DNR
To:	Joe.McGaver@enbridge.com
Cc:	Haller, Macaulay G - DNR; Pils, Gregory R - DNR; Callan, Benjamin S - DNR; Watermolen, Dreux - DNR; Mednick, Adam C - DNR; Mulhall, Lucas - DNR; Tim Drake (Tim.Drake@erm.com)
Subject:	EL5 - DNR Information Request
Date:	Friday, October 13, 2023 3:57:51 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png DNR Information Requests_13Oct23_Wetlands and Waterways.pdf

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Mr. McGaver,

The DNR has reviewed Enbridge's June 5, 2023 and August 5, 2023 response materials to DNR's March 10, 2023 information request related to water quality monitoring. DNR offers the attached comments and information request.

Please reach out with any questions.

Thank you,

Macaulay Haller
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1) Water Quality Monitoring Plan (Version 2, August 2023)

Section 1.0 Introduction

1) If the proposed project is approved, unless a waterway is completely dry for the entire duration of in-water work, DNR will require trenching in the waterway to be completed using a work zone isolation system or bypass system. Please update the WQ Monitoring Plan and Wetland and Waterbody Crossing Table to reflect this information.

Section 2.0 (General Comments)

2) Provide details on how Enbridge will analyze and compare water quality sampling data from waterways that do not have sufficient water depths or flowing water to collect a representative sample as part of the baseline sampling event(s) and/or during the pre-, active, and post-constructing sampling events. Provide details on how Enbridge will effectively demonstrate whether the project impacted water quality for these waterways if water quality data is missing for certain sampling events.

3) Consider updating this section to summarize general water quality sampling information and information that is relevant to all WQ sampling schedules. For example, Section 2.1.1 appears to have general water quality sampling information, but it's written/formatted in a way that the information is only applicable to 2023 monitoring, however, other sections, such as 2.1.2 reference similarities to 2.1.1. It may be more efficient to have an overall summary of WQ sampling information under Section 2.0 and then any different or unique WQ sampling information by date/schedule of sampling in the following subsections. This may help readers/agencies better understand what's proposed.

   As another example, are the sampling sites described below only applicable to 2023 sampling or all proposed WQ sampling?

   > *"waterbodies that are crossed by the pipeline centerline (102 features); waterbodies within the construction workspace, but not crossed by the pipeline centerline (36 features); waterbodies crossed by temporary access roads (62 features); and waterbodies located with staging areas/construction yards/valve site workspace (4)."*

   Information requests below may be applicable to this general comment section but are listed by the existing subsection for ease of understanding.

4) Provide a table/chart summarizing the sampling plan(s) for waterways by sample timing/events (for example, what's the plan for pre-construction (2023, 5-days before pipeline installation), during active construction, post-construction (3 days, 1 week, 1 month, years 1-5), etc.). It's not clear if/how the different sampling events will differ (if at all) between timing in regard to sampling locations, parameters, etc.

5) Clarify whether sampling locations will be at the same approximate locations for all WQ sampling collection events.

6) Provide guidances, protocols, etc. for how physical stream habitat assessments would be conducted.

7) During a discussion between Enbridge and DNR, Enbridge shared that physical stream habitat assessments were not proposed to be completed during 2023 WQ sampling. Provide justification.

8) Update this document with the stream embeddedness protocol and mussel survey protocol that will be followed.

Section 2.1.1

9) Clarify if waterway velocity data will be collected; updated Table 1 with velocity, if applicable.

10) Include discussion on whether applicable physical and biological data will still be collected even if chemical samples cannot be collected (for example, if a waterway is dry at time of visit). If not, provide justification.

Section 2.1.2

11) This section states "Similar to the 2023 sampling…" See Section 2.0 general comments regarding ease of understanding and connecting different subsections.

Section 2.2

12) Provide the estimated active construction sampling frequency (how many times before and after dam installation, during the instream work?).

13) Clarify whether active construction sampling would also take place within waterbodies within the construction workspace, but not crossed by the pipeline centerline, waterbodies crossed by temporary access roads, and waterbodies located with staging areas/construction yards/valve site workspaces. If not, provide justification and information on how Enbridge will demonstrate and evaluate whether project construction may be impacting water quality at these locations.

14) Provide response actions for if the NTU readings at the first downstream public road crossing are still high (greater than 5 NTUs, greater than 10% of upstream NTU readings).

15) Provide the NTU/TSS conversion in the plan document.

16) See Section 2.0 general comments regarding ease of understanding and connections between different subsections

Section 2.3

17) This section states "samples will be analyzed for the same parameters as proposed for active construction (see Table 2)." See Section 2.0 general comments regarding ease of understanding and connections between different subsections.

18) Clarify whether this sampling is also applicable to waterbodies within the construction workspace, but not crossed by the pipeline centerline, waterbodies crossed by temporary access roads, and waterbodies located with staging areas/construction yards/valve site workspaces. If not, provide justification and information on how Enbridge will demonstrate and evaluate whether project construction may be impacting water quality at these locations.

Section 2.4

19) Include discussion on whether applicable physical and biological data will still be collected even if chemical samples cannot be collected (for example, if a waterway is dry at time of visit). If not, provide justification.

20) See Section 2.0 general comments regarding ease of understanding and connections between different subsections.

21) Clarify whether this sampling is also applicable to waterbodies within the construction workspace, but not crossed by the pipeline centerline, waterbodies crossed by temporary access roads, and waterbodies located with staging areas/construction yards/valve site workspaces. If not, provide justification and information on how Enbridge will demonstrate and evaluate whether project construction may be impacting water quality at these locations

22) Provide details, including criteria, on how Enbridge will evaluate and determine whether post-construction conditions are "similar" to pre-construction conditions. Define the term "similar."

Section 3.0

23) Update this section to align with Waterway section, if applicable. Provide sample collection procedure for wetland water samples or update Section 5.0 to include a section on wetland sample collection (if different than waterways). Update with when samples will be collected (pre- and post-construction events sampling events). See Section 2.0 general comments regarding ease of understanding and connections between different subsections.

24) Provide justification for not sampling wetlands during active construction and how Enbridge will demonstrate whether active construction may be impacting water quality at these locations.

Section 4.1

25) Provide information on how far upstream samples will be taken.

26) Provide information on how soon IR samples will be taken after an IR is observed.

27) Provide details on how sampling every 6 hours will be effective at monitoring, containing, and remediating an IR.

28) Clarify whether fish kills will be evaluated in the event of an IR.

29) Add a statement that DNR Office of Energy and Stormwater teams will also be contacted in the event of an in-stream IR.

30) Provide an action plan if bentonite is present during downstream sampling/assessments.

Section 4.2

31) Provide an action plan if bentonite is still present in samples after 5 days.

Section 5.0

32) Confirm water quality samples will be taken from a location where the water column is well mixed.

Section 6.0

33) Clarify if and when 2023 water quality data and reporting will be provided to DNR for review. Provide details on what information will be provided and how it will be presented.

34) Provide details on actions that will be taken if laboratory results show values outside of "normal" or expected ranges.

35) Lab data should include laboratory sampling notes and a list of any laboratory/sample/analytical errors (if applicable).

36) The following topics should be addressed in the discussion section of the report:
    a. temporal trends, if any
    b. exceedances of state water quality standards, if any
    c. exceedance of tribal water quality standards, if any
    d. comparison of water quality parameters to baseline and previous sampling events

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2) Water Quality Monitoring Plan (Version 2, August 2023), Attachment 2 – Water Quality Testing Methods

1) Update to include
    a. DNR and Enbridge analysis for fecal coliform
    b. Enbridge analysis method for TPH
    c. DNR analysis methods for Sulfate and TSS (Residue, Nonfilterable in NR 219)

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3) Water Quality Monitoring Plan (Version 2, August 2023), Attachment 3 – QAPP

Most of the information requests are based on EPA's Module 1, Guidance on Preparing a QA Project Plan (https://www.epa.gov/sites/default/files/2015-06/documents/module1.pdf)

1) Provide the purpose/objective of water quality sampling.

2) Provide goals/decisions to be made from the water quality sampling data results.

3) Identify targeted action limits/levels

4) Update "Sampling Procedures" section with list of field sampling equipment, materials, supplies and sampling/data collection procedures (list, reference).

5) Identify Quality Control Requirements for field measurements.

6) Update Appendix B – Calibration Standard Operating Procedures.

7) Update Appendix C – Analytical Laboratory Quality Assurance Plan.

8) Provide Grab Sample/field sampling protocols (list and references).

9) Identify a list of mathematical or statistical methods proposed to analyze the data and identify whether data should be rejected, transformed, or qualified before any statistical analysis.

10) Provide information on how data results will be evaluated and interpreted.

11) Identify how you intend to use the data to achieve the proposed project's needs and meet project objectives.

12) Provide information on if/how existing data will be considered and how you will determine whether to use existing data.

13) Describe how any field or laboratory quality issues specific to sampling collection, handling, processing, analysis, etc. will be identified, resolved, and reported.

14) Provide details on how the distribution of each variable will be determined (so that a decision can be made as to whether a nonparametric or parametric test is conducted). Clarify what test will be performed for each variable to check normality and describe the potential shortcomings of this test. Clarify whether a confident decision about normality can be obtained for the distribution given the sample size.

4) Enbridge's IR Responses (June 5, 2023)

Section A – Introduction, Question 6:

1. Provide details on the trench backfill process for waterway crossings with silt/clay/organic bed substrate and how the backfilling process would support long-term stability of the waterway.

2. Provide details on how silty, organic, clay backfill may impact turbidity, water quality, and sediment transport downstream once pipeline installation is complete.

Section A – Introduction, Question 8:

Restoration and Mitigation Measures to Achieve Pre-construction Conditions Following Installation of the Pipeline

3. Enbridge states "The streambanks will be restored as near as practicable to preconstruction slopes and elevations unless the original slope is determined to be unstable."

    i. Provide details on how Enbridge will evaluate and determine an original streambank is "unstable;" include specific criteria that will be used to evaluate bank stability.

    ii. Provide a decision tree for bank stability measures if the banks are determined "unstable."

4. Enbridge states "Permanent slope breakers will be installed across the full width of the right-of-way during final cleanup." Verify whether permanent slope breakers will be placed in wetlands/waterways.

Post-Construction Waterbody Monitoring to Confirm Restoration

5. Provide an updated *Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan* detailing how Enbridge will characterize, evaluate, and document post-construction changes for the following parameters in waterways crossed and/or impacted by the project, as well as upstream and downstream of the crossing/impact area. These criteria are not included in the *Wetland and Waterbody Post-Construction Monitoring Plan* (January 2023):

    - bed and bank scour, erosion, sedimentation
    - bed and bank stability
    - migration of riprap, armoring, structures if installed on the bed/banks during the restoration process

Waterbody Monitoring Methodology

6. Provide an updated *Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan* detailing how bed scouring, down-cutting, instability, elevation differences will be visually assessed in the field at the time of monitoring. Provide a brief analysis evaluating why

bathymetric/topographic surveys pre- and post-construction are not proposed and how visual assessments will ensure accurate post-construction assessment of restoration success and stability.

7. Bed and bank scour, erosion, sedimentation, and instability due to project activities may impact the resource upstream and downstream of the project's crossing/impact area. Provide an updated *Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan* detailing the following:

    1. details on how far upstream and downstream of the project area the following parameters will be evaluated:

        i. bed and bank scour, erosion, sedimentation
        ii. bed and bank stability
        iii. migration of riprap, armoring, structures if installed on the bed/banks during the restoration process

    2. details on how Enbridge will evaluate the above criteria upstream and downstream of the project's crossing/impact areas.

    3. details on how Enbridge will evaluate and determine whether upstream/downstream impacts to a waterway are due to project activities or are naturally occurring.

8. Clarify if pre-construction baseline waterbody characterizations included characterizations of bed and bank stability, scouring, erosion, and sedimentation. If not, provide justification.

9. Clarify if waterways with unstable bed/banks will be visited after significant weather events to ensure Enbridge's stabilization/restoration efforts were successful and the waterway remained stable post-construction. If not, provide justification. Provide this information in an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan

Section A – Introduction, Question 9:

10. Enbridge Energy states "Enbridge's Operations will also conduct frequent aerial patrols of the pipeline right-of-way in accordance with federal frequency requirements (49 CFR §195.412)." Define the term "frequent" and provide the long-term duration of aerial patrols over the project area. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan detailing this information.

11. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan detailing how bed elevations will be visually assessed if water and/or flowing water is present in the waterway.

12. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan detailing how bed scouring will be visually assessed if water and/or flowing water is present in the waterway.

13. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan detailing how Enbridge will determine whether post-construction conditions are different than baseline conditions.

14. Provide justification for why monitoring is not proposed for years 3 and 4 post-construction. Provide details on how Enbridge would ensure waterway restoration stability and success during these timeframes if monitoring is not taking place.

Section A – Introduction, Question 14:

15. Clarify if Enbridge will use secondary containment measures for wash water structures to contain any structure leaks. If so, provide details and plans on secondary measures. If not, provide justification.

16. Provide details on BMP measures and secondary containment features that will be implemented at equipment/vehicle washing sites to prevent sediment, debris, oil, etc. from entering wetlands and waterways.

17. Enbridge states "Where herbicide treatment is not feasible or practicable, Enbridge proposes to implement alternative methodologies to minimize the transport and/or spread of invasive and noxious species." Provide details on the "alternative methodologies."

18. Clarify if herbicide treatment will take place in wetlands, waterways, or adjacent to waterways and how water quality, wildlife, and aquatic organism health will be protected.

Section B – Water Quality, Question 1:

19. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan to include a detailed assessment (in written format) summarizing the following:

    a. Available data (physical, chemical, and biological) and its data source

    b. The relevancy and applicability of the baseline data to the proposed project (for example, location of sampling in reference to the proposed surface water crossing, etc.).

    c. The baseline data parameters that are missing/still needed (see table of requested parameters).

Missing Parameters and Enbridge's Proposed Plan

20. Enbridge states "Based on Enbridge's significant experience with linear construction projects as well as other recent water quality sampling programs, many of the listed parameters are unlikely to be altered long-term by the project's short-term disturbance within the waterway." Provide greater detail, supporting documentation, and examples demonstrating similar Enbridge pipeline installation projects did not affect the listed parameters long-term within waterways.

Pre-Construction Sampling

21. Clarify if baseline water quality parameters (outlined in Table B1-1) will also be sampled in waterbodies crossed by TCSBs in 2023, in addition to prior to bridge installation and following bridge removal during project construction. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan to include this information.

Post-Construction Sampling:

22. Clarify if samples will also be taken at the paired upstream/downstream sampling locations upon completion of in-stream construction activities (Enbridge's response only references paired upstream/downstream sampling being taken after completion of the Project). Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan to include this information.

Section B – Water Quality, Question 2

Waterbody Biological Water Quality Parameters

23. Provide the literature information referenced in this section regarding benthic macroinvertebrates and pipeline impacts. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan to include this information.

Wetland Water Quality Sampling

24. Provide justification for not taking wetland samples during active construction. Provide an updated Attachment 4 Wetland and Waterbody Post-Construction Monitoring Plan to include this information.

Section B, Water Quality, Question 19

25. Clearly state the questions being tested by the analysis of the water quality monitoring data. For example, "has total phosphorus increased with respect to the observed baseline group, either in time or space?" "has the construction and/or installation of the pipeline at X waterway crossing resulted in the total phosphorus exceeding state water quality standards?"

26. Explain how the expected sample size for each water quality parameter will provide sufficient statistical power to confidently identify an actionable change in water quality (i.e. a regulatorily-significant impact).

27. Clarify what precise groups will be tested by each paired test. Clarify if this includes testing pre-construction, active construction, post-construction samples in time, or upstream and downstream samples in space. Provide details on how the experimental design supports these tests.

28. Provide the type of criteria that will affect Enbridge's determination of an acceptable tradeoff between type-1 and type-2 error (i.e. false-positive and false-negative errors)

29. Explain how the number of paired samples in time series is sufficient to make confident claims about the trend in differences between upstream and downstream water quality.

30. Clarify what the null and alternative hypotheses are being tested for each case in the hypothesis test. Clarify the level of confidence that will be chosen for the hypothesis test. Clarify whether Enbridge will perform power analysis for each parameter's hypothesis test.

31. Provide details on how Enbridge will ensure the number of water quality samples collected provides acceptable confidence that a change in water quality has been correctly identified.

Section F, HDD and Direct Pipe Crossings, Question 4

32. Enbridge states "there are only two waterbodies Enbridge proposes to cross using the HDD technique where a public road does not cross the river prior to the river entering the Bad River Reservation, the Bad River and Tyler Forks." Update this response to be applicable to all waterways, not just waterways that enter the Bad River Reservation.

Section G, Pipeline Leaks, Spills, Releases Post-Construction (Waterways and Wetlands), Question 1:

33. Enbridge states "If a construction-related leak were to be identified as a result of the pressure test, the pipe would be replaced/repaired, and a pressure test would be re-performed. Once operational following the completion of a successful pressure test, the pipeline will be operated in accordance with PHMSA safety standards at Part 195 that are designed to prevent releases from a pipeline into the surrounding environment." Provide the estimated time between the time of leak detection and Enbridge's response time to prevent releases from the pipeline into the surrounding environment.

Section G, Pipeline Leaks, Spills, Releases Post-Construction (Waterways and Wetlands), Questions 3-9:

34. Enbridge states "please see Enbridge's responses to WDNR Data Request Questions #18 and #19 Section F-Horizontal Directional Drills and Direct Pipe Crossings Section." There are no WDNR Data Request Questions #18 and #19 in Section F-Horizontal Directional Drills and Direct Pipe Crossings Section. Provide clarification and an updated response to these questions.

Section I, Other, Question 3

35. Provide details on how HDD installation methodologies can control/seal the drill path if the HDD encounters a confined aquifer.

Section I, Other, Question 8

36. Enbridge states "wildlife that encounter these BMPs, such as silt fence, will typically either step/jump over the BMPs or will go around the BMPs." Provide details on how BMPs and erosion control measures would support wildlife migration and crossings for smaller animals or wildlife that cannot step or jump over BMP structures.

5) Appendix 4 Wetland and Waterbody Restoration and Post Construction Monitoring Plan (March 10, 2023)

Section 4.2

1. Clarify where information from the 2022 floristic integrity surveys can be found.

Section 4.4

2. Enbridge states "to the maximum extent practicable, Enbridge will restore affected wetlands to preconstruction conditions, which is considered in-place compensation, but not in-kind [compensation]. Clarify the distinction between "in-place" and "in-kind" compensation.

Section 4.6

3. Discern between "medium value high floristic value wetlands" and "Medium" functional value wetlands, as discussed in Section 4.6. These have different monitoring protocols.

4. Clarify which wetlands adjacent to ASNRI waterbodies will be assessed using the monitoring protocol for high and medium value high floristic value wetlands.

Section 4.6.1

5. Clarify what "weed presence" refers to.

Section 4.6.3

6. Clarify what is and is not being proposed for monitoring, comparing Year 1 to Years 2-5; include comparison in tabular form. Provide justification for these methods.

Section 4.7

7. Provide details on how Enbridge will monitor wetlands to ensure re-vegetation and restoration of PFO and PSS wetlands that are temporarily converted to PEM wetland. Provide criteria and measurable standards to evaluate success.

Section 5.2

8. Remove the statement "Enbridge will only use the open cut (wet trench) method, which does not isolate the work area from the stream water, to cross waterbodies with no apparent flow." If the project is approved, DNR will require trenching in the waterway be completed using a work zone isolation system or bypass system to isolate the in-water work zone from the waterway, unless the waterway is completely dry for the entire duration of the activity below the OHWM, including accounting for rain events during construction.

Section 5.3

9. Enbridge states “the bed elevations will be matched to avoid impediments to normal water flow.” Clarify what the bed elevations will be matched to.

Section 5.6

10. Enbridge states “the collected water quality parameters up and downstream of the crossing are similar.” Define the term “similar.”

Section 6.0

11. This section states Enbridge will implement “integrated approaches to invasive or noxious weed infestations as outlined in Enbridge’s Invasive and Noxious Species Management Plan and in accordance with Section 4.0 of Enbridge's EPP.” It is not clear in these referenced documents if Enbridge will conduct treatment and/or control measures if it is determined the presence and/or percent cover of the observed invasive species post-construction area greater than what was observed pre-construction (and compared to adjacent, un-disturbed areas). Provide clarification.

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6) EIR Attachment N, Stream Restoration Typicals (August 2020)

1. Provide a current table listing all waterways that are proposed to have permanent structures placed below the OHWM as part of waterway restoration/stabilization measures. Include the type and amount of permanent structure(s) that would be placed below the OHWM in the table.

2. Per *Exhibit 1, Stream Remediation Decision Process*, provide details on how it would be determined that natural remediation options would not remediate the channel.

3. Clarify which waterways are proposed for permanent berms and provide site specific plans for the berms.

4. Provide site specific plans for waterways that may have riprap, biologs, rootwads, biostabilization, re-grading, or placement of permanent structures below the OHWM that are not listed above.

5. Provide copies of Enbridge's Waterbody Data Sheets for the waterways proposed to have permanent structures placed below the OHWM as part of waterway restoration/stabilization measures.

6. Attachment 9-A of Enbridge's response to USACE does not include site-specific stream restoration drawings for Rock Creek, UNT Trout Brook, UNT Silver Creek, Camp Four Creek, or Feldcher Creek, which are listed in *Table 1 Channel Remediation Methods* in Appendix N of the EIR. Provide site-specific stream restoration drawings these waterways.

7. Describe potential impacts of introducing hard substrate (structures) into the waterway, including upstream and downstream.

8. The proposed waterway restoration/stabilization methods include placement of structures on the bed of the waterway, which have the potential to alter stream dynamics and impact the waterway upstream, downstream, and within the pipeline crossing area. For each waterway that is proposed to have permanent structures placed on the beds/banks as part of waterway restoration/stabilization measures (placement of structures), provide the following information:

    a) Evaluate how long-term waterway impacts from installing the pipeline via directional boring would be greater than, equal to, or less than the currently proposed trenching and restoration/stabilization methods at this location.

    b) Evaluate how costs, logistics, and technical constraints from installing the pipeline via directional boring would be greater than, equal to, or less than the currently proposed trenching and restoration/stabilization methods at this location.

    c) Provide detailed plans that include the existing waterway conditions/profiles and proposed design plans.

    d) Provide information on the existing and proposed velocity and flow of the waterway.

e) Provide details on how the proposed design is the least environmentally impactful option for waterway restoration/stabilization.

f) Provide details on alternative waterway restoration/stabilization measures that were evaluated for the location and why they were not selected.

g) Provide details on if/how fish habitat and transport could be incorporated in the waterway restoration/stabilization plans and still meet the waterway restoration/stabilization objective.

h) Provide details on if/how wildlife habitat could be incorporated in the waterway restoration/stabilization plans and still meet the waterway restoration/stabilization objective.

i) Provide details on any modeling that was completed to evaluate impacts of the proposed waterway remediation/restoration methods on the installation location and upstream/downstream of the installation location, including modeling that was performed to evaluate flooding events.

j) Provide details on how far upstream and downstream of the structure installation area(s) was analyzed for impacts from the waterway restoration/stabilization methods.

k) Clarify if there are any additional underground utilities near the areas proposed for waterway restoration/stabilization and upstream/downstream of these areas. Provide information on how the proposed waterway restoration/stabilization method would impact nearby utility crossings, if applicable.

l) Evaluate and provide details on the short-term and long-term impacts upstream, downstream, and within the area of proposed structures. This includes, but is not limited to water quality, wildlife habitat, fisheries, flow, erosion/sedimentation, and bed and bank stability.

m) Evaluate and provide details on how the current proposal(s) would increase or decrease erosion/sedimentation upstream, downstream, or within the waterway restoration/stabilization area.

n) Evaluate and provide details on how the current design proposal(s) would increase or decrease sediment transport.

o) Provide details on the longevity of the proposed structures.

p) Provide details on how the site would be monitored to ensure the proposed structures would remain in place, avoiding downstream migration.

q) Provide details on long-term maintenance and monitoring of the waterway restoration/stabilization site post-construction.

r) Provide details on how the proposed waterway restoration/stabilization will work long-term if slope failures have been/are occurring upstream and downstream of the project area.

s) Provide detailed specifications for the proposed fill materials that will be used, including placement and compaction.

t) If applicable, provide details on the proposed riprap, including its origin, if clean riprap would be used, and the type of riprap (field stone, angled rock, etc.).

u) Provide details on proposed vegetation clearing along the bed and banks of the waterway as part of the permanent waterway restoration/stabilization.

v) Describe potential cumulative impacts resulting from the proposed waterway restoration/stabilization and how these impacts would be evaluated post-construction.

w) Provide documentation of riparian owner(s) consent to place structures within the waterway

x) Provide additional photos of the proposed crossing that is proposed for structures, as well as upstream and downstream of the crossing.

y) Provide details on how the proposed structures would
    - Not materially obstruct navigation
    - Not be detrimental to the public interest
    - Not materially reduce the flood flow capacity of the waterway

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7) Wetland and Waterway Individual Permit Application

A. Wetlands:

1) Describe how all practicable measures to minimize the adverse impacts to wetland functional values will be taken.

2) Define the activities that will result in temporary wetland impacts from the proposed project (consider worse-case scenario). The application narrative lists temporary impacts from pipeline workspace, access roads, and pipe yards. Clarify if the temporary impacts are from placement of matting, excavation, access through wetlands that result in a discharge of fill, etc. Update the Wetland and Waterway Crossing Table with these temporary activities and the amount of fill from each activity.

3) Clarify if segregated soils will be placed on construction matting or similar material during temporary storage and management.

4) Provide information on storage, containment, and management of trenched and side-casted saturated wetland soils. Provide figures depicting this information, similar to that found in Figure 18 (Typical Wetland Crossing) of the EIR/EPP.

5) There may still be opportunity to segregate topsoil and subsoil within saturated wetlands, for example, depending on the wetland's "level" of saturation (such as wetlands with standing water vs wetlands without standing water, but with wet/glistening soil) or soil profile (such as continuous vs discrete soil profiles/layers). Provide additional information on how Enbridge will evaluate whether saturated soils can be segregated during trenching in wetlands and how they will attempt to segregate topsoil and subsoil in saturated wetlands.

6) Update the Wetland and Waterway Crossing Table with the estimated amount of wetland impact from dynamite blasting (or clarify if this amount is included in the amount of wetland impact from excavation activities).

7) In March 2020, DNR requested of Enbridge "why no wetlands are proposed to be installed across via directional bore." In April 2020, Enbridge's response was "Enbridge has attempted to minimize wetland disturbance within riparian areas of waterbodies proposed to be crossed using the HDD method by extending the HDD, where feasible based on site conditions, to include riparian wetlands. Those wetlands are identified in the updated Attachment F. While HDDs reduce the potential impacts to wetlands associated with excavation, they require significantly larger workspace, which could increase impacts to other adjacent sensitive resource areas."

    a. Provide greater detail on why non-riparian wetlands are not proposed to be crossed via boring. Details should include discussion on workspace size, geology and risk of frac-out, logistics, cost, technology, access, etc.

    b. Quantitate how many and the total amount (size) of non-riparian wetlands that are proposed to be crossed by the pipeline and how many of those non-riparian wetlands are proposed to be crossed via HDD.

c. Quantitate how many and the total amount (size) of riparian wetlands that are proposed to be crossed by the pipeline and how many of those riparian wetlands are proposed to be crossed via HDD.

8) In March 2020, DNR requested of Enbridge "Can the directional bores planned at road and railroad crossings be extended to bore across adjacent wetlands?" In April 2020, Enbridge's response was "Conventional boring is typically limited to an installation distance of approximately 300 feet, depending on site factors including soils and topography. Enbridge has endeavored to extend bores to the extent practicable."
   a. Provide details on where Enbridge has extended HDD installation across adjacent wetlands to road and railroad crossings.

   b. For wetlands adjacent to roads/railroad crossings where HDD was not extended, provide further justification.

9) Provide greater detail comparing the workspace size and amount of tree/shrub clearing in wetlands that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching. Include a comparison specific to high-quality wetlands.

10) Clarify whether wetland clearing (forested and/or shrub) would take place along the pipeline ROW, regardless of the pipeline installation method (trenching vs boring). Clarify if the width and/or length of wetland clearing would differ between the pipeline installation method.

11) Provide greater detail comparing the amount of temporary wetland fill (via excavation) that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching. Include a comparison specific to high-quality wetlands.

12) Provide greater detail comparing the amount of temporary wetland fill (via placement of construction matting) that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching. Include a comparison specific to high-quality wetlands.

13) Provide greater detail comparing the amount of temporary wetland fill (via soil rutting/soil mixing from equipment use and access) that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching. Include a comparison specific to high-quality wetlands.

14) Provide greater detail comparing the amount of permanent wetland fill that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching. Include a comparison specific to high-quality wetlands.

15) Provide greater detail comparing the amount (size) of wetlands that will be crossed and/or impacted from vehicle access and/or equipment use from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

16) Provide greater detail comparing the temporary and permanent impacts to wetland functional values that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching. Include a comparison specific to high-quality wetlands.

17) Provide greater detail comparing the amount (size) of dynamite blasting that would take place in wetlands as a result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

18) Provide greater detail comparing the risks of introducing and/or spreading invasive species in wetlands that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

19) Provide greater detail comparing cumulative wetland impacts that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

20) Provide greater detail comparing the methods, timeline, and costs of restoration in wetlands as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

21) Provide greater detail comparing the methods, timeline, and costs of post-construction monitoring in wetlands as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

22) Provide greater detail comparing the project costs that would result from 1) installing the pipeline via boring in wetlands and 2) installing the pipeline via trenching in wetlands.

23) Provide greater detail comparing the risks of frac-out, spills, and/or contamination in wetlands as a result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

24) Provide greater detail comparing the technological and logistical constraints and limitations of working within wetlands as a result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

25) Provide site-specific details on why the following high-quality wetlands cannot be crossed via boring. Compare how boring vs trenching the pipeline through these wetlands would affect wetland fill amounts, functional values, project costs and logistics, risk of frac-out, wetland clearing amounts, water quality, wildlife habitat, restoration/stabilization costs, and post-construction monitoring costs.

    a. wasc1055f_w
    b. wase1056f_w
    c. wirb1005f_w
    d. wirc10003f_w
    e. wirc1010f_w
    f. wirc1014f_w
    g. wirc1022f_w
    h. wasc071f
    i. wasd1010f
    j. wasw012f
    k. wird027f
    l. wirc013f

26) Provide details on why the wetlands listed with “High” WRAM Functional Value Rating on the Wetlands and Waterbodies Crossing Table cannot be crossed via boring. Compare how boring vs trenching the pipeline through these wetlands would affect wetland fill amounts, functional values, project costs and logistics, risk of frac-out, wetland clearing amounts, water quality, wildlife habitat, restoration/stabilization costs, and post-construction monitoring costs.

27) Clarify if construction matting is proposed to be placed in wetland for greater than 60 consecutive days during the growing season. If so, clarify if a matting restoration plan has been reviewed and approved by DNR. If matting will be placed in wetland for greater than 60 days during the growing season, and a matting restoration plan has not been submitted to and reviewed by DNR, please provide a wetland matting restoration plan.

28) Provide details on how the amount of permanent and temporary wetland clearing has been minimized to the extent practicable.

B. Waterways – General:

1) Provide greater detail comparing the amount of temporary waterway impacts (via dredging, excavation) that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

2) Provide greater detail comparing the amount of permanent waterway impacts that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

3) Provide greater detail comparing the impacts to water quality as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

4) Provide greater detail comparing the impacts to fish spawning, fish transport, and/or fish habitat as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

5) Provide greater detail comparing the impacts to macroinvertebrates as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

6) Provide greater detail comparing the impacts to bed and bank stability as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

7) Provide greater detail comparing the impacts to riparian buffers as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

8) Provide greater detail comparing the methods, timeline, and costs of restoration in waterways (including the placement of permanent structures as part of bank stabilization) as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

9) Provide greater detail comparing the methods, timeline, and costs of post-construction monitoring in waterways as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

10) Provide greater detail comparing the project costs that would result from 1) installing the pipeline via boring in waterways and 2) installing the pipeline via trenching in waterways.

11) Provide greater detail comparing the risks of frac-out, spills, and/or contamination in waterways as a result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

12) Provide greater detail comparing the technological and logistical constraints and limitations of working within waterways as a result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

13) Provide greater detail comparing the amount (size) of dynamite blasting that would take place in waterways as a result of 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

14) Provide greater detail comparing the workspace size and amount of bank vegetation clearing in and adjacent to waterways that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

15) Update the Wetland and Waterway Crossing Table with the estimated amount of waterway impact from dynamite blasting (or clarify if this amount is included in the amount of waterway impact from dredging).

16) In Enbridge's response to USACE on January 23, 2023, Enbridge stated in Table 3-1 that trenchless method was rejected for specific waterways because "the narrow width of the waterway is unsuitable for a long HDD crossing." What if HDD was extended outside of the waterway to also cross wetlands, sensitive resources, etc., thus utilizing the opportunity for a "long HDD crossing?" For each waterway listed in Table 3-1, discuss what the crossing, workspace, wetland clearing, wetland, impacts, and waterway impacts would look like if HDD was utilized beyond just the waterway crossing, as part of "a long HDD crossing"?

17) The following waterways are proposed for dredging and bank stabilization measures requiring the placement of permanent structures below the OHWM; some of these waterways are also trout streams or perennial tributaries to trout streams (per the Wetland and Waterbody Crossing Table). Provide greater detail on why HDD is not practicable at these locations. Provide information on how boring the waterway would affect wetland fill amounts, project costs and logistics, wetland clearing amounts, waterway impact, water quality, restoration/stabilization costs, post-construction monitoring costs.

    a. Bay City Creek (sase006p)
    b. Little Beartrap Creek (sasa047i)
    c. Beartrap Creek (sasb007i)
    d. UNT Deer Creek (sasc039i)
    e. UNT Trout Brook (sasc1003p_x1)
    f. Rock Creek (sasc041p)
    g. UNT Marengo River (sase1015i)
    h. UNT Silver Creek (sasd1015p)
    i. UNT Gehrman Creek (sasw011)
    j. UNT to Brunsweiler (sasc1006p)
    k. Camp Four Creek (sasw005)

18) The following waterways are proposed for dredging and are perennial tributaries to trout streams (per the Wetland and Waterbody Crossing Table). Provide greater detail on why HDD is not practicable at this location. Provide information on how boring the waterway would affect wetland fill amounts,

project costs and logistics, wetland clearing amounts, waterway impact, water quality, fisheries and fish habitat; and post-construction monitoring costs.

a. UNT of Marengo River (sasd011p)
b. UNT of Silver Creek (sase005p_x2, sasv004p)
c. UNT of Krause Creek (sasv020p)
d. UNT of Bad River (sasa008p)
e. UNT of Gehrman Creek (sasa004p)
f. UNT of Feldcher Creek (sirb010p)
g. UNT of Vaughn Creek (sird009p)

19) Provide information on how the use of sand as trench backfill would impact sediment transport and stability in a waterway system (for waterways without an existing sandy substrate), including waterways comprised of silty/clay/organic bed material. Provide a list of waterways where sand backfill is proposed.

20) Enbridge states ECDs will be inspected, at a minimum, weekly and within 24 hours after every precipitation event that produces 0.5 inch of rain or more during a 24-hour period. Provide information on how waterway bed and bank stability can also be evaluated during this time.

21) sasv001p (UNT of Silver Creek) and sirb009p (UNT of Feldcher Creek) are proposed to be crossed/impacted by access roads and are proposed to be dredged. Provide details on the need to dredge these waterways.

C. Installation of TCBS across waterways:

1) The Wetland Waterbody Crossing Table describes 400 SF of bank disturbance for installation of TCSBs.
   a. Clarify why bank disturbance cannot be avoided.
   b. Describe the proposed bank disturbance activities and describe how 400 SF was calculated.
   c. Described how the footprint of bank disturbance was minimized the extent practicable.
   d. Describe how bank disturbance will be minimized during placement and removal of TCSBs.
   e. Describe how banks will be restored upon removal of TCSBs.

2) Describe how the installation and removal of the TCSBs would be conducted in a manner that prevents sediment and debris from entering the waterway.

3) Clarify if any TCSBs will require in-stream support. If so,
   a. Provide justification for the need to install in-stream support in the waterway (site specific).
   b. Provide an updated Wetland Waterbody Crossing Table with this information.
   c. Provide site-specific plans of the in-stream support and waterway crossing.
   d. Provide information on how impacts to the bed of the waterway will be avoided.
   e. Provide information on how flow will be maintained.
   f. Provide information on how aquatic habitat, vegetation, fisheries, aquatic organisms will be protected during installation, use, and removal.

4) Clarify if any TCSBs will require earthen ramps. If so,
   a. Provide justification for the need to use earthen ramps instead of wood or metal ramps (site specific).

b. Provide an updated Wetland Waterbody Crossing Table with this information.
c. Provide site-specific plans of earthen ramp and waterway crossing.
d. Provide information on how water quality, vegetation, fisheries, aquatic organisms will be protected during installation, use, and removal of earthen ramps.
e. Provide methods for installation and removing earthen ramps.
f. Provide information on the origin of the material used for the earthen ramp.

5) Clarify if rock flume bridges are proposed.

6) Provide figures for Bridge Types A, B, C, as described in the Wetland Waterbody Crossing Table.

D. Driving on the Bed of Waterways

1) Clarify if driving on the bed of waterways is proposed. If so,

a. Provide justification for the need to drive on the bed of the waterway (site specific).
b. Provide an updated Wetland Waterbody Crossing Table with this information.
c. Provide information on how impacts to the bed and banks of the waterway will be avoided.
d. Provide information on how water quality, aquatic habitat, vegetation, fisheries, and aquatic organisms will be protected.
e. Provide details on how impacts to the bed of the waterway will be avoided and minimized.
f. Provide details on how you shall ensure soil is not displaced within the waterway channel or on its banks during the driving activity.

E. Wetland and Waterway Crossing Table:

1) Clarify why waterway features in the Wetland Waterbody Crossing Table would have "N/A" for Proposed Pipeline Crossing Method but have dredging proposed.

2) Clarify when Dredging would be "Yes" and Instream Excavation Impacts would be "N/A".

3) Clarify if ditches, WDH, swales are assumed and/or considered navigable waterways or wetlands and why the feature type is not categorized as a waterway or wetland feature.

4) Update the table with any navigability determinations made by DNR

5) Update this table to included proposed amounts of fill from permanent structures below the OHWM of waterways and a description of the fill.

6) Application narrative states permanent fill is proposed for the of mainline valves, but the table lists permanent fill for wasc1010s, wasc1010e, wbad1006e, wasa115e as "permanent access." Provide clarification on proposed permanent wetland fill and the activities resulting in permanent fill. Provide a brief PAA on why permanent wetland fill cannot be avoided and how the amount of permanent fill was minimized to the greatest extent practicable.

7) Update the table with road access ID's.

8) Update the table with type of flow bypass system proposed for in-water crossing (flume vs dam and pump).

Blasting

1) Provide justification for dynamite blasting within waterways and what alternatives were considered. Provide details on why waterways proposed for blasting cannot be crossed via HDD (or if waterways would be proposed for dynamite blasting regardless of installation method).

2) Evaluate short-term and long-term impacts to dynamite blasting within waterways, including impacts on water quality, fisheries and habitat, wildlife and habitat, bank/bed stability, sediment transport, aquatic vegetation, and macroinvertebrates.

3) Evaluate short-term and long-term impacts to dynamite blasting within wetlands, including impacts on water quality, vegetation, soils, wildlife and habitat, and hydrology.

4) Application materials show wetlands and UNT of Feldcher Creek (sirb1001e, sirb1002e, sird1004i) as having dynamite blasting proposed, but no Proposed Pipeline Crossing Method listed. Provide clarification.

5) Provide details on proposed blasting within and adjacent to shallow aquifers and springs.

6) Provide details on how blasting would affect Enbridge's proposed restoration plans in wetlands and waterways.

7) In Attachment E of the EIR, the blasting plan states "Following any blasting activities, stream channels will be restored to near pre-construction contours, alignment, and conditions through post-construction restoration activities." Define the term "near pre-construction."

F. General

1) Provide greater detail comparing the amount of temporary and permanent impacts to wildlife and wildlife habitat that would result from 1) installing the pipeline via boring and 2) installing the pipeline via trenching.

2) Describe how the proposed project represents the least environmentally damaging practicable alternative taking into consideration practicable alternatives that avoid wetland impacts.

3) Describe how the proposed project will not result in significant adverse impact to wetland functional values, in significant adverse impact to water quality, or in other significant adverse environmental consequences.

4) Provide details on how pipe coating (such as on girth welds) will be prevented from entering waterways and wetlands.

5) Section 4.6 of the EIR states "Enbridge will minimize the width of the trench through wetlands by minimizing the length of time the excavated ditch is open to reduce the potential for slumping and/or ditch cave-ins." Verify Enbridge has minimized the widths of the trenches through wetlands and waterways to the extent practicable, considering the depth of the trench, soil type, soil saturation, and personnel safety.

6) Enbridge provided information project planning and the DNR HDD Tech Standard for the *proposed* HDD installations. Provide details on if/how Enbridge applied DNR's HDD Tech Standard for the *entire* project when evaluating pipeline installation methods. Provide information on how Enbridge applied the DNR HDD Tech Standard to make decisions regarding the use of HDD vs trenching of the pipeline through all wetlands and waterways proposed to be crossed by the pipeline.