

Memorandum For Record

Subject: Record of Decision for Standard Individual Permit Application, LRE-2010-00463-56-A19

This document constitutes the Record of Decision, Section 404(b)(1) Guidelines Evaluation, Public Interest Review, and Statement of Findings for the subject application.

1 Introduction and Overview

Information about the proposal subject to the United States Army Corps of Engineers' (USACE's) regulatory authorities is provided in Section 1.3 of this memorandum. Detailed evaluation of the activity is found in Sections 2 through 11, and findings are documented in Section 12.

1.1 Applicant Name

Enbridge Energy, Limited Partnership ("Enbridge", or the "Applicant").

1.2 Activity Location

The site is in the Straits of Mackinac ("Straits"), within Lake Michigan, between McGulpin Point (Mackinaw City, Emmet County) and Point LaBarbe (Saint Ignace, Mackinac County), in Michigan (refer to Attachment 1).

1.3 Description of Activity Requiring a Permit

The USACE, Detroit District, does not regulate pipeline design, operation, or substances transported within a pipeline. Relative to this review, the USACE has regulatory authority over specific activities pursuant to Section 10 of the Rivers and Harbors Act of 1899 ("Section 10") for structures and work in federally navigable waters of the United States ("navigable WOTUS") and Section 404 of the Clean Water Act ("Section 404") for discharges of fill within wetland WOTUS.

As such, USACE Detroit District has evaluated the environmental impacts of regulated construction and related activities within USACE's scope of analysis. These activities are associated with the Applicant's proposal to construct a 3.9-mile-long tunnel approximately 21 feet in inside diameter (the "Tunnel", with the overall activity referred to as the "Applicant's Preferred Alternative" or the "Project") under the lakebed of the Straits, which would house a replacement segment of the Applicant's Line 5 pipeline. The Line 5 segment crossing the Straits (the "Dual Pipelines") currently consists of two 20-inch-diameter pipes that are buried in sediment near shore and rest on, or are anchored to, the lakebed of the Straits. The specific activities requiring USACE authorization are as follows:

Tunnel construction: Excavation of approximately 364,000 cubic yards of rock from beneath the Straits of Mackinac (Lake Michigan, a navigable WOTUS) using a tunnel boring machine, in association with the total excavation of 532,000 cubic yards of rock (between tunnel boring machine entry and exit points), and construction of a 21-foot-diameter tunnel approximately 3.7 miles long in bedrock under the Straits of Mackinac (3.9 miles in total length between tunnel boring machine entry and exit points) to house a 30-inch-diameter replacement segment for the Line 5 pipeline and associated tunnel access and utility infrastructure. Following tunnel construction, and after cleaning the existing Line 5 Dual Pipeline segments within Lake Michigan, Enbridge proposes to abandon the Dual Pipelines in place.

Discharge of fill in wetland WOTUS: Discharges of fill material into four wetlands identified as WOTUS for construction workspace, outfall structures, and operational facilities associated with tunnel shaft construction, as shown in Table 1 below.

Table 1. Proposed discharges of fill (permanent and temporary) in wetland WOTUS within USACE's Section 404 responsibility

Wetland	Length (ft)	Width (ft)	Depth (ft)	Volume (cyd)	Area (ac)
W3	14	1	0.5	0.25	0.0003
W8	232	30	0.5	129	0.06
W10	75	50	0.25	35	0.06
W19	575	75	2.2	3,514	0.89
Total				3,678	1.01

Water intake installation: Installation of two concentric turbidity curtains (totaling approximately 180 linear feet and 88 linear feet, respectively) to fully enclose the horizontal directional drilling (“HDD”) exit point on the lakebed of the Straits of Mackinac. Dredging of up to 25 cubic yards of bentonite material that settles on the lakebed at the HDD exit point. Installation of a 14-inch-diameter water intake pipe extending approximately 775 feet waterward of the Ordinary High-Water Mark (“OHWM”), with much of the pipe installed using HDD, and approximately 61 linear feet of pipe resting on the lakebed waterward of the HDD exit point. Installation of approximately 10 to 15 pre-cast concrete ballast supports, each with a 2-foot by 4-foot footprint, to anchor the exposed portion of the intake pipe on the lakebed. Installation of a water intake structure on a 12-foot by 12-foot precast concrete slab. Installation of a location buoy on the intake structure.

1.3.1 Proposed Avoidance and Minimization Measures

The Applicant's original proposal involved 0.10 acres of permanent wetland loss and 0.03 acres of temporary wetland impact.¹ The Applicant subsequently modified its proposal to remove 0.08 acres of permanent wetland fill associated with widening of Boulevard Drive and the 0.03 acres of temporary wetland fill for access to a staging area north of Enbridge's existing North Straits Facility.

After completion of an updated wetland delineation, dated November 13, 2024, which identified additional wetlands within the construction limits of disturbance (“LOD”), the Applicant modified the LOD of the project site north of the Straits (the “North Side”), resulting in a total of 1.01 acres of wetland WOTUS fill within USACE's Section 404 responsibility. On March 2, 2026, the Applicant proposed to restore 0.35 acres of wetlands (including 0.22 acres of wetland WOTUS) within the LOD but outside the operational footprint of the project, reducing the acreage of permanent wetland loss. The currently proposed Project would involve 0.79 acres of permanent fill (wetland WOTUS loss) and 0.22 acres of temporary fill in wetland WOTUS within USACE's Section 404 responsibility.

Additional measures to avoid and minimize impacts not specific to WOTUS are in Table 5-1 in the Final Environmental Impact Statement (“EIS”).

1.3.2 Proposed Compensatory Mitigation

The Applicant proposes to purchase 3.06 wetland mitigation bank credits to offset impacts of regulated discharges in federally regulated WOTUS and impacts in state-regulated wetlands.

¹ Unless otherwise specified throughout this document, “wetlands” includes all wetland resources irrespective of jurisdiction (i.e. not limited to wetlands determined to be “wetland WOTUS” subject to USACE's Section 404 responsibility).

The Applicant would purchase a total of 2.02 wetland mitigation bank credits to offset the impacts of 1.01 acres of proposed discharges to wetland WOTUS within USACE's Section 404 responsibility, representing a 2:1 ratio. To date, the Applicant has purchased 0.26 palustrine forested (PFO) wetland mitigation bank credits and has entered into a purchase agreement to acquire up to 10 PFO wetland credits from the Carp River II Wetland Mitigation Bank. In addition, the Applicant proposes to preserve a 203-acre property on Bois Blanc Island through a conservation easement and to install a barrier along the western boundary of Enbridge's property to eliminate vehicle traffic in a wetland outside the construction footprint.

1.4 Existing Conditions and Applicable Project History

In-depth information about the existing conditions in the activity area (comprehensive of all alternatives/sub-alternatives considered in the EIS) is in Chapter 3 "Affected Environment" of the January 2026 Enbridge Line 5 Tunnel Project Final EIS.

The existing Line 5 pipeline crossing of the Straits was authorized by DA Permit (File LRE-1953-160080) and constructed in 1953. Line 5 is approximately 645 miles long and runs from Superior, Wisconsin to Sarnia, Ontario, transporting light crude oil and natural gas liquids. Line 5 crosses the Straits of Mackinac over approximately 3.7 miles, where it is buried close to shore, to approximately the 65-foot contour depth of the lake, and rests or is supported on the lakebed at depths up to about 240 feet. The single 30-inch pipeline splits into two 20-inch pipelines, referred to as the Dual Pipelines, as it crosses the Straits.

The Applicant applied to USACE for Department of the Army ("DA") authorization for structures and/or work that may affect navigable WOTUS and for authorization to discharge dredged or fill material into non-navigable, wetland WOTUS within the USACE's Section 404 responsibility associated with the proposed Tunnel construction (File LRE-2010-00463-56-A19). Upon receiving the application, USACE issued a Public Notice on May 15, 2020, describing the proposed Project and requesting comments to inform the environmental review. A Notice of Public Hearing was published on November 7, 2020, announcing an online public hearing that was held on December 7, 2020, with an associated public comment period from November 7, 2020, to December 17, 2020. Following direction from the Acting Assistant Secretary of the Army for Civil Works ("ASA(CW)") and consideration of the comments received, USACE determined that, based on the unique characteristics of the geographic region; the critical importance of the Straits of Mackinac to the economy, navigation, maintenance of biological diversity, cultural resources, and treaty-protected fishery resources; and the uncertain nature of impacts to the Straits of Mackinac Traditional Cultural Landscape ("TCL"), there is potential for significant effects to the human environment, requiring preparation of an EIS.

In the Spring of 2025, USACE Detroit District found the permit application met the terms of Executive Order ("E.O.") 14156, Declaring a National Energy Emergency, and was subject to special emergency processing procedures.² The Detroit District implemented the special processing procedures approved by the Great Lakes and Ohio River Division in accordance with 33 C.F.R. § 325.2(e)(4). USACE provided a 30-day public comment period on the May 2025 Draft EIS consistent with its emergency processing procedures.

During and after public review of the May 2025 Draft EIS, the Applicant provided additional information regarding the feasibility of an HDD Installation Alternative considering advances in technology within the HDD industry. An HDD Installation Alternative was previously considered but dismissed from detailed analysis in the May 2025 Draft EIS due to technical infeasibility.

² April 14, 2025, Memorandum for Record, Subject: Application of Executive Order No. 14156 to LRE-2010-00463-56-A19 (1145), Enbridge Line 5 Tunnel Regulatory Permit Application and Use of Emergency Permitting Procedures Pursuant to 33 C.F.R. § 325.2(e)(4).

Upon consideration of the new information, USACE determined this alternative warranted detailed analysis within the Final EIS, and prepared a Supplemental Draft EIS, which was released for a 22-day public comment period in November of 2025. USACE considered all comments received in response to the 2020 public notice, scoping comments, and comments on the Draft EIS and Supplemental Draft EIS in preparing the Final EIS.

1.4.1 Jurisdictional determination

The USACE provided Enbridge with a preliminary jurisdictional determination (PJD) on December 30, 2019, and Enbridge relied on this PJD in its original permit application. USACE requested a new wetland delineation from Enbridge on December 21, 2022, with subsequent requests for additional supporting data. USACE reviewed and concurred with Enbridge's revised aquatic resources delineation report, dated November 13, 2024, and provided Enbridge with a PJD based on the updated report on December 20, 2024.

In 1984 a portion of the USACE's regulatory responsibilities under Section 404 of the Clean Water Act was transferred to the State of Michigan pursuant to 40 C.F.R. Part 233 and is administered by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). USACE retains its Section 404 responsibility in Michigan over Section 10 waters and their adjacent wetlands. The USACE's PJD distinguishes the wetland WOTUS where USACE retains its Section 404 responsibility. USACE's permitting authority is limited to the WOTUS (including navigable WOTUS and wetland WOTUS) within its Section 10 and 404 responsibilities. This analysis focuses on the aquatic resources within USACE's responsibility yet discloses all proposed aquatic resource impacts.

1.5 Permit Authority

USACE reviewed the application under the authorities of Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 1344) and Section 404 of the Clean Water Act (33 U.S.C. § 403).

2 Scope of review for National Environmental Policy Act (i.e., scope of analysis), Section 7 of the Endangered Species Act (i.e., action area), and Section 106 of the National Historic Preservation Act (i.e., permit area)

2.1 Determination of Scope of Analysis for National Environmental Policy Act ("NEPA")

The scope of analysis for NEPA always includes the specific activity requiring a DA permit that is located within USACE's geographic jurisdiction. In addition, USACE applied the four factors test found in 33 C.F.R. Part 325, Appendix B to determine if there are portions of the larger project beyond the limits of the USACE's geographic jurisdiction where the federal involvement is sufficient to turn these portions of an essentially private action into a federal action.

Based on application of Appendix B, USACE determined that the scope of analysis for this review includes all components of the Applicant's proposal, including the construction footprint, haul routes, and excavated material placement sites ("EMPSs"). The extent of federal involvement is sufficient to turn these portions of an essentially private action into a federal action. Therefore, the construction Project proposed and resulting environmental consequences are products of the USACE's permit action.

Final Description of Scope of Analysis: USACE defined its scope of analysis based on its regulatory authorities and the activities where there is sufficient federal control and responsibility to warrant federal review. The activities within USACE's scope of analysis include:

- Construction of the proposed Tunnel between the tunnel-boring machine (“TBM”) entry and exit portals
- Associated construction activities, equipment use, and materials staging within the proposed Project construction footprints, including site restoration
- Transport and disposal of spoils material
- Select operation and maintenance activities related to the Tunnel and structures within it
- Decommissioning of the existing Dual Pipelines as proposed by the Applicant

USACE prepared a Memorandum for Record (“MFR”), Subject: NEPA and Public Interest Review Scope of Analysis for Enbridge Line 5 Tunnel,³ that defines the NEPA scope of analysis and establishes the scope for USACE’s public interest review. The MFR also responds to specific scope concerns raised by the public, Tribal Nations, Cooperating Agencies, and Consulting Parties. The MFR explains the USACE’s scope of analysis related to the following considerations: a) the Line 5 tunnel crossing of the Straits of Mackinac versus consideration of the entire Line 5 pipeline; b) whether connected actions on Line 5 exist; c) issues related to engineering, design, and safety; d) oil spill risk, potential impacts, and response; e) temporal consideration; f) geographic, economic, social and cultural considerations for scope; g) cumulative impacts; and h) operational activities. The Final EIS, Appendices C2 and C3 also address public comments related to the USACE’s scope of analysis.

2.2 Determination of USACE’s Action Area for Section 7 of the Endangered Species Act (“ESA”)

The Action Area includes all areas that would be directly and indirectly affected by the proposed Tunnel Project. This includes the following areas: South Side and North Side construction footprints, temporary water intake structure construction footprint within the Straits near the south shore, the proposed Tunnel alignment under the Straits, and the existing Dual Pipelines (which would be decommissioned). The Action Area also includes off-site EMPs, off-site laydown areas, and haul routes to these off-site areas. The Action Area includes a 100-foot buffer around Project components to account for all direct or indirect effects as a result of the Project.

2.3 Determination of Permit Area for Section 106 of the National Historic Preservation Act (“NHPA”)

The Permit Area for Section 106 of the NHPA includes those areas comprising WOTUS that would be directly affected by the proposed work or structures, as well as uplands that would be directly affected as a result of the proposed work or structures. Further, USACE identified the Area of Potential Effects (“APE”), as defined in 36 C.F.R. § 800.16(d), to evaluate effects to known historic properties outside the permit area. USACE prepared an MFR, Subject: Enbridge Line 5 Tunnel, Permit Area and Area of Potential Effects (APE),⁴ defining the Permit Area and APE for its Section 106 Review. Maps of the Permit Area and APE are in USACE’s administrative record.

Description of the Permit Area: The Permit Area includes the footprint of the excavated Tunnel corridor across the Straits, the footprint of water discharge and water intake structures, the

³ June 28, 2023, Memorandum for Record, Subject: NEPA and Public Interest Review Scope of Analysis for Enbridge Line 5 Tunnel

⁴ March 8, 2024, Memorandum for Record, Subject: Enbridge Line 5 Tunnel, Permit Area and Area of Potential Effects (APE),

footprint of the decommissioned pipelines that lie below the OHWM of the Straits, offshore areas within 1,000 feet of the shoreline where the Tunnel would be less than 75 feet from the bottom of the Straits and where vibration impacts would be expected at a level that could impact sensitive structures, the areas where discharges of dredged or fill material would be placed into WOTUS within the USACE's Section 404 responsibility, the footprint of the North and South Side LODs, the footprint of EMPs N1 and S1, and the footprint of off-site laydown areas N2, S2, and S5. In addition, the Permit Area includes areas subject to special conditions as a result of required permittee-responsible mitigation.

Description of the APE: The APE extends 15 miles from each construction footprint, where the line of sight does not intersect with land. Where the line of sight intersects with the shoreline, the APE extends onshore to the point where trees or topography blocks the view. Landward of each LOD, the APE extends 2.1 miles landward from the north construction footprint and 2.7 miles landward from the south construction footprint. The APE also includes the footprint of the haul routes between the construction footprints and the EMPs and laydown areas. The APE includes the footprints of the EMPs and off-site laydown areas, as well as the area within 1,600 feet of the EMPs and laydown areas. The APE includes the waters within 100 feet of the intake and outfall structures. The maximum depth of the APE outside of the Permit Area is the surface of the ground or water.

3 Purpose and Need

3.1 Applicant's Stated Project Purpose and Need

Project Purpose and Need as provided by the Applicant and reviewed by USACE:

The State of Michigan and the Applicant agreed through a series of agreements that the Project is needed to enhance protection to the Great Lakes resulting from the transport of petroleum products on Line 5 across the Straits. Specifically, the Project is needed to transport the annual average of approximately 540,000 barrels per day ("bpd") of petroleum products that are currently carried across the Straits on the Line 5 Dual Pipelines on the new Line 5 Replacement Segment connecting the Applicant's North Straits Facility and Mackinaw Station that is to be constructed within an underground tunnel. The underground tunnel would provide secondary containment for any potential release of petroleum products from the Line 5 Replacement Segment into the tunnel, thereby preventing a release into the Straits and minimizing risk to the environment. In its 2018 agreements with the State, the Applicant and the State agreed that the placement of the Line 5 Replacement Segment into a tunnel beneath the Straits "is expected to eliminate the risk of a potential release from Line 5 at the Straits," thereby "further protect[ing] ecological and natural resources held in public trust by the State of Michigan." The State also enacted legislation in 2018, Public Act 359, because it deemed the tunnel "necessary to the public health, welfare, convenience and prosperity" of Michigan." As stated in Public Act 359, the Project is needed to "allow[] for the use of the utility tunnel by multiple utilities, provide[] an option to better connect the Upper and Lower Peninsulas of this state, and provide[] a route to allow utilities to be laid without future disturbance to the bottomlands of the Straits of Mackinac." Without the Project, the existing Line 5 Dual Pipelines will continue to operate in their current configuration partially exposed on the lakebed of the Straits, transporting 540,000 bpd of petroleum products without any secondary containment.

3.2 Basic Project Purpose

The basic purpose of the Project is transport of light crude oil and natural gas liquids.

3.3 Water Dependency Determination

USACE determined that the project is not water-dependent, as the transport of the pipeline's projects does not require siting in a special aquatic site.

3.4 Overall Project Purpose

In October 2025,⁵ USACE affirmed the project purpose originally stated in its June 2023 MFR.⁶

The overall Project purpose is to provide safe transportation of light crude oil, light synthetic crude oil, light sweet crude oil, and natural gas liquids between Enbridge's existing North Straits Facility and Mackinaw Station, and to approximately maintain the existing capacity of the Line 5 pipeline while minimizing environmental risks.⁷

4 Public Outreach, Coordination, and Comments

USACE issued an initial public notice on May 15, 2020, and extended the public comment period from an initial 20 days to 60 days. USACE held a virtual public hearing on December 7, 2020.

Following its November 23, 2021, significance determination, USACE invited federal and state agencies and federally recognized Tribes to participate in its NEPA process as Cooperating Agencies. Cooperating Agencies included the U.S. Coast Guard ("USCG"), the U.S. Environmental Protection Agency ("EPA"), the Michigan State Historic Preservation Office ("SHPO"), and seven federally recognized Tribes: the Bay Mills Indian Community, the Grand Traverse Band of Ottawa and Chippewa Indians, the Little River Band of Ottawa Indians, the Little Traverse Bay Bands of Odawa Indians, the Match-E-Be-Nash-She-Wish Band of Potawatomi Indians, the Nottawaseppi Huron Band of the Pottawatomi, and the Sault Ste. Marie Tribe of Chippewa Indians. The Chippewa Ottawa Resource Authority initially accepted a Cooperating Agency role but withdrew in February 2022 due to staffing limitations. The seven federally recognized Tribes withdrew as Cooperating Agencies in March 2025 after USACE communicated that the Project may be an energy project subject to E.O. 14156.

Table 2 summarizes the public comment periods, associated public and Tribal comment meetings, and the numbers of comments received. USACE published a Notice of Intent to prepare an EIS in the Federal Register on August 15, 2022, to initiate the scoping period. USACE published a Notice of Availability for its Draft EIS and Supplemental Draft EIS in the Federal Register and issued public notices. Public announcements regarding the scoping period and the availability of the May 2025 Draft EIS and November 2025 Supplemental Draft EIS were also posted on the Project website (www.Line5TunnelEIS.com), sent to interested parties via e-mail and postal mail, and made available to public news outlets and public libraries (see Appendix C.1 of the Final EIS). These notifications included potentially interested parties identified by USACE, parties who subscribed to notifications on the project website, and those who submitted comments during any previous comment period. These communications outlined

⁵ October 30, 2025, Memorandum for Record, Subject: Enbridge Line 5 Tunnel EIS – NEPA Schedule Extension and Reconsideration of Project Purpose.

⁶ June 28, 2023, Memorandum for Record, Subject: Enbridge Line 5 Tunnel – Purpose and Need.

⁷ As described in EIS Section 1.8.1.3, "minimizing environmental risks" refers to reducing the risk of physical strikes (such as vessel anchor strikes) and/or providing secondary containment around an existing or proposed pipeline that transports light crude oil, light synthetic crude oil, light sweet crude oil, and NGLs across the Straits.

the various ways to participate and submit comments, including the option to submit comments online at the Project website. USACE considered all comments received in response to the 2020 public notice and public hearing, scoping comments, and comments on the May 2025 Draft EIS and November 2025 Supplemental Draft EIS when preparing the Final EIS.

Table 2. Public Comment Summary

Comment Period	Date Initiated	Comment Period Length	Public and Tribal Comment Meetings	Approximate Number of Comments Received
Public Notice	May 15, 2020	60 days	None	2,000
Public Hearing Comment Period	November 7, 2020	40 days	Virtual public hearing	13,000
Scoping	August 15, 2022	60 days	One in-person and two virtual public meetings; one Tribal meeting	18,000
Draft EIS	May 30, 2025	30 days	Two virtual public meetings; one Tribal meeting	19,000
Supplemental Draft EIS	November 13, 2025	22 days	Virtual public meeting; Tribal meeting	4,000

Appendices C.2 and C.3 of the Final EIS contain a detailed summary of comments received on the May 2025 Draft EIS and November 2025 Supplemental Draft EIS, respectively, along with USACE responses, including descriptions of edits made to the Final EIS.

USACE addressed comments received after publication of the Final EIS in a memorandum dated August 11, 2026.⁸

5 NEPA Alternatives Analysis

An evaluation of alternatives is required under NEPA for all jurisdictional activities (see 33 C.F.R. Part 325 Appendix B and 40 C.F.R. § 230.5(c)). NEPA requires discussion of a reasonable range of alternatives, including the No Action Alternative, and the effects of those alternatives. The NEPA analysis in the EIS and summarized below considers total aquatic resource impacts. An evaluation of alternatives is also required under the Section 404(b)(1) Guidelines for projects that include the discharge of dredged or fill material into WOTUS. The alternatives analysis under the Section 404(b)(1) Guidelines is in Section 6.1 below.

5.1 Site Selection/Screening Criteria

The USACE evaluated and screened alternatives while considering both the NEPA requirements and the Section 404(b)(1) Guideline requirements. USACE examined the full scope of possible alternatives and components and systematically screened each alternative using a sequential three-tiered approach according to the following criteria: 1) whether the alternative meets the Project's purpose and need; 2) whether the alternative is reasonable and practicable; and 3) whether the alternative might result in less environmental impact than the

⁸ August 11, 2026, Memorandum for Record, Subject: Consideration of Comments Received After FEIS.

Applicant's Preferred Alternative. If an alternative failed to meet a screening criterion, USACE did not screen the alternative against subsequent screening criteria. Only alternatives meeting all three of the criteria were carried forward for detailed analysis in the EIS, except for the No Action Alternative, which is required under NEPA.

See Chapter 2 of the Final EIS for detail on alternatives screening. Results of the screening process are documented in Appendix E of the Final EIS, and information on alternatives carried forward for detailed analysis is presented in Appendix F of the Final EIS and summarized in Section 5.2, below.

5.2 Description of Alternatives

5.2.1 No Action Alternative

Under the No Action Alternative, USACE would not issue a permit. The No Action Alternative is required by NEPA and provides a baseline condition for comparing environmental effects of the proposed Project and other action alternatives carried forward for detailed analysis within the EIS. The No Action Alternative considers that the existing Dual Pipelines could continue operation as they do now.

5.2.2 Off-site Alternatives

Because the proposed project involves replacing a segment of an existing pipeline, the existing infrastructure was a critical consideration in defining the project purpose, and USACE identified the existing North Straits Facility and Mackinaw Station as the relevant logical termini for its alternatives review. While its review focused on the existing infrastructure at the Straits crossing, USACE considered alternative locations for TBM entry/exit points and EMPS/laydown areas, as identified in Appendix E of the Final EIS. No offsite action alternatives met the screening criteria for detailed analysis in the EIS. Sub-alternatives involving EMPS/laydown areas that met the screening criteria are those associated with the Applicant's Preferred Alternative.

5.2.3 On-site Alternatives

The following onsite action alternatives were considered by the USACE under NEPA and the Section 404(b)(1) Guidelines. Information about impacts to aquatic resources, including distinction of waters within the USACE's Section 404 responsibility for each action alternative and the No Action Alternative is provided in Section 6.1, "Analysis of Practicable Alternatives."

Applicant's Preferred Alternative: This alternative involves the construction of a Tunnel beneath the lakebed of the Straits to house a replacement segment of the existing Line 5 pipeline. Analysis of the Applicant's Preferred Alternative includes the EMPSs, offsite-laydown areas, and haul routes described below.

EMPSs, Off-site Laydown Areas, and Haul Routes (all Applicant Preferred Sub-Alternatives):

- *EMPS Sub-Alternative A:* S1, Sand & Gravel Quarry. Haul Route via South Side via Headlands Road and Central Avenue
- *EMPS Sub-Alternative B:* N1, Sand & Gravel Quarry. Haul Route via Boulevard Drive (to the east) to US-2 to Martin Lake Road to East Martin Lake Rd
- *Off-site Laydown Area Sub-Alternative A:* S2 Sand & Gravel Quarry. Haul Route via Headlands Road to Wilderness Park Drive to Trails End Road to North Mackinaw Highway
- *Off-site Laydown Area Sub-Alternative B:* S5, Material Storage Area. Haul Route via Headlands Road to Wilderness Park Drive to Trails End Road to North Mackinaw Highway to I-75 South to East Levering Road

- *Off-site Laydown Area Sub-Alternative C: N2 Sand & Gravel Quarry. Haul Route via Boulevard Drive (to the east) to US-2)*

The Applicant's Preferred Alternative involves decommissioning the existing Line 5 Dual Pipelines by abandonment in place (Decommissioning Sub-Alternative 1). USACE analyzed this sub-alternative and three additional decommissioning sub-alternatives, as described below, in detail in the EIS.

Decommissioning Alternatives: The following sub-alternatives were considered:

- *Decommissioning Sub-Alternative 1: Decommissioning and Abandon In-Place (Applicant's Preferred Alternative)*
- *Decommissioning Sub-Alternative 2a: Decommission the Dual Pipelines, Partially In-Place, Removing Exposed Portions of the Dual Pipeline Segments Along the Lakebed*
- *Decommissioning Sub-Alternative 2b: Decommission the Dual Pipelines, Partially In-Place, Removing the Dual Pipeline Segments Within the Lake Between OHWMs*
- *Decommissioning Sub-Alternative 2c: Decommission the Dual Pipelines and Fully Remove the Dual Pipeline Segment*

Existing Dual Pipelines Engineered Gravel/Rock Protective Cover Alternative: This alternative involves constructing a protective cover of engineered gravel/rock approximately 72 feet wide and a minimum of 8 feet high from the lakebed with greater heights of up to 11 feet in locations where screw anchors support sections of the pipelines. The protective cover would totally encase the Dual Pipelines and mitigate the effects of an anchor strike (including a direct drop onto the pipelines or dragging of an anchor over the pipelines) from the largest vessels moving through the Straits and the expected 10.2-metric-ton weight of their anchors.

HDD Installation Alternative: This alternative involves replacing the existing Dual Pipelines with a single replacement pipeline segment installed using HDD under the lakebed. This would require onshore workspace on both sides of the Straits as well as a pipeline assembly area and associated timber storage areas located either south or north of the Straits. Analysis of the HDD Installation Alternative includes consideration of the following sub-alternatives, as well as the four decommissioning sub-alternatives considered under the Applicant's Preferred Alternative:

- HDD Installation Sub-Alternative 1: Pipeline Assembly Area South
- HDD Installation Sub-Alternative 2: Pipeline Assembly Area North

Each alternative would involve maintenance activities within its respective operational footprint, as detailed in the Final EIS.

5.3 Alternatives Evaluation Under NEPA

USACE's screening criteria and the resultant detailed analysis of alternatives in the EIS integrate its Section 404(b)(1) guidelines and NEPA alternatives analysis requirements. All action alternatives and sub-alternatives described in Section 5.2 are considered reasonable (33 C.F.R. Part 325, Appendix B, Subparagraph 9(b)(5)(a)) and practicable (40 C.F.R. § 230.3(q)) alternatives and were carried forward in the Final EIS for detailed analysis and comparison to the No Action Alternative for the purposes of USACE's permit review.

Chapter 4 of the Final EIS includes a detailed evaluation and comparison of alternatives, with comparison tables for each resource area presented at the beginning of each section. The environmental consequences of these alternatives and sub-alternatives are summarized and compared in tabular form in Tables ES-1 and ES-2 and in a concise narrative in Section 3.1 of the Executive Summary. Potential mitigation measures are detailed in Chapter 5 of the Final EIS. A brief summary is below.

No Action Alternative: This alternative would result in no new impacts, and the existing Dual Pipelines could continue to operate as they currently do. Continued impacts associated with maintenance could involve minor ground disturbance near the existing facilities and vessel use in the Straits. Work within upland areas would be at the discretion of the landowner. Additionally, this alternative would not meet the Project purpose and need.

Applicant's Preferred Alternative: This alternative would involve construction disturbance within a 20.2-acre area in the South LOD and an 11.2-acre area in the North LOD, totaling 31.4 acres. As part of tunnel construction, approximately 364,000 cubic yards of material would be excavated in bedrock beneath the lakebed to create a 21-foot-diameter, 3.9-mile-long tunnel in bedrock underneath the lakebed. Excavated material would be transported and disposed of at the two identified EMPSSs, and three offsite laydown areas would be used for materials and equipment staging. The documented cultural resources (archaeological sites, an archaeological district, and the Straits of Mackinac Traditional Cultural Landscape), two federally threatened plant species, 1.53 acres of wetlands,⁹ and the biological communities within the work areas would be adversely affected by vegetation clearing and ground disturbance in these areas. Approximately 19 acres of vegetation would be cleared, of which 5.2 acres are forested. Following construction, approximately 7.04 acres of the South LOD (out of approximately 10.4 acres of vegetation disturbed) and 6.76 acres of the North LOD (out of approximately 8.6 acres of vegetation disturbed) would be revegetated, and 0.35 acres of wetlands would be restored. Impacts associated with construction include noise, vibration, light, and visual disturbance which could affect use of the surrounding areas by humans, wildlife, and aquatic organisms, as detailed in the Final EIS. The discharge of treated process water and stormwater into the Straits would cause water quality changes, but the discharged water would meet State water quality standards. Permanent impacts would include changes in land use (from vegetation to industrial use), permanent wetland loss, vegetation loss, and increased impervious surface. Excavated material placement and laydown areas would use previously disturbed sites and would include impacts to 2.79 acres of non-regulated wetlands, which were created incidental to mining activities at the sites. This alternative would provide secondary containment and eliminate risk of vessel anchor strikes for the replacement pipeline segment. This alternative would be constructed over a 6-year period, during which time it would provide beneficial economic effects through increased demand for local services and supplies.

HDD Installation Alternative, Sub-Alternatives 1 (Pipeline Assembly Area South) and 2 (Pipeline Assembly Area North): This alternative would result in ground disturbance within 9.4 acres (3.6 acres north of the Straits and 5.8 acres south), including within 0.29 acres of wetlands. In addition, vegetation would be cleared within a 4-mile-long, 80-foot-wide corridor on one side of the Straits. This would involve a greater extent of vegetation clearing than the Applicant's Preferred Alternative, with 46.8 acres of vegetation clearing (including 10.78 acres in wetlands) for the HDD Installation Alternative – Pipeline Assembly Area South and 46.6 acres (including 15.88 acres in wetlands) for the HDD Installation Alternative – Pipeline Assembly Area North. Wetlands would be restored, and disturbed areas would be allowed to revegetate following the construction period, although forested habitat would be lost for a period of decades until trees could establish and mature. Matting would minimize disturbance to wetlands and sensitive resources. Much of the vegetation clearing would occur on property owned by private or public entities, including park land, where the Applicant would need to obtain easements. This alternative would cause adverse effects to cultural resources, including archaeological sites, an archaeological district, and the Straits TCL. Impacts to cultural resources might be less than those caused by the Applicant's Preferred Alternative due to the reduced extent of ground

⁹ The USACE's NEPA analysis considers impacts to all wetlands in the review area, while the 404(b)(1) Guidelines analysis in Section 6 below focuses on wetlands within USACE's Section 404 responsibility.

disturbance, but archaeological surveys were not completed in the full extent of the HDD Installation Alternative, and the number of affected resources is not known. The same EMPSSs would be used as in the Applicant's Preferred Alternative, resulting in impacts to 2.65 acres of wetlands that were created incidental to mining activities at EMPS N1. This alternative would eliminate the risk of a vessel anchor strike to the replacement pipeline segment but would not provide secondary containment.

Engineered Gravel/Rock Protective Cover: This alternative would involve placement of gravel and rock on 38 acres of lakebed to form a protective cover over the existing Dual Pipelines. This alternative would permanently change the lakebed substrate in the rock/gravel placement footprint and would cause turbidity, noise, and disturbance to aquatic organisms around the placement area during construction. The change in lakebed substrate may benefit some fish species but could be detrimental to others. This alternative avoids terrestrial ground disturbance impacts, including impacts to threatened plants and terrestrial archaeological resources, but it may adversely affect the Straits TCL. The Engineered Gravel/Rock Protective Cover would reduce the risk of a vessel anchor strike to the existing Dual Pipelines but would not provide secondary containment.

Decommissioning Sub-Alternatives: Decommissioning Sub-Alternative 1 (part of the Applicant's Preferred Alternative) involves decommissioning the existing Dual Pipelines in-place. This sub-alternative involves minor disturbance due to onshore activities and equipment use over a three- to four-month period but no direct disturbance to the ground or lakebed. Sub-alternatives 2a, 2b, and 2c involve progressively more disturbance but would eliminate the risk of anchor entanglement of the Dual Pipelines.¹⁰

Under Sub-alternative 2a, disturbance would be primarily associated with removal of sediment over parts of the submerged pipelines where natural sediment movement has buried portions of the pipeline, causing turbidity and aquatic habitat disturbance in areas where jetting would be used to remove the sediment covering the pipeline. Disturbance associated with construction, including noise, worker and equipment presence, and trucking of materials, would occur over two to three years.

In addition to the impacts of Sub-alternative 2a, Sub-alternative 2b would involve dredging of material covering nearshore portions of the pipeline, which are buried in up to 16 feet of sediment. Approximately 13 acres of lakebed would be dredged for removal of nearshore parts of the pipeline, and approximately 1.2 acres of lakebed would be subject to temporary side-casting of material, resulting in turbidity and alteration of aquatic habitat in these areas. Sub-alternative 2b would also involve 6 acres of onshore vegetation removal for construction workspace, including 0.47 acres in wetlands, and likely impacting federally protected plants. Construction disturbance would cease and disturbed areas would be restored following the construction period of three to four years.

Sub-alternative 2c would cause the impacts described for Sub-alternative 2b plus additional impacts associated with excavation and removal of terrestrial portions of the Dual Pipelines. This sub-alternative would result in approximately 15.5 acres of ground disturbance, including 1.88 acres of wetlands and 500 linear feet of stream. This ground disturbance would adversely affect natural communities, federally threatened plants, and cultural resources in these areas. The ground contours and vegetation would be restored post-construction. Construction disturbance would last three to four years.

¹⁰ The Restricted Navigation Area in the Straits would remain in place, requiring vessel operators to contact the USCG to request permission to anchor in the area.

5.4 Identification of the NEPA Environmentally Preferable Alternative

Because it avoids the temporary and permanent impacts to aquatic and upland resources associated with the construction alternatives, the No Action Alternative is identified as the NEPA Environmentally Preferable Alternative (40 C.F.R. § 1505.2(b)). However, the No Action Alternative does not meet the overall Project purpose. While it would not preclude the applicant from seeking future maintenance permits, it would not provide any infrastructure safety measure to reduce environmental risk (see Section 3.4).

NEPA is a procedural statute that requires impact identification for a range of alternatives but does not include any substantive mandate that federal agencies adopt or pursue the Environmentally Preferable Alternative.

Although 40 C.F.R. § 1505.2(b) requires the identification of an Environmentally Preferable Alternative, USACE permit decisions are governed by 33 C.F.R. § 320.4(a)(1). Under this framework, USACE evaluates all reasonable and practicable alternatives to determine its course of action (issue the permit, issue with special conditions, or deny the permit) based on two primary criteria:

- Section 404(b)(1) Guidelines: The discharge must comply with the Environmental Protection Agency's guidelines regarding impacts to the aquatic ecosystem (analyzed in Section 6).
- Public Interest Review: The activity must not be contrary to the public interest (analyzed in Section 7).

6 Evaluation for Compliance with the Section 404(b)(1) Guidelines

The Section 404(b)(1) Guidelines¹¹ apply to activities that involve the discharge of dredged or fill material into WOTUS regulated under Section 404.

Whereas the NEPA analysis summarized above considers total aquatic resource impacts, the Section 404(b)(1) Guidelines analysis focuses on WOTUS within the USACE's Section 404 responsibility. Unlike NEPA, the Section 404(b)(1) Guidelines include substantive criteria, and no discharge may be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic environment, so long as the alternative does not have other significant adverse environmental consequences (40 C.F.R. § 230.10(a)). Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose (40 C.F.R. § 230.3(l)).

6.1 Analysis of Practicable Alternatives

Practicable alternatives to the proposed discharge consistent with 40 C.F.R. § 230.5(c) are identified in Section 5 and addressed below.

No Action Alternative: The No Action Alternative would not involve regulated discharges into waters within the USACE's Section 404 responsibility. The No Action Alternative does not meet the project purpose, as it does not reduce environmental risk (See Section 3.4 above) by providing any additional safety measures. The No Action Alternative is therefore not a practicable alternative in the USACE's Section 404(b)(1) Guidelines analysis.

Action Alternatives: The Applicant's Preferred Alternative, the Existing Dual Pipelines Engineered Gravel/Rock Protective Cover Alternative, and the HDD Installation Alternative

¹¹ 40 C.F.R. Part 230

(including both of its sub-alternatives) involve discharges into waters within the USACE's regulatory responsibility.

Although all requirements in 40 C.F.R. § 230.10 must be met, the compliance evaluation procedures vary to reflect the seriousness of the potential for adverse impacts on the aquatic ecosystems. In considering the restrictions on discharge in § 230.10(a), USACE first analyzed whether any alternative to the proposed discharge (i.e., the Applicant's Preferred Alternative) would have less adverse impact on the aquatic ecosystem. If so, USACE then analyzed whether that alternative would have other significant adverse environmental consequences. The alternatives analysis in this section is informed by the determinations in Sections 6.2 through 6.8 below and similar information on action alternatives in the Final EIS (See Sections 4.4 and 4.5 of the Final EIS).

USACE compared the action alternatives' impacts on the aquatic ecosystem. As defined in § 230.3(c), aquatic ecosystem means "waters of the United States, including wetlands, that serve as habitat for interrelated and interacting communities and populations of plants and animals." Based on this definition, the analysis below focuses on WOTUS within the USACE's Section 404 responsibility, including Lake Michigan and the wetlands identified in USACE's December 2024 Preliminary Jurisdictional Determination as potential WOTUS within the USACE's Section 404 responsibility. Impacts to other aquatic resources in areas where USACE's Section 404 responsibility has been transferred to the State of Michigan are also disclosed below, denoted either parenthetically or with an asterisk. USACE is not responsible for determining whether waters in the state-transferred area are WOTUS unless otherwise directed by the U.S. Environmental Protection Agency (EPA). Relevant quantitative impact comparisons are in Table 3 below, and qualitative discussion follows.

Table 3. Comparison of Action Alternatives' Impacts on the Aquatic Ecosystem

Impact	Applicant's Preferred Alternative (Tunnel Project)	HDD Installation Alternative – Pipeline Assembly Area South	HDD Installation Alternative – Pipeline Assembly Area North	Engineered Rock/Gravel Cover
Permanent discharge of fill in USACE Section 404 waters	0.79 acres wetland loss	None	None	38 acres (gravel/rock discharge on lakebed)
Temporary impacts due to discharges of fill in USACE Section 404 waters	0.22 acres fill in wetlands (6 year duration)	0.22 acres fill in wetlands (2 year duration)	0.22 acres fill in wetlands (2 year duration)	None
Vegetation cutting above ground surface/placement of temporary matting in USACE Section 404 wetlands*	None	1.14 acres	2.20 acres	None
Temporary impacts in USACE Section 404 forested wetlands (includes the portions of the impacts in the two rows above that would occur in forested wetlands)**	None	1.21 acres	2.27 acres	None
Lakebed disturbance	800 sq ft disturbance for water intake installation/20,000 gal drilling fluid released	1600 sq ft disturbance for water intake installation/40,000 gal drilling fluid released	1600 sq ft disturbance for water intake installation/40,000 gal drilling fluid released	Discharges of rock and gravel on 38 acres of lakebed
Overall wetland disturbance***	1.53 acres in North LOD, including 1.18 acres permanent loss and 0.35 acres temporary discharges; 2.79 acres permanent loss of non-regulated wetland created incidental to mining at EMPS and laydown areas	11.07 acres in work areas, including 0.29 acres excavation and backfill (temporary impact) and 10.78 acres vegetation clearing above ground surface/placement of matting; 2.65 acres permanent loss of non-regulated wetland created incidental to mining at EMPS	16.17 acres in work areas, including 0.29 acres excavation and backfill (temporary impact) and 15.88 acres vegetation clearing above ground surface/placement of matting; 2.65 acres permanent loss of non-regulated wetland created incidental to mining at EMPS	None

**Vegetation cutting above the ground surface would leave root systems in place and may facilitate regeneration of trees and other vegetation.*

***These wetlands would be allowed to regenerate to forested wetlands over time and may provide emergent wetland habitat until shrubs and trees mature over a period of decades.*

****Overall wetland disturbance includes wetlands within USACE's Section 404 responsibility and wetlands in areas where USACE's Section 404 responsibility has been transferred to the State of Michigan, regardless of whether they are regulated by EGLE. USACE is not responsible for determining whether the state-transferred wetlands are WOTUS unless otherwise directed by the EPA.*

Applicant's Preferred Alternative (Tunnel Project):

The Applicant's Preferred Alternative includes regulated discharges resulting in permanent loss of 0.79 acres and temporary impacts to 0.22 acres of wetland WOTUS within USACE's Section 404 responsibility. Wetland WOTUS communities consist primarily of emergent and scrub-shrub wetland, with 0.0003 acres of permanent impact in forested wetland. The discharges would alter the existing substrate by replacing it with fill material, raising the surface elevation, and disrupting normal water circulation and hydrology, thereby permanently eliminating the wetland's functions. Temporary discharge areas would lose their wetland functions during the approximately 6-year construction period and a subsequent period until these functions are successfully restored. Enbridge proposes to restore pre-construction contours within these 0.22 acres of wetlands, replace the native topsoil, seed with native vegetation, and monitor to ensure that the wetland is successfully restored.

The wetlands lost under this alternative are in areas disturbed during the 1953 pipeline construction activities. While the history of disturbance may suggest that these wetlands might be of lower habitat quality, they include rare and sensitive habitats, including coastal fen, limestone bedrock glade, and habitat for federally listed threatened plants (Houghton's goldenrod and dwarf lake iris). Houghton's goldenrod and dwarf lake iris may become re-established in the temporarily impacted wetland area following restoration. The Applicant proposes to reuse the wetland topsoil removed from these areas, which may facilitate restoration of native species, including the threatened plant species.

The Applicant's Preferred Alternative would also temporarily affect surrounding wetlands outside of the discharge footprint due to dewatering during TBM retrieval shaft construction. This groundwater drawdown could cause short-term effects to the plant community composition and the wildlife and invertebrates that utilize these wetland areas.

HDD Installation Alternative:

The HDD Installation Alternatives would result in temporary regulated discharges due to excavation and backfill in 0.22 acres of wetland WOTUS. An additional 1.14 acres (Pipeline Assembly Area South Sub-Alternative) or 2.27 acres (Pipeline Assembly Area North Sub-Alternative) of wetland impact would result from vegetation clearing and temporary matting. WOTUS and other wetlands would be restored following the approximately 2-year construction period. This alternative avoids the permanent wetland WOTUS loss that would result from the Applicant's Preferred Alternative.

The temporary wetland impacts of the HDD Installation Sub-Alternatives would be primarily in forested wetlands, including 1.21 acres of forested wetland impact for the South Sub-Alternative and 2.27 acres of forested wetland impact for the North Sub-Alternative. While these temporarily impacted areas would be revegetated, forested wetland habitat may not be restored for decades until any trees reestablished in these areas can mature. Hydrological functions, including water retention and filtration, would return after a shorter period. The restored wetlands would likely

provide emergent wetland habitat until woody species become established and mature. Notably, Houghton's goldenrod and dwarf lake iris may colonize (vegetatively and/or via the seed bank) the wetlands following restoration and prior to establishment of tree species, due to the disturbance and canopy opening. These species are currently present in nearby areas and may be present in the seedbank of the impacted wetland soils. Reuse of wetland topsoil, as recommended as a conservation measure in the BO for the Applicant's Preferred Alternative, may assist with reestablishing these species following disturbance at the site.

Within the area subject only to vegetation clearing and matting, the surface contours, soils, hydrology, and seed bank would remain intact, leading to a high likelihood of successful restoration and re-establishment of native wetland species. Trees would be cut at ground level, and the existing root systems would facilitate reestablishment of trees, especially within the pipeline assembly area where matting would be in place for a shorter duration. Clearing of forested wetland in the North HDD workspace could lead to establishment of dwarf lake iris and Houghton's goldenrod in the cleared areas, which would benefit the aquatic ecosystem by providing a relatively scarce habitat for these threatened plants. In areas of ground disturbance in wetlands, measures such as reestablishment of preconstruction contours and re-use of wetland topsoil could facilitate restoration. USACE will require monitoring of restoration activities and establish performance criteria (such as those identified in the District's Mitigation Guidelines) that the restored wetland WOTUS must meet before the District considers them successfully restored. The impacted wetlands within the USACE's Section 404 responsibility are in areas that were previously disturbed during the original 1953 pipeline construction. These habitats can be successfully restored following construction disturbance, as they have in the past.

The HDD Installation Alternative may have less impact on threatened plant species (i.e., Houghton's goldenrod and dwarf lake iris) than the Applicant's Preferred Alternative because of the smaller footprint of ground disturbance and the location of more of the ground disturbance in forest, where the canopy cover likely limits the presence of Houghton's goldenrod and dwarf lake iris. However, the HDD workspace and tie-in area on the North Side contains both Houghton's goldenrod and dwarf lake iris. Canopy clearing due to the HDD Installation Alternatives may allow colonization of the disturbed areas by these two species after restoration and until mature trees can reestablish. Houghton's goldenrod and dwarf lake iris may occur in suitable habitats in the pipeline assembly areas, particularly the North pipeline assembly area. The extent of these species' occurrence, and therefore the overall extent of impacts to these species, is not known.

The greater forest clearing under the HDD Installation Alternative could increase potential impacts to federally listed or proposed bat species compared to the Applicant's Preferred Alternative. However, impacts to bats are not likely to be adverse if tree clearing is avoided during the bats' active season under any alternative.

The HDD Installation Alternative would result in slightly greater impacts to the waterway than the Applicant's Preferred Alternative, given that two water intake structures would be constructed instead of only one intake structure for the Applicant's Preferred Alternative. The lakebed disturbance and turbidity associated with each intake installation is minor, given the limited extent and duration of the disturbance.

Compared to the HDD South Alternative, the HDD North Alternative includes the same USACE Section 404 temporary wetland WOTUS discharges in the HDD and tie-in workspaces, plus an additional 1.06 acres of vegetation clearing and temporary matting in forested wetland WOTUS

within USACE's Section 404 responsibility. Due to this additional impact, its impact to the aquatic ecosystem are comparatively greater than the HDD South Alternative. The HDD North Alternative is therefore not discussed further in this analysis.

Engineered Rock/Gravel Cover:

The Engineered Rock/Gravel cover alternative would not involve discharges of dredged or fill material in special aquatic sites (for this review, these include wetland WOTUS), nor would it cause permanent loss of waters. However, its effects on the aquatic ecosystem would be substantial, given the 38-acre footprint of the gravel/rock discharge in Lake Michigan, which would require Section 404 authorization. The regulated discharge associated with this alternative would permanently alter the lakebed substrate and associated habitats and would result in temporary disturbance and turbidity over an extensive area of lakebed during construction. After considering the extent and magnitude of these impacts, USACE has determined that the Engineered Rock/Gravel Cover Alternative has greater impact on the aquatic ecosystem than the Applicant's Preferred Alternative and therefore does not address it further in this analysis.

Decommissioning Sub-Alternatives

USACE evaluated four decommissioning sub-alternatives as part of the Applicant's Preferred Alternative, which are also applicable to the HDD Installation Alternative. Impacts to the aquatic environment resulting from these sub-alternatives are in Table 4 below and the discussion that follows.

Table 4. Comparison of Decommissioning Sub-Alternatives' Impacts on the Aquatic Ecosystem

Impact	Sub-Alternative 1: Decommissioning In-Place	Sub- Alternative 2a: Removal of Exposed Portions of the Dual Pipelines	Sub-Alternative 2b: Removal of Dual Pipelines Between OHWMs	Sub-Alternative 2c: Removal of Dual Pipelines Between Existing Facilities
Discharges of dredged material on the lakebed	None	Discharge of dredged material from jetting (i.e., dredging) to expose portions of the pipeline that are buried in sediment up to 12,200 feet of the West Leg and 11,100 feet of the East Leg of the Dual Pipelines. Dredged material would be discharged adjacent to the dredge areas by natural settling processes.	Discharges of dredged material identified for Sub-Alternative 2a plus material dredged from trenches along nearshore portions of the pipelines would be discharged (temporarily sidecast) in a 1.2-acre area adjacent to the trench at depths less than 4 feet. Approximately 224,545 cubic yards of dredged material temporarily sidecast in the lake (in areas less than 4 feet deep) or stored on hopper barges (for areas greater than 4 feet deep) would be discharged to backfill the trenches, in an area totaling approximately 13 acres of lakebed.	Same as Sub-Alternative 2b
Discharges of fill in USACE Section 404 wetland WOTUS	None	None	None	1.44 acres excavation and backfill (temporary impact)
Vegetation cutting above ground surface in USACE Section 404 wetland* WOTUS	None	None	0.36 acres vegetation cutting for temporary construction workspace	None

Impact	Sub-Alternative 1: Decommissioning In-Place	Sub- Alternative 2a: Removal of Exposed Portions of the Dual Pipelines	Sub-Alternative 2b: Removal of Dual Pipelines Between OHWMs	Sub-Alternative 2c: Removal of Dual Pipelines Between Existing Facilities
Temporary impacts in USACE Section 404 forested wetland WOTUS (includes the portions of the impacts in the two rows above that would occur in forested wetlands)**	None	None	0.04 acres	1.12 acres
Overall wetland disturbance***	None	None	0.47 acres vegetation cutting for temporary workspace	1.88 acres excavation and backfill (temporary impact)
Overall stream disturbance****	None	None	None	500 linear feet excavation and backfill (temporary impact)

**Vegetation cutting above the ground surface would leave root systems in place and may facilitate regeneration of vegetation.*

***These wetlands would be allowed to regenerate to forested wetlands over time and may provide emergent wetland habitat until shrubs and trees mature over a period of decades.*

**** Overall wetland disturbance includes wetland WOTUS within USACE's Section 404 responsibility and wetlands in areas where USACE's Section 404 responsibility has been transferred to the State of Michigan (EGLE), regardless of whether they are regulated by EGLE. USACE is not responsible for determining whether the state-transferred wetlands are WOTUS unless otherwise directed by the EPA.*

*****The impacted area of Stream 1 is in an area where USACE's Section 404 responsibility has been transferred to the State of Michigan.*

Decommissioning Sub-Alternative 1, which is part of the Applicant's Preferred Alternative, avoids impacts to the aquatic ecosystem. The Decommissioning Sub-Alternatives involving progressively greater removal extents results in progressively greater impacts on the aquatic ecosystem.

Conclusions

Title 40 C.F.R. § 230.10(a)(3) states, "Where the activity associated with a discharge which is proposed for a special aquatic site (subpart E defines these to include wetlands) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to

have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.” As stated in Section 3.3 above, the proposed Project is not water dependent.

USACE has reviewed a broad range of alternatives, including all alternatives identified by the Applicant, Cooperating Agencies, Tribal Nations, and the public. See Section 2.2 of the Final EIS regarding identification and screening of alternatives. USACE carried forward for detailed analysis in the EIS all alternatives that met the project purpose, that were reasonable and practicable, and that might have less environmental impact than the Applicant's Preferred Alternative. Based on its review, USACE identified only one action alternative that does not involve a discharge into special aquatic sites: the Engineered Rock/Gravel Cover Alternative. USACE's evaluation of a broad range of alternatives in its screening process demonstrates that no other practicable alternative that does not involve a discharge into a special aquatic site is available. As discussed above, USACE determined that the Engineered Rock/Gravel Cover Alternative would clearly have greater impact on the aquatic ecosystem than the Applicant's Preferred Alternative.

Title 40 C.F.R. § 230.1(c) states, “Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.”

The Applicant's Preferred Alternative would result in 0.79 acres of permanent wetland WOTUS loss, along with 0.22 acres of temporary impact to wetland WOTUS within USACE's Section 404 responsibility. The impacts of the HDD Installation Alternative South are all temporary but are slightly greater in acreage, at 1.21 acres. Given the limited impact acreage of either of these alternatives, and the comparison of a smaller acreage of permanent impacts to the aquatic ecosystem to a slightly greater acreage of temporary impacts to the aquatic ecosystem, the overall impact to the aquatic ecosystem is not discernibly different between the Applicant's Preferred Alternative and the HDD Installation Alternative South. Therefore, there is no alternative to the proposed discharge with less adverse impact to the aquatic ecosystem.

With respect to Decommissioning Sub-Alternatives, the Applicant's Preferred Sub-Alternative 1, involving cleaning and decommissioning in-place, results in substantially less impact to the aquatic ecosystem than the other decommissioning alternatives, which involve progressively greater removal activities and associated disturbance impacts.

In summary, USACE determined that there are not alternatives to the proposed discharge that would have less adverse impact on the aquatic ecosystem (Subpart B, 40 C.F.R. § 230.10(a)).

6.2 Candidate Disposal Site Delineation (Subpart B, 40 C.F.R. § 230.11(f))

Sections 6.2 through 6.8 below summarize the analysis of the proposed discharges of dredged or fill material in aquatic resources (WOTUS) within USACE's Section 404 responsibility under the identified subparts of the Section 404(b)(1) Guidelines. The candidate disposal site consists of the WOTUS within USACE's Section 404 responsibility that would be subject to discharges of dredged or fill material. The Applicant proposes to discharge fill material into four wetland WOTUS within USACE's Section 404 responsibility, resulting in 0.79 acres of permanent wetland WOTUS loss and 0.22 acres of temporary wetland WOTUS impact. The Applicant's proposed construction activities in and under Lake Michigan do not involve discharges of dredged or fill material regulated under Section 404.

Table 5. Impacts to Wetlands within USACE's Section 404 Responsibility

Wetland ID	Wetland Type	Natural Communities Identified	Functions and Values	Acreage of Permanent Impact	Acreage of Temporary Impact
W3	PEM, PSS, PFO	Northern Hardwood Swamp, Rich Conifer Swamp, Coastal Fen, Emergent Marsh	Wetland provides habitat, groundwater recharge, and maintenance of water quality/overall transfer of water within the watershed.	0.0003	0
W8	L2US, associated with and abutting the OHWM of the Straits (Lake Michigan). PSS and PFO components occur further from shore.	Sand and Gravel Littoral Zone, Northern Shrub Thicket, Rich Conifer Swamp	During periods of low water levels, wetland vegetation may establish on the exposed lakebed and provide ecological value. When water levels rise, wave action and sediment erosion will eventually destroy the vegetation that has been established in this area; however, prior to destruction, vegetation may provide spawning and nursing habitat for fish and feed into the aquatic food chain. Within the eastern portion of the wetland, vegetation and soils have been considerably disturbed by ongoing vehicle traffic.	0.06	0
W10	PEM, PSS	Coastal Fen	Wetland provides habitat, groundwater recharge, and maintenance of water quality/overall transfer of water within the watershed.	0.06	0
W19	PEM, PSS	Coastal Fen	Wetland provides habitat, groundwater recharge, and maintenance of water quality/overall transfer of water within the watershed.	0.67	0.22
Total Acreage of Impact				0.79	0.22

L2US – lacustrine, lacking trees; PEM = palustrine emergent wetland; PFO = palustrine forested wetland; PSS = palustrine scrub shrub wetland

6.3 Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C 40 C.F.R. §§ 230.20- 25)

The following has been considered in evaluating the potential impacts of the discharges associated with the Applicant's Preferred Alternative on physical and chemical characteristics of the aquatic ecosystem (see Table 6):

Table 6. Potential Impacts on Physical and Chemical Characteristics

Physical and Chemical Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Substrate					X	
Suspended particulates/turbidity			X			
Water			X			
Current patterns and water circulation					X	
Normal water fluctuations					X	
Salinity gradients	X					

Potential impacts on the physical and chemical characteristics of the aquatic environment are described in detail in Chapter 4 of the Final EIS. The Applicant's Preferred Alternative would involve discharges of fill material in 1.01 acres of wetland WOTUS within USACE's Section 404 responsibility. The existing topsoil would be removed, and gravel fill would be discharged, which would alter and elevate the substrate. Water circulation and fluctuation patterns within the wetland WOTUS would be disrupted. Together, these changes would result in loss of the WOTUS wetlands' functions, including flood and erosion/accretion control, and surface water quality maintenance. Secondary impacts of activities that would occur on the regulated discharges of fill would be negligible. Following the 6-year construction period, 0.22 acres of wetland WOTUS would be restored and would provide physical and chemical functions like the existing wetland. No discharge of dredged or fill material is proposed within Lake Michigan, a navigable WOTUS. The proposed discharges in WOTUS wetlands near the shoreline could result in entry of sediment into the waterway through surface runoff, which could cause turbidity in the water column. The Applicant would use sediment control measures, and potential impacts to the waterway due to the discharges of fill material in nearby wetlands would be negligible. The Applicant's proposal is not located in a region where salinity gradients occur; this factor does not apply.

6.4 Potential Impacts on the Living Communities or Human Uses (Subparts D, E and F)

6.4.1 Potential Impacts on the Biological Characteristics of the Aquatic Ecosystem (Subpart D 40 C.F.R. § 230.30)

The following has been considered in evaluating the potential impacts of the regulated discharges of dredged or fill material on biological characteristics of the Applicant's proposal (see Table 7):

Table 7. Potential Impacts on Biological Characteristics

Biological Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Threatened and endangered species					X	
Fish, crustaceans, mollusks, and other aquatic organisms					X	
Other wildlife					X	

Approximately 7.95 acres of habitat with known dwarf lake iris and Houghton's goldenrod populations would be cleared, including the 1.01 acres of wetland WOTUS within USACE's Section 404 responsibility. The Applicant proposes to mitigate the adverse effects on these two species via site preservation, contribution to research funding, and potentially other strategies that it may develop in coordination with the United States Fish and Wildlife Service ("USFWS") and Michigan Department of Natural Resources ("MDNR"). Although the proposed Project would adversely affect Houghton's goldenrod and dwarf lake iris, USFWS determined in its Biological Opinion ("BO") that, with appropriate mitigation, reductions in the overall recovery, numbers, or distribution of the dwarf lake iris and Houghton's goldenrod would not be expected and that the Applicant's Preferred Alternative is not likely to jeopardize the continued existence of either of these species.

The Applicant's Preferred Alternative would result in conversion of 0.79 acre of WOTUS wetland (primarily emergent and scrub-shrub) to non-wetland habitats. The discharges and associated activities would remove existing vegetation and detrimentally affect habitat for local wildlife inhabiting the discharge areas and adjacent areas. The Applicant proposes to restore 0.22 acres of USACE Section 404 wetland WOTUS outside the Project's operational footprint. While the restored wetlands would eventually provide emergent and scrub-shrub habitat functions upon successful restoration, the impacted wetland would be reduced in size and area-dependent habitat functions would therefore likely be reduced. The remaining 0.79 acres of impacted wetland habitat would be converted permanently to non-wetland habitat. Houghton's goldenrod and dwarf lake iris may become re-established in the revegetated area if suitable conditions are established.

6.4.2 Potential impacts on special aquatic sites (Subpart E 40 C.F.R. § 230.40)

The following has been considered in evaluating the potential impacts of the regulated discharges of dredged or fill material on special aquatic sites of the Applicant's proposal (see Table 8):

Table 8. Potential Impacts on Special Aquatic Sites

Special Aquatic Sites	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Sanctuaries and refuges	X					
Wetlands				X	X	
Mud flats	X					
Vegetated shallows	X					
Coral reefs	X					
Riffle pool complexes	X					

Wetlands are the only special aquatic sites that would be affected by the discharges. Discharges are proposed within four wetlands north of the Straits (W3, W8, W10, and W19) that, per the USACE's December 2024 PJD, are treated as WOTUS within the USACE's Section 404 responsibility, totaling 1.01 acres. The discharges would result in permanent loss of 0.79 acres of WOTUS wetlands and temporary impacts to 0.22 acres of wetlands within USACE's Section 404 responsibility due to the placement of fill throughout the construction footprint and the construction of Outfall 003 in the area of W8 and W19.

The placement of regulated fill and permanent structures would alter the hydrology of the impacted wetland WOTUS such that they would no longer support wetland vegetation and would no longer meet the criteria to be classified as wetlands. A loss of ecological functions provided by the impacted wetlands, including habitat, flood water storage, and filtration, would result. After completion of construction, the Applicant has proposed to restore pre-construction contours, replace the existing topsoil, reseed with native seed mix, and monitor to ensure successful restoration of the 0.22 acres of W19 that is outside the operational footprint of the Project.

The regulated discharges and activities that would occur on the discharges are not anticipated to alter hydrology or runoff patterns substantially outside the construction footprint. Wetland WOTUS for which much of the original system will be permanently impacted (e.g., W19) are likely to experience an overall decrease in wetland habitat availability as well as an overall decrease in wetland function and value due to a substantially decreased size of the area performing wetland functions, including habitat functions, stormwater retention, and filtration. Fragmentation of existing wetland systems (in which a contiguous wetland system is fragmented into smaller, isolated or less connected wetlands) is documented to result in decreased biodiversity and a loss of other values and functions performed by the system that enhance and support the overall ecosystem in which the wetland occurs. Overall wetland connectivity in the area would be reduced due to the permanent loss of wetlands within the construction footprint.

Temporary alterations to wetland hydrology would also occur while the underlying groundwater table is lowered due to dewatering associated with retrieval shaft construction. Based on modeling, the influence of groundwater drawdown would extend within 360 feet of the retrieval shaft. Wetlands that rely on groundwater hydrology and are within this radius would have the potential to be impacted, depending on each wetland's primary source of hydrology. Aquifer drawdown in this location is estimated to occur for a period of 6 months, and maximum drawdown is estimated to be approximately 2 feet. Many of the wetland areas occurring within 360 feet of the proposed shaft are already proposed for permanent loss due to the placement of fill; however, portions of W3, W8, and W19 occur outside the construction footprint but within 360 feet of dewatering activities associated with shaft construction. Based on information gathered during the wetland delineation, the portions of these wetlands that are within the region of influence for groundwater drawdown do not receive hydrology primarily from groundwater and would be unlikely to be affected by groundwater drawdown. W8 is located in the littoral zone, primarily receiving hydrology directly from the Straits. Data gathered from W19 indicates that vertical movement of water through the soil profile is restricted by the presence of compacted gravel and other material. W19 likely receives hydrology from precipitation and surface water runoff. While many areas of W3 located further from the construction footprint appear to interact with groundwater, sample points conducted within 360 feet of the shaft did not observe evidence of groundwater influence.

Ground disturbing activities associated with regulated discharges in wetland WOTUS within the proposed construction footprint could increase erosion, resulting in increased transport of disturbed soils by wind and stormwater runoff, and have the potential to increase sedimentation and pollutant loads in nearby parts of the wetland outside the discharge footprint. Erosion control measures such as use of silt fence around discharge areas would prevent disturbed soil from leaving the construction site, minimizing impacts to wetlands outside the proposed impact areas.

6.4.3 Potential Impacts on Human Use Characteristics (Subpart F 40 C.F.R. § 230.50)

The following has been considered in evaluating the potential impacts of regulated discharges of dredged or fill material in WOTUS on human use characteristics of the Applicant's proposal (see Table 9):

Table 9. Potential Effects on Human Use Characteristics

Human Use Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Municipal and private water supplies		X				
Recreational and commercial fisheries		X				
Water-related recreation				X		
Aesthetics				X	X	
Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	X					

Groundwater provides the public water supply for the area of analysis, with a few exceptions receiving community public water supplies from Lake Huron. As no public water is supplied by Lake Michigan or its adjacent wetlands within the area of analysis, the proposed discharges would not impact current water use.

Dredged or fill material would not be discharged within lacustrine or riverine systems, and measures such as erosion and sedimentation controls would be used around wetland WOTUS discharge areas to minimize entry of sediment into the waterway through surface runoff. The regulated discharges would therefore not affect recreational or commercial fisheries.

Construction activities associated with the regulated discharges would cause short-term, detrimental, localized impacts to visual resources, including the natural scenery at Point LaBarbe. The loss of natural vegetation and the operational facilities constructed on the fill material would contrast with existing visual resources as they are angular and industrial in nature and would cause long-term aesthetic impacts. The short- and long-term aesthetic changes and short-term noise due to the discharges of fill material, and the activities that would occur on the discharges, in Section 404 wetlands would cause short- and long-term adverse impacts to the recreation setting for nearby visitors, including those utilizing Water Trails along the Straits. The area would also be partially revegetated to approximate baseline aesthetics through reseeding with native seed mixes.

There are no preserves designated under Federal and State law or local ordinances to be managed for their aesthetic, educational, historical, recreational, and/or scientific value in or near the discharge areas.

Cultural resources associated with the aquatic ecosystem include culturally significant plants, natural communities, water, and other natural elements of the overall ecosystem. Impacts to the

aquatic ecosystem overall and its components constitute impacts to the associated cultural resources.

6.5 Pre-testing evaluation (Subpart G, 40 C.F.R. § 230.60)

The following has been considered in evaluating the biological availability of possible contaminants in dredged or fill material of the Applicant's proposal (see Table 10):

Table 10. Possible Contaminants in Dredged/Fill Material

Condition	Evaluated
Physical substrate characteristics	X
Hydrography in relation to known or anticipated sources of contaminants	X
Results from previous testing of the material or similar material in the vicinity of the Project	X
Known, significant sources of persistent pesticides from land runoff or percolation	X
Spill records for petroleum products or designated hazardous substances (Section 311 of the Clean Water Act)	X
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	X
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	X

The fill material proposed for discharge in Section 404 regulated wetland WOTUS consists of clean material from a commercial upland source and on-site topsoil that would be stockpiled for reuse within the North LOD following completion of construction. Based on our review of the available information, the North LOD does not contain known areas or sources of contamination that would cause the soils in this area to contain contaminants (See Section 3.9.4 of the Final EIS). Testing is not required because the likelihood of contamination by contaminants is acceptably low and the material may be excluded from evaluation procedures.

6.6 Evaluation and Testing (Subpart G, 40 C.F.R. § 230.61)

As stated in Section 6.5, evaluation and testing would not be required.

6.7 Actions to Minimize Adverse Impacts (Subpart H)

The following actions, as appropriate, have been taken through application of 40 C.F.R. §§ 230.70-77 to minimize the adverse effects of the USACE-regulated discharges on the aquatic ecosystem (see Table 11):

Table 11. Actions to Minimize Adverse Effects

Condition	Applicability
Actions concerning the location of the discharge	X
Actions concerning the material to be discharged	X
Actions controlling the material after discharge	X
Actions affecting the method of dispersion	X
Actions related to technology	N/A
Actions affecting plant and animal populations	X
Actions affecting human use	X
Other actions	N/A

Regarding location of discharges to wetlands, the Applicant adjusted its proposed construction LOD, in part to minimize fill in wetland WOTUS. For example, the North LOD is sited outside of areas to the north, northeast, and northwest, all of which contain large areas of forested wetlands. The footprint has been designed such that the forested wetlands between the proposed Tunnel shaft and the existing North Straits Facility would be minimized, with 0.0003 acres of forested wetland impact. Following the delineation of wetlands within the proposed LOD in 2023 and 2024 and the USACE's 2024 PJD, the Applicant further adjusted the proposed LOD to minimize wetland WOTUS impacts. The Applicant stated that its proposed configuration minimizes wetland WOTUS impacts to the extent practicable while maintaining safe and efficient construction practices.

The Applicant addressed potential avoidance of impacts to Wetland 19 (a WOTUS) outside the proposed permanent facilities' operational footprints (construction-related impacts include grading in the western extent of the construction footprint to achieve TBM shaft elevation and proposed location of access road within the wetland) and stated that construction impacts as proposed are required for uninterrupted workspace that promotes safety and efficiency. The Applicant indicated that further reducing impacts to this wetland would pose construction challenges given its close proximity to the proposed Tunnel shaft, the construction access road, and Boulevard Drive. Likewise, according to the Applicant, the proposed location of the hydrostatic test water storage tank was sited out of wetlands to the extent possible but could not fully avoid wetland impacts due to the configuration of other necessary construction elements nearby. The Applicant addressed minimization of the proposed wetland discharges associated with construction of the proposed outfall north of the Straits with less impact to Wetlands 8 and 19; however, as the centerline of Boulevard Drive must be maintained throughout construction, based on federal and state roadway design criteria to meet applicable safety standards, the Applicant indicated that impacts to WOTUS in this area are unavoidable. The Applicant proposes to minimize impacts to Wetland 19 by restoring 0.22 acres of the wetland after completion of construction.

Regarding actions to control discharged materials after discharge and to control the method of dispersion, the Applicant proposes to use soil erosion and sedimentation control measures, including silt fence, around discharge areas to minimize entry of runoff and sediment into nearby waters outside the discharge footprints. The discharge material would consist of clean material from an offsite, commercial source, or would reuse onsite soils, all of which would be expected to be free of contaminants.

Regarding actions taken to minimize effects to plant and animal populations and human uses associated with the aquatic ecosystem, the Applicant conducted natural community surveys as well as protected species surveys within the construction footprint to identify rare communities and protected species. Table 5-1 in the Final EIS identifies measures for reduction of impacts to natural communities, including reseeding disturbed areas with native seed mixes after topsoil replacement; cleaning equipment before arriving onsite and before switching sites, to reduce spread of invasive plants; using mulch and straw or hay bales that are free of noxious weeds for temporary erosion and sediment control; performing construction activities at least 50 feet from the north shoreline and at least 115 feet from the south shoreline to minimize potential effects to shorebirds; siting the construction footprint north of the Straits to minimize impacts to wetlands and protected plant species; and implementing mitigation measures for dwarf lake iris and Houghton's goldenrod. Proposed avoidance, minimization, and mitigation measures are further detailed in Chapter 5 of the Final EIS.

The enforceable measures that USACE identified to avoid, minimize, and mitigate for impacts to the aquatic ecosystem are included in Section 11 below, along with the rationale for their inclusion. With these measures, USACE finds that all appropriate and practicable steps have been taken to minimize the potential adverse impacts of the proposed discharges on the aquatic ecosystem.

6.8 Factual Determinations (Subpart B, 40 C.F.R. § 230.11)

The following determinations are based on the applicable information above, including actions to minimize effects and consideration for contaminants associated with regulated discharges proposed as part of the Applicant's project (see Table 12):

Table 12. Factual Determinations of Potential Effects

Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Physical Substrate					X	
Water circulation, fluctuation and salinity					X	
Suspended particulates/turbidity			X			
Contaminants		X				
Aquatic ecosystems and organisms					X	
Proposed Disposal site					X	
Cumulative effects on the aquatic ecosystem			X			
Secondary effects on the aquatic ecosystem			X			

As detailed in Sections 4.4 and 4.5 of the Final EIS and summarized in the sections above, the regulated discharges in WOTUS would cause permanent alteration of the wetland substrate, altering water circulation and fluctuation in the wetlands to an extent that wetland functions would be eliminated, resulting in permanent loss of 0.79 acres and temporary impacts to 0.22 acres of wetland WOTUS within USACE's Section 404 responsibility. Aquatic and terrestrial organisms inhabiting these wetlands would be displaced, if mobile, or destroyed, if sessile. With use of erosion control measures as proposed, the discharged material would be contained so as not to enter the waterway; therefore, the discharges would have negligible effects on water quality, resulting in no effect on substrates or aquatic organisms in Lake Michigan. The Applicant proposes to use clean fill material from an offsite source, or existing wetland topsoil from onsite, as fill material. This material is not likely to introduce, increase, or relocate contaminants. Refer to Section 6.2 regarding the delineation of the proposed discharge site; the proposed regulated discharges in WOTUS are intended to provide a construction workspace and to support operational facilities, rather than for disposal of material. Cumulative impacts of the discharges on the aquatic ecosystem are addressed in Sections 4.4.8.2 and 4.5.8.2 of the Final EIS. Based on the limited development in the review area in the past 10 years and the lack of reasonably foreseeable future discharges that could affect the aquatic environment in the vicinity of the proposed discharges, cumulative impacts would be negligible. Secondary impacts, such as impacts of activities conducted on the proposed discharges, are addressed in Sections 6.3 and 6.4 above and would also be negligible.

6.9 Findings of Compliance or Non-Compliance with the Restrictions on Discharges (40 C.F.R. §§ 230.10(a-d) and 230.12)

Based on the information above, including the factual determinations, the proposed regulated discharge in WOTUS has been evaluated to determine whether any of the restrictions on discharge would occur due to the Applicant's Proposal (see Table 13):

Table 13. Compliance with Restrictions on Discharge

Subject	Yes	No
1. Is there a practicable alternative to the proposed discharge that would be less damaging to the aquatic ecosystem?		X
2. Will the discharge cause or contribute to violations of any applicable water quality standards?		X
3. Will the discharge violate any toxic effluent standards (under Section 307 of the Clean Water Act)?		X
4. Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?		X
5. Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries?		X
6. Will the discharge cause or contribute to significant degradation of waters of the United States? (See Sections 6.3 and 6.4 above)		X
7. Have all appropriate and practicable steps (Subpart H, 40 C.F.R. § 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem? (See Section 6.7 above)	X	

7 General Public Interest Review (33 C.F.R. § 320.4)

The decision whether to issue a permit is based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on public interest as stated at 33 C.F.R. § 320.4(a). To the extent appropriate, the public interest review below also includes consideration of additional policies as described in 33 C.F.R. § 320.4(b) through (r). The benefits which reasonably may be expected to accrue from the proposal are balanced against its reasonably foreseeable detriments.

7.1 Public Interest Factors Review

All public interest factors have been reviewed as part of the USACE's analysis. Table 14 below identifies the section(s) of the EIS that address each factor.

Table 14. Public Interest Factors

Factor	EIS Section(s)
1. Conservation	4.4, 4.5
2. Economics	4.13
3. Aesthetics	4.3
4. General Environmental Concerns	4.4, 4.5, 4.8, 4.9
5. Wetlands	4.4*
6. Historic Properties	4.6. Also see USACE's Assessment of Effects on Historic Properties, dated August 15, 2025
7. Fish and Wildlife Values	4.5
8. Flood Hazards	4.4
9. Floodplain Values	4.5
10. Land Use	4.2
11. Navigation	4.10
12. Shoreline Erosion and Accretion	4.4
13. Recreation	4.2
14. Water Supply and Conservation	4.4
15. Water Quality	4.4
16. Energy Needs	4.13
17. Safety	4.14
18. Food and Fiber Production	N/A
19. Mineral Needs.	N/A
20. Consideration of Property Ownership	4.2
21. Needs and Welfare of the People	4

**After publication of the Final EIS, Enbridge proposed to restore 0.35 acres of wetlands that would be outside the Project's operational footprint. Of this acreage, 0.22 acres of wetlands are WOTUS within USACE's Section 404 responsibility.*

The specific weight of each factor is determined by its importance and relevance to the particular proposal. Accordingly, how important a factor is and how much consideration it deserves varies with each proposal.

Conservation: The proposed project would adversely affect Houghton's goldenrod and dwarf lake iris. The Applicant would mitigate the adverse effects to these species through measures developed with the USFWS and MDNR, which may include offsite land protection and contribution to a research fund. The USFWS determined that the proposed action is not likely to jeopardize the continued existence of these species. In addition, USFWS concurred with USACE's determinations that other federally listed species would not be affected or not likely be adversely affected. See Section 10.1 regarding Endangered Species Act compliance. While impacts on these species would be substantially offset with the proposed mitigation, the Project's net effects on conservation would be minor, long-term, detriments.

Economics: The EIS documents short-term, detrimental impacts from stress on housing/community services due to influx of construction workers, and from potential reduction in housing values and tourism due to construction disturbance. We view these potential detrimental impacts as negligible, as the area is accustomed to large seasonal population increases and has numerous tourism resources beyond the areas that would be affected. Conversely, the monies expended by workers would benefit the local economy. Overall, the Project would have minor, short-term economic benefits due to increased employment, spending, and tax revenues.

Aesthetics: Construction noise, emissions, visual disturbance, and introduction of construction traffic and workers would cause minor, detrimental impacts on aesthetics. After construction, long-term detrimental impacts on aesthetics would result from introduction of additional industrial facilities and changes in the character of vegetation. These impacts would be minor, given that much of the disturbed area would be revegetated and that the new industrial facilities would be visually similar to existing facilities on each shoreline.

General environmental concerns: Environmental impacts, including disturbance of habitat, waters, and soils, and potential contamination from construction-related spills, may occur primarily within the footprint of the work areas, including a limited area within Lake Michigan at the HDD exit point. Implementation of best management practices during construction and post-construction restoration activities would reduce these impacts.

Wetlands: See Section 6 above. Wetland impacts would be avoided and minimized to the extent practicable, and the Applicant proposes compensatory mitigation to offset unavoidable wetland impacts. While the impacted wetlands provide rare and valuable coastal habitats, the extent of the impact is limited and largely within areas previously disturbed. Compensatory mitigation through a combination of mitigation bank credit purchase, enhancement of onsite wetlands (i.e., fencing to prevent continued degradation by off-road vehicle use and dumping of waste), and preservation of coastal habitats containing threatened plants and their habitat would offset the impacts to wetlands.

Historic properties: The project would have major, permanent, adverse effects on historic properties, including archaeological sites, an archaeological district, and the Straits of Mackinac TCL, a place of cultural and spiritual significance to the Anishinaabe Tribal Nations. Consistent with the Final EIS, this ROD does not include detail on these effects so as not to risk harm, theft, or destruction of the resources. Refer to USACE's Assessment of Effects on Historic

Properties,¹² which is incorporated herein by reference, for detail on the expected effects, including Tribal Nations' perspectives on the significance of the resources and the effects to them. The adverse effects to these resources are felt by the living communities that hold them significant. The historic properties themselves and many of their contributing resources are unique and irreplaceable. The Applicant proposes mitigation for effects to historic properties, including archaeological recovery, construction monitoring, and mitigation for impacts to the living landscape. Tribal Nations and the SHPO have emphasized that the impacts of the proposed project cannot be mitigated. Additional discussion on the Applicant's proposed mitigation is in Section 10.3 below. While Enbridge's proposed mitigation plans address the impacts, the measures proposed will not fully mitigate the impacts on these historic properties and the peoples that hold them significant.

Fish and wildlife values: Loss of natural habitats, including forests, wetlands, and rare natural communities, would impact the wildlife and aquatic organisms that inhabit those communities. Construction disturbance impacts would be limited in duration, but long-term impacts of habitat loss and displacement of the native wildlife would continue. Restoration of wetlands and revegetation of lands outside the Project's operational footprint would reduce the magnitude of this impact, but minor, long-term, detrimental impacts would remain due to the loss and change of habitats.

Flood hazards and floodplain values: Construction-related fills and structures would be placed in the 100-year and 500-year floodplain of Lake Michigan, but no permanent structures or fills would be located on the floodplain. The proposed floodplain fills would take place in an area where water levels are solely under static level control of the Great Lakes. The volume of this contiguous water system is so vast that the proposed activities would not induce any measurable change in the system's water level behavior. No impacts on flood hazards are expected. Impacts to floodplain values include the minor, short-and long-term detriments to wetland and ecological functions documented in the public interest factors above; no additional impacts to floodplain values are expected.

Land use: The Project would have long-term detrimental impacts on land use due to conversion of undeveloped natural areas into industrial facilities. Title 33 C.F.R. § 320.4(j)(2) states that, "The primary responsibility for determining zoning and land use matters rests with state, local, and tribal governments." The district engineer will normally accept decisions by such governments on those matters unless there are significant issues of overriding national importance." Here, the State has granted its respective authorizations related to land use, including a state bottomlands easement; the project is presumably consistent with existing zoning; and work areas would be adjacent to the existing Enbridge facilities. Therefore, we consider the detrimental impacts to land use negligible.

Navigation: Detrimental impacts would be negligible, as potential obstacles to navigation would be limited to a limited area near the shoreline in the location of the water intake and associated vessel use during its installation, distant from the navigation lanes. Potential beneficial impacts due to discontinuation of maintenance activities on the Dual Pipelines (which may require vessel operators to navigate around work vessels), would also be negligible, as maintenance requirements would be infrequent and require limited vessel use.

Shore erosion and accretion: With the soil erosion and sediment control measures proposed, effects to shoreline erosion and accretion would be negligible.

¹² August 15, 2025, Memorandum for Record, Subject: Line 5 Tunnel Project, Assessment of Effects on Historic Properties

Recreation: Construction noise, emissions, lighting, visual disturbance, and introduction of construction traffic and workers could have minor, detrimental effects on land- and water-based experiences for recreationists, depending on individual tolerance, through the changes to the aesthetic and noise environment, primarily during construction.

Water supply and conservation: There would be no impacts to public water supply.

Water quality: Title 33 C.F.R. § 320.4(d) states, “Certification of compliance with applicable effluent limitations and water quality standards required under provisions of Section 401 of the Clean Water Act will be considered conclusive with respect to water quality considerations unless the Regional Administrator, Environmental Protection Agency (EPA), advises of other water quality aspects to be taken into consideration.” Here, the State of Michigan Department of Environment, Great Lakes, and Energy (EGLE) has issued a Section 401 Water Quality Certification for the proposed project, and the EPA did not advise of other water quality aspects to be considered. While the Final EIS identifies minor, short-term adverse impacts to water quality during construction, the project would meet applicable State water quality standards and would not affect the water quality of neighboring jurisdictions.

Energy Needs: The USACE acknowledges that the basic purpose of the project is transport of products used for energy. However, USACE’s consideration of the energy conservation and development public interest factor is limited to construction activities and the intended use of the structures within USACE’s federal control and responsibility¹³ (i.e., at the Straits crossing), including operation and maintenance activities associated with the proposed replacement pipeline segment and tunnel underneath the Straits. The Line 5 pipeline’s operation, including the use of the pipeline products and the impacts of that use, is outside USACE’s scope of analysis. No impacts on energy conservation and development are expected.

Safety: The EIS addresses safety risks inherent in construction, primarily applicable to construction personnel. The Applicant has identified measures to address these risks. With these measures, and with reasonable safety-related practices in the workplace, potential impacts on public safety would be minor, short-term, and negative. While operational safety risks and benefits are outside the Corps’ scope of analysis, USACE acknowledges that a component of the Project purpose is to minimize environmental risks associated with vessel anchor strike protection and secondary containment.

Food and fiber production and mineral needs: These factors were not applicable to this review.

Property ownership: Title 33 C.F.R. § 320.4(g)(1) states, “An inherent aspect of property ownership is a right to reasonable private use. However, this right is subject to the rights and interests of the public in the navigable and other waters of the United States, including the federal navigation servitude and federal regulation for environmental protection.” Land ownership and land use are discussed in detail in Sections 3.2 and 4.2 of the Final EIS. Enbridge owns most of the proposed terrestrial workspace on either shore and has existing facilities there, including the North Straits Facility, Mackinaw Station, and portions of the existing Line 5 Pipeline. Through its signature on the application, the Applicant has affirmed that it possesses or will possess the requisite property interest to undertake the activity proposed in the application (§ 320.4(g)(6)), including a bottomland easement from the State of Michigan. While the project would have minor benefits to the Applicant’s rights of property ownership, the analysis in the EIS and ROD also acknowledges and weighs the environmental consequences of the proposed project that would extend to public resources and uses.

¹³ See June 28, 2023, MFR, Subject: NEPA and Public Interest Review Scope of Analysis for Enbridge Line 5 Tunnel

Needs and welfare of the people: The Final EIS details various effects relating to the needs and welfare of the people, including public needs for protection of natural and cultural resources, as addressed under other public interest factors above. A key impetus for Enbridge's application (according to the Applicant's stated project purpose) and a factor in the USACE's defined project purpose relates to safety and minimizing environmental risk of the Line 5 crossing of the Straits. Enbridge and the State of Michigan formulated agreements in which Enbridge would address specific pipeline safety factors, including mitigating risk of vessel anchor strike to the pipeline and providing secondary containment. Enbridge's agreements with the State of Michigan reflect a public need for pipeline safety measures related to the Straits crossing. The proposed Project would provide major, long-term benefits in addressing this public need by providing both vessel anchor strike protection and secondary containment. Conversely, Tribal Nations' resolutions and submissions expressed that the presence and continued operation of the Line 5 pipeline crossing the Straits represents a threat to the welfare of the people. However, none of the decision options available¹⁴ to USACE would prohibit operation of the existing pipeline (see USACE's June 2023 MFR on scope of analysis and Section 2.1 above). Therefore, the potential outcomes associated with the USACE review will not resolve Tribal concerns on this matter. The proposed Project would benefit the needs and welfare of the people by reducing the environmental risks associated with the Line 5 pipeline.

Conclusions

Denial of the permit would avoid the impacts listed above, including construction noise, emissions, visual disturbance, and introduction of construction traffic, impacting aesthetics, recreation, and tourism; loss of vegetation, wetlands, and forested habitats, and associated displacement/disturbance to wildlife; groundwater drawdown in nearby wetlands; potential vibration impacts to aquatic organisms; erosion/sedimentation; potential introduction of contaminants/construction-related spills; turbidity/release of drilling fluids at HDD exit point; obstacle to navigation at the water intake; stress on housing/community services due to influx of construction workers; and public safety risks inherent in construction. Permit denial would also avoid the short-term economic benefits due to increased employment, spending, and tax revenues. Permit denial would avoid long-term detrimental impacts including permanent loss of vegetation, wetland, and forested habitats for wildlife and wetland-dependent organisms, and associated loss of wetland functions; loss of federally protected species; aesthetic and recreational impacts due to vegetation loss/change and introduction of industrial facilities; and loss and alteration of cultural resources. In addition, if the permit were denied, no vessel anchor strike protection or secondary containment would be provided.

As documented in the EIS under the No Action Alternative, denial of the permit would avoid the project-related impacts to vegetation, threatened plant species and cultural resources in the proposed work areas, but these resources could still be impacted by any vegetation clearing or ground-disturbing activities (such as for maintenance) not requiring authorization from USACE. In the absence of a federal action, the requirements of Section 106 of the NHPA for consideration of effects to historic properties and any mitigation of those effects would not apply. Special conditions identified in Section 11 below could reduce the potential impacts to water quality, conservation, fish and wildlife values, wetlands, general environmental concerns, historic properties, and navigation.

By virtue of their respective magnitude and duration, the impacts with the greatest weight in this analysis are the detriments to historic properties and the benefits to the needs and welfare of

¹⁴ According to 33 C.F.R. Part 325, Appendix B, Paragraph 7, "The decision options available to the Corps, which embrace all of the applicant's alternatives, are issue the permit, issue with modifications or deny the permit."

the people. The impact on historic properties is substantial. The Applicant's proposed historic properties mitigation would reduce but not eliminate the adverse impact. The benefits to the needs and welfare of the people are also substantial, reflecting actions the State deemed necessary to protect its natural resources for the benefit of all Michigan citizens. After consideration of all expected benefits and detriments, including their extent, magnitude, and duration, I find that the Project's benefits to the needs and welfare of the people are compelling because they extend to all Michigan citizens, and on the balance, the benefits of the Project outweigh its detriments.

7.2 Public and Private Need

The relative extent of the public and private need for the proposed structure or work:

Refer to USACE's memorandum dated June 28, 2023, Subject: Enbridge Line 5 Tunnel – Purpose and Need, regarding the Project purpose and need.

Enbridge has a private need to continue to conduct its business, which involves pipeline transport of light crude oil and natural gas liquids. The Line 5 pipeline is currently operational and meets this need, regardless of whether USACE issues a permit for regulated activities associated with the proposed Tunnel Project. USACE therefore considered more specifically the public and private need for the proposed Tunnel.

Title 33 C.F.R. § 320.4(q) states, "When private enterprise makes application for a permit, it will generally be assumed that appropriate economic evaluations have been completed, the proposal is economically viable and is needed in the marketplace. However, the district engineer in appropriate cases, may make an independent review of the need for the project from the perspective of the overall public interest." USACE reviewed energy use projections related to the need for pipeline products in the foreseeable future to determine whether the Tunnel Project, if constructed, would be needed and used, or if its use would be speculative.

Line 5 is an existing pipeline that currently transports approximately 540,000 bpd of light crude oil and NGLs to markets in the U.S. and Canada. Based on the current transport and use of these products, there is a market demand and therefore a public need for the volume of light crude oil and NGLs currently transported. Projections from the U.S. EIA 2023 Annual Energy Outlook estimated that the demand for petroleum products would remain steady through at least 2050, despite increases in renewable energy use. Projections in the Annual Energy Outlook end in 2050, as changes in demand past that point are increasingly speculative and beyond what is considered the reasonably foreseeable future. The EIA's 2025 Annual Energy Outlook revised this estimate and is now projecting that the demand for petroleum products in the near future is expected to gradually decline before stabilizing at the end of the 2040s. This is in line with the EIA's projections of a slight decline in total energy consumption on a national level.

The current needs for transport of the pipeline products are supported by their existing use, and the need for the pipeline products in the foreseeable future is supported. Therefore, the USACE did not consider the Tunnel Project to be speculative. The USACE did not evaluate the need for the continued operation of Line 5 beyond consideration of whether the proposed Tunnel Project may be speculative. The Line 5 pipeline could continue to operate regardless of the USACE's decision whether to issue or deny a permit for regulated activities associated with the proposed Project.

As stated in Section 7.1 above, we view Enbridge's agreements with the State of Michigan as reflecting a public need for pipeline safety measures related to the Straits crossing. The proposed Project would address this public need by providing both vessel strike protection and secondary containment. The extent of this need is substantial, as evidenced by the State's contractual agreements with Enbridge and its passage of legislation forming the Mackinac

Straits Corridor Authority to oversee the construction and eventually own the Tunnel. For example, the Second Agreement¹⁵ states, "...the State acknowledges that the stipulations specified in this Second Agreement are intended to further protect ecological and natural resources held in public trust by the State of Michigan, and that the terms of this Second Agreement will both protect the natural resources held in public trust by the State and provide clarity as to the State's expectations concerning the safety, integrity, and operation of Line 5." The Third Agreement similarly indicates the State's agreement that "...The work done and to be done at the water crossings¹⁶ pursuant to the Second Agreement adds protections to the health, safety, and welfare of Michiganders and increases protection for Michigan's environment and natural resources."

7.3 Resource Use Unresolved Conflicts

If there are unresolved conflicts as to resource use, explain how the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work was considered:

USACE evaluated a broad range of alternatives (See Chapter 2 and Appendix E of the Final EIS) and carried forward for a detailed comparative analysis in the EIS those alternatives that met the project purpose, were reasonable and practicable, and might have less environmental impact than the Applicant's Preferred Alternative. The results of that alternatives analysis are presented in Sections 5.3 and 6.1 of this document.

7.4 Beneficial and/or Detrimental Effects on the Public and Private Use

The extent and permanence of the beneficial and/or detrimental effects that the proposed work is likely to have on the public and private use to which the area is suited is described below:

The proposed Project area is located on property owned by Enbridge, other property owners (from whom the Applicant has or will secure access rights), and under State-owned bottomlands. Enbridge's property has been subject to private use for operation and maintenance of the existing Line 5 pipeline facilities, including the North Straits Facility, Mackinaw Station, and part of the existing Line 5 pipeline. The shoreline, lake, public roads, and surrounding public lands may be accessed by the public for recreational activities and transportation and by Tribal communities for cultural and spiritual practices and for exercise of treaty rights, including hunting, gathering, and fishing. Although the construction LODs are located on private property, they contain archaeological and other cultural resources of significance to Tribal Nations. While located on private property, the presence and preservation of these resources provide cultural and spiritual value to the Tribal Nations who hold them significant.

The nature, extent, and duration of impacts to these uses is discussed in Section 7.1 above. Refer to Section 10.4 regarding the Project's impact on Tribal treaty rights.

8 Mitigation

(33 C.F.R. § 320.4(r), 33 C.F.R. Part 332, and 40 C.F.R. §§ 230.70-77)

8.1 Avoidance and Minimization

Avoidance and Minimization: When evaluating a proposal including regulated activities in waters of the United States, consideration must be given to avoiding and minimizing effects to those

¹⁵ Agreement Between the State of Michigan and Enbridge Energy, Limited Partnership and Enbridge Energy Company, Inc., dated November 27, 2017.

¹⁶ The Second Agreement addresses the Straits crossing as well as other waters crossed by Line 5.

waters. The Applicant's proposed avoidance and minimization are described in Section 1.3.1 above.

Other mitigative actions including project modifications implemented to minimize adverse project impacts (See 33 C.F.R. § 320.4(r)(1)(i)): Avoidance and minimization measures are discussed in Sections 1.3.1 and 6.7 of this document, including modifications to the Project footprint and restoration of temporarily impacted wetlands after completion of construction. Additionally, the inclusion of special conditions as described in Section 11 of this document would further minimize adverse impacts.

After considering the proposed avoidance and minimization measures, USACE determined that the impacts to WOTUS within its Section 404 responsibility cannot be fully avoided and have been minimized to the extent practicable.

8.2 Compensatory Mitigation Requirement

Construction of the proposed Project would require the discharge of fill material resulting in permanent loss of 0.79 acres and temporary impacts to 0.22 acres of wetlands in the USACE's Section 404 responsibility. Consistent with the Nationwide Permit requirement, the Detroit District generally requires compensatory mitigation for unavoidable losses greater than 0.10 acres. Therefore, compensatory mitigation is required to offset environmental losses resulting from proposed unavoidable impacts to WOTUS within the USACE's Section 404 responsibility.

In its wetland mitigation plan, dated March 24, 2026, the Applicant proposed to purchase 3.06 acres of wetland mitigation bank credits to offset impacts to federally and state-regulated wetlands at a 2:1 ratio. Table 15 below shows the wetland impacts and proposed mitigation by community type for the wetlands within the USACE's Section 404 responsibility.

Table 15. Proposed Mitigation for Wetland Impacts

Wetland Type	USACE Section 404 Wetland Impact (ac)	Total Wetland Impact (ac)	USACE Section 404 Wetland Mitigation (ac)	Total Wetland Mitigation (ac)
Emergent (PEM)	0	0.51	0	1.02
Scrub-shrub (PSS)	1.01	1.01	0	0
Forested (PFO)	0.0003	0.0103	2.02	2.04
Total	1.0103	1.5303	2.02	3.06

The Applicant has purchased 0.26 acres of palustrine forested (PFO) wetland mitigation credits to date and has entered into a purchase agreement to acquire up to 10 acres of PFO wetland credits from the Carp River II Wetland Mitigation Bank.

In addition to purchasing credits, the Applicant proposes to install a barrier on the western boundary of its property along Wetland 3 to minimize damage to the wetland due to prevent unauthorized vehicle entry. The Applicant also proposes to preserve, through a conservation easement, a 203-acre property on Bois Blanc Island, which contains wetlands, coastal habitat, and rare plant habitat.

8.3 Type and Location of Compensatory Mitigation

8.3.1 Mitigation Bank Service Area

The impact is in the service area of an approved mitigation bank. The proposed mitigation bank has the appropriate number of credits available but does not offer scrub-shrub type credits. The

Applicant therefore proposes to purchase forested wetland credits to compensate for impacts to scrub-shrub wetlands.

8.3.2 Mitigation Hierarchy

The proposed compensatory mitigation is consistent with the order of the options presented in 33 C.F.R. § 332.3(b)(2)-(6).

8.4 Amount of Compensatory Mitigation

The Applicant proposes to purchase 3.06 wetland mitigation bank credits, of which 2.02 credits would be for impacts to wetlands within USACE's Section 404 responsibility.

The wetlands within USACE's Section 404 responsibility that would be impacted are primarily scrub-shrub wetlands. While 0.22 acres of wetlands within USACE's Section 404 responsibility would be restored after completion of construction, wetland functions would be lost for an extended period (over 6 years), and compensation at a similar ratio to permanently impacted areas is appropriate to offset the temporal loss of these wetlands. The 2:1 ratio for purchasing bank credits is appropriate for this impact, as it is consistent with typical ratios for permittee-responsible mitigation for scrub-shrub wetlands in the Detroit District while leveraging a mitigation bank approach to maximize success and minimize temporal loss. While the impacted wetlands provide habitat for federally threatened plants, this function would be mitigated separately through approaches that satisfy the USFWS mitigation policy.

Mitigation bank credit purchase is the preferred compensatory mitigation approach in the order of options presented in 33 C.F.R. § 332.3(b)(2)-(6). Although the identified mitigation bank does not offer scrub-shrub credits, the Applicant proposes to purchase forested credits, a more valuable resource type. Based on the number and type of credits proposed for purchase, the proposed mitigation bank credit purchase fully satisfies USACE's compensatory mitigation requirements.

While the Applicant has additionally proposed installation of a barrier along the western edge of its property to prevent unauthorized vehicle access to wetland W3 and preservation of coastal and wetland habitat on Bois Blanc Island, these measures exceed USACE's requirements for wetland compensatory mitigation. Preservation of the Bois Blanc Island site is part of Enbridge's proposed mitigation for impacts to threatened plants and will be addressed through Endangered Species Act requirements, but USACE does not require this preservation as wetland compensatory mitigation.

9 Consideration of Cumulative Effects

USACE evaluated the extent to which the proposed action may contribute to cumulative effects when considered together with past, present, and reasonably foreseeable actions.

Cumulative effects for each resource area are analyzed and described in Chapter 4 of the EIS, under a separate subheading in each section. The geographic extent of the area where cumulative effects would be expected depends on the type of resource being considered; therefore, not all projects or actions are considered for all resource areas. The area of analysis for each resource area is defined in the appropriate section of EIS Chapter 3.

Cumulative impacts primarily involve loss of vegetation, forested habitats, and wetlands, along with the resultant impacts to aesthetics, recreation, and cultural resources. Because the extent of past impacts to the cumulative impact review areas has been limited, and reasonably foreseeable future actions are similarly limited in their extent and magnitude, expected cumulative impacts would be minimal. Refer to specific resource areas in Chapter 4 of the EIS for detailed discussion.

10 Compliance with Other Laws, Policies and Requirements

10.1 Section 7(a)(2) of the Endangered Species Act (ESA)

Refer to Section 2.2 for description of USACE's Action Area for Section 7 of the ESA.

10.1.1 Lead Federal Agency for Section 7 of the ESA

The USACE is the lead agency for complying with Section 7 of the ESA.

10.1.2 Listed/Proposed Species and/or Designated/Proposed Critical Habitat

Federally listed or proposed species within the USACE's action area are identified in Table 16, along with the effect determinations and basis for the determinations. No designated or proposed critical habitat was present in the action area.

Table 16. Federal Special Status Species Impacts within the Area of Analysis

Species	Federal Status	Effect Determination	Potential Impacts
Mammals			
Northern long-eared bat <i>(Myotis septentrionalis)</i>	Endangered	Not likely to adversely affect	The loss of approximately 7.7 acres ¹ of suitable summer habitat is anticipated, including a total of 287 potential roost trees. Construction noise and lighting may cause bats to flee day roosts, potentially resulting in increased predation. The Project may affect the northern long-eared bat if tree clearing occurs during the species' active season. The Applicant has committed to tree clearing outside the pup season (June/July) and intends to conduct clearing/grading during winter months to avoid impacts during the species' active season.
Gray wolf <i>(Canis lupus)</i>	Threatened	Not likely to adversely affect	Wolves may travel through the action area, but the species' general wariness would mean wolves would tend to avoid areas of human activity, including roads.
Tricolored bat <i>(Perimyotis subflavus)</i>	Proposed Endangered	Not likely to adversely affect	The loss of approximately 7.7 ¹ acres of suitable summer habitat within the north side and south side construction footprints is anticipated, including a total of 287 potential roost trees. Construction noise and lighting may cause bats to flee day roosts, potentially resulting in increased predation. However, a 2024 acoustic survey indicated the probable absence of the species. The Project may affect tricolored bat if tree clearing occurs during the species' active season. The Applicant has committed to tree clearing during winter months (October 1 to April 14) to avoid impacts during the species' active season.
Birds			

Species	Federal Status	Effect Determination	Potential Impacts
Piping plover (<i>Charadrius melodus</i>)	Endangered	Not likely to adversely affect	Approximately 0.05 acres of suitable habitat would be cleared as a result of the Project. Individuals may avoid the area due to construction and increased human activity. While there is a potential for mortality due to collision with construction equipment, such an occurrence is unlikely due to the limited extent of available suitable habitat within the action area.
Rufa red knot (<i>Calidris canutus rufa</i>)	Threatened	Not likely to adversely affect	Approximately 0.05 acres of suitable habitat would be cleared as a result of the Project. Individuals may avoid the area due to construction and increased human activity. While there is a potential for mortality due to collision with construction equipment, such an occurrence is unlikely due to the limited extent of available suitable habitat within the action area.
Reptiles			
Eastern massasauga rattlesnake (<i>Sistrurus catenatus</i>)	Threatened	Not likely to adversely affect	The South LOD is outside of tiered habitat (i.e., habitat with high potential to be occupied by this species), and the North LOD is outside the species' range. This species may be encountered along haul roads, and vehicle strike on haul roads is extremely unlikely
Insects			
Hine's emerald dragonfly (<i>Somatochlora hineana</i>)	Endangered	Not likely to adversely affect	Suitable habitat for larvae may exist within wetlands adjacent to the North Side construction footprint. If suitable habitat for this species is present along haul routes between the north side construction footprint or south side construction footprint and EMPs and laydown areas, road mortality is extremely unlikely.
Monarch butterfly (<i>Danaus plexippus</i>)	Proposed threatened	Not likely to adversely affect	Construction activities may result in loss of breeding and foraging habitat. Avoiding vegetation clearing while monarchs may be present would avoid direct effects. Additional coordination with the USFWS may be needed if the species becomes listed as a federally threatened or endangered species and if vegetation cannot be cleared while monarchs are not present.
Flowering Plants			

Species	Federal Status	Effect Determination	Potential Impacts
Dwarf lake iris (<i>Iris lacustris</i>)	Threatened	Likely to be adversely affected	Approximately 7.95 acres of habitat with known DLI populations would be cleared. Approximately 1,126,183 individual plants would be cleared from the North Side construction footprint. One colony of DLI, comprising approximately 80 stems, was identified within EMPS N1. The Project is likely to adversely affect DLI. The Applicant would implement a plant mitigation plan to offset adverse effects to this species.
Houghton's goldenrod (<i>Solidago houghtonii</i>)	Threatened	Likely to be adversely affected	Approximately 7.95 acres of habitat with known HG populations would be cleared from the North Side construction footprint. Approximately 148,469 individual plants would be cleared from the North Side construction footprint, resulting in an adverse effect to this species. EMPSs and off-site laydown areas do not include HG within their boundaries and would therefore not result in impacts (Stantec 2025a). The Applicant would implement a plant mitigation to offset adverse effects to this species.
Pitcher's thistle (<i>Cirsium pitcheri</i>)	Threatened	Not likely to adversely affect	During a 2024 plant survey, the only observation of this species was on a sand pile at proposed off-site laydown area N2. If this species is present at the time of construction, it would be isolated from the off-site laydown area and left undisturbed.

Source: Stantec 2025a; USFWS 2025a, 2025c

¹ The Revised Biological Assessment (Stantec 2025a) identifies the Action Area as the areas affected by the Project (Applicant's Preferred Alternative), to include all Project components plus a 100-foot buffer. Therefore, the 7.7 acres shown in the table, based off the Biological Assessment, is greater than the 5.2 acres of forested habitat anticipated to be removed during construction within the construction footprint. The Applicant's Biological Assessment does not account for construction/operation footprints or elements associated with alternatives/sub-alternatives to the Applicant's Preferred Alternative.

DLI = dwarf lake iris; EMPS = excavated material placement site; HG = Houghton's goldenrod; USFWS = United States Fish and Wildlife Service.

10.1.3 Section 7 ESA Consultation

USACE initiated formal consultation with the USFWS on August 1, 2025. USFWS provided a biological opinion ("BO") on October 30, 2025, which concluded that the action is not likely to jeopardize the continued existence of federally listed species or result in adverse modification of critical habitat.

As summarized in Table 27 above, the action is likely to adversely affect two federally listed species: Houghton's goldenrod and dwarf lake iris. The Applicant has proposed mitigation to offset the adverse impacts to these species in a manner consistent with the USFWS mitigation policy and the applicable requirements of the Michigan Department of Natural Resources. Proposed approaches include preservation of sites with existing occurrences of these species and contribution of funding to research. The BO indicates that USFWS considers the proposed mitigation likely to address adverse impacts to the species, but that other similar preservation sites or approaches could also be acceptable. USACE defers to USFWS to determine the

suitable type and amount of mitigation to fulfill its requirements, consistent with the USFWS's finding in the BO that the action is not likely to jeopardize the continued existence of these species.

10.2 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat (EFH)

N/A. There is no EFH in the vicinity of the permit action.

10.3 Section 106 of the NHPA

Refer to Section 2.3 for a description of the Permit Area and APE for the undertaking.

10.3.1 Lead Federal Agency for Section 106 of the NHPA

USACE is the lead federal agency for complying with Section 106 of the NHPA.

10.3.2 Section 106 of the NHPA Compliance

USACE solicited public input on historic properties issues through its initial public notice, public hearing, EIS scoping process, Draft EIS, and Supplemental Draft EIS. USACE invited interested parties to participate as Consulting Parties (CPs) in the USACE's Section 106 review. Consulting Parties included the Michigan SHPO, 20 federally recognized Tribes, the MDNR – Michigan History Center, and the National Park Service. The Advisory Council on Historic Preservation ("ACHP") also provided comments during the USACE's Section 106 review but did not request formal involvement in the Section 106 process (36 C.F.R. § 800.2(b)(1)). USACE engaged with the CPs over approximately six years through approximately 60 monthly or ad hoc Section 106 consultation meetings; Government-to-Government consultation and coordination with federally recognized Tribes; opportunities to observe cultural resource fieldwork; opportunities to review, comment upon, and discuss work plans, reports, and draft findings on historic properties eligibility and effects; and opportunities to review, comment upon, discuss, and sign a Memorandum of Agreement ("MOA") to formalize historic properties mitigation requirements.

In April 2025, USACE identified the Project as an energy project subject to E.O. 14156 and continued its review of the application using special emergency processing procedures. USACE used 36 C.F.R. § 800.12(b)(2) to fulfill its Section 106 requirements, in addition to the emergency procedures specified in 33 C.F.R. Part 325, Appendix C, paragraph 14. USACE notified CPs and the ACHP and provided the opportunity to comment on April 29, 2025. The USACE's April 29, 2025, notification and consideration of the comments received constitute the fulfillment of USACE's Section 106 responsibilities. While not required under 36 C.F.R. § 800.12(b)(2), USACE continued to consult on historic-property-specific effect determinations; ways to avoid, minimize, and mitigate effects to historic properties; and to formalize mitigation requirements in an MOA.

Title 33 C.F.R. Part 325, Appendix C, paragraph 4(c) and similar restrictions defined in Section 304 of the NHPA limit the public disclosure of information on the location or character of sensitive historic properties when such disclosure could risk harm, theft, or destruction of such resources. USACE consulted with federally-recognized Tribes on the level of detail on sensitive historic properties to include in the EIS. Based on that consultation, specific information such as the location and nature of sensitive cultural resources is not included in the EIS or ROD. Detailed information on historic properties is in USACE's administrative record. In addition, USACE further detailed its Section 106 compliance with a separate MFR,¹⁷ which is

¹⁷ August 11, 2026 Memorandum for Record, Subject: Section 106 of the National Historic Preservation Act Review Summary for the Enbridge Line 5 Tunnel Project

incorporated by reference in this ROD but not included so as not to publicly disclose sensitive historic properties information.

Historic properties identified in the APE include archaeological sites, architectural/aboveground resources, an archaeological district, and the Straits of Mackinac Traditional Cultural Landscape ("TCL"). The USACE's Assessment of Effects on Historic Properties¹⁸ documents USACE's identification and evaluation of effects on historic properties and is incorporated herein by reference. The SHPO did not concur with USACE's findings that several archaeological sites were not individually eligible for listing in the National Register of Historic Places ("NRHP"). Section 106 compliance using 36 C.F.R. § 800.12(b)(2) does not require resource-specific eligibility determinations, and USACE therefore did not resolve instances of non-concurrence on eligibility. However, USACE considered these archaeological sites in its effects determinations as contributing elements to an archaeological district and the TCL, and the Applicant's proposed mitigation includes all sites in the LOD.

USACE determined that construction of the Project would result in adverse effects to archaeological sites, an archaeological district, and the TCL. USACE found that the effects eligible or listed above-ground/architectural resources would not be adverse. The SHPO did not concur with USACE's findings that the Project would not adversely affect several above-ground/architectural resources. Section 106 compliance using 36 C.F.R. § 800.12(b)(2) does not require resource-specific effect determinations, and USACE therefore did not resolve instances of non-concurrence on effects. The USACE considered effects on these architectural resources in its review but did not require mitigation, as the effects would primarily result from construction noise, vibrations, and aesthetic changes and would resolve upon completion of construction.

Adverse effects to the TCL and its contributing resources include loss of culturally important plants, wildlife, and habitat; archaeological sites; and traditional use areas within the construction footprints both north and south of the Straits, as well as disruption of cultural connections to these places and resources. The presence of construction equipment, workers, and construction activities along the shoreline of the Straits could also cause disturbance, noise, and visual intrusion that might temporarily lessen the suitability of lands and waters in the vicinity for the exercise of ceremonial practices and other traditional activities.

During the Section 106 review, USACE requested that Enbridge address measures to avoid and minimize effects on historic properties. The Applicant modified its work area boundaries to avoid impacts on several archaeological or culturally sensitive sites. Given the broad geographic extent of the TCL and the likelihood that similar resources would be in similar locations outside the LODs, USACE determined that there was not an action alternative that fully avoided adverse effects on historic properties.

USACE also requested that the Applicant consider various mitigation approaches and incorporate CP input where appropriate on each proposed approach. As part of its requests, USACE recommended that Enbridge adopt or incorporate a Tribally Led Mitigation Plan provided by the Little Traverse Bay Bands of Odawa Indians and the Sault Ste. Marie Tribe of Chippewa Indians on January 27, 2026, as an alternative to Enbridge's archaeological recovery plan. Under the Tribally Led Mitigation Plan, the Tribal Nations would conduct the archaeological recovery effort, with a two-year schedule identified for field work. Enbridge responded with a revised recovery plan incorporating Tribal Nations and their selected contractors to plan and conduct a cooperative recovery effort with Enbridge's contractors, rather than engaging Tribal Nations primarily in monitoring roles, as proposed in previous versions of the plan. After review of Enbridge's revised plan, USACE consulted on several more iterations

¹⁸ August 15, 2025, Memorandum for Record, Subject: Line 5 Tunnel Project, Assessment of Effects on Historic Properties

of Enbridge's mitigation plans, which were refined based on CPs comments and USACE's revision requests. The Applicant's final plan incorporates a greater Tribal role in the recovery effort, including opportunities for Tribal Nations to provide input into planning and decision-making, as well as to participate in the recovery work and conduct ceremonies. In addition, Enbridge would provide all archaeological materials recovered from the site to the Tribal Nations.

The Tribal Nations and SHPO objected to the final archaeological recovery plan based on the level of Tribal control and limits on Tribal participation. Specifically, the recovery plan requires Tribal Nations to participate within timelines established by Enbridge, who may move forward with only its own contractors should the Tribal Nations miss a deadline for coordination. The SHPO and Tribal Nations also asserted that the timeline for the recovery activities, described as two years of field work, may be insufficient to complete work properly. Enbridge stated that its two-year timeframe allows for thorough completion of the recovery activities detailed in the plan.

The final archaeological recovery plan offers Tribal Nations a role in planning and conducting recovery activities, though not with the degree of control the Tribal Nations requested. USACE does not have authority to dictate who may or may not perform or direct mitigation work and therefore cannot require Enbridge to adopt a Tribally led recovery plan if Enbridge does not agree, nor can USACE prescribe a level of Tribal engagement that Enbridge must incorporate in conducting the recovery work. Similarly, USACE does not have authority to require the Applicant to extend or eliminate its timeline. However, USACE would require Enbridge to complete the recovery activities to the standards in the plan before beginning construction.

In its final mitigation plans, the Applicant proposes to minimize and mitigate effects on archaeological sites, the archaeological district, and the TCL through archaeological recovery (as described in the paragraphs above), construction monitoring, and additional mitigation measures for impacts on the TCL, which are addressed further in USACE's August 11, 2026 MFR but not disclosed here due to sensitivity.

Tribal Nations and the SHPO stated that the proposed mitigation is inadequate to offset the effects on the affected resources, and the only course of action acceptable to them is total avoidance of historic properties. USACE acknowledges these CPs' views on the Applicant's proposed mitigation.

Enbridge's final mitigation plans include measures to reduce and address the effects on historic properties, but the proposed mitigation measures do not fully mitigate the adverse effects. The USACE's August 11, 2026 MFR further details its consideration of the Applicant's mitigation plans and the CPs input on them. USACE considered the effects on historic properties and the extent to which the proposed mitigation would address them in its public interest review in Section 7.0, above.

USACE further consulted with Tribal Nations, the SHPO, the Applicant, and other CPs to develop an MOA seeking to resolve the adverse effects on historic properties. Resolution of adverse effects through an agreement document (such as an MOA) is not required under 36 C.F.R. § 800.12(b)(2), and the USACE may instead use special conditions to require avoidance, minimization, and mitigation measures it deems appropriate and necessary within its special conditioning authority at 33 C.F.R. § 325.4. Nevertheless, the USACE committed to including the MOA as a special condition in any issued permit. The SHPO, Tribal Nations, and other CPs declined to sign the MOA. Enbridge signed the MOA as the invited signatory, and USACE executed the MOA as the signatory on August 11, 2026. USACE will include permit special conditions requiring the Applicant to fulfill its mitigation commitments, as detailed in Section 11.1, below.

10.4 Tribal Trust Responsibilities

10.4.1 Tribal Nation Government-to-Government Consultation

In recognition of the federal government's trust responsibility to Tribal Nations, USACE engaged Tribal governments in staff-level coordination and leadership-level Government-to-Government consultation on potential impacts regarding Section 106, NEPA, and treaty rights. USACE's consultation on Section 106 is summarized in Section 10.3 above and in USACE's August 11, 2026 MFR. USACE responded to Tribal Nations' comments on its EIS in Appendices C2 and C3 of the Final EIS.

Pursuant to Article VI, Clause 2 of the U.S. Constitution, treaties, like the U.S. Constitution and federal statutes, are the supreme law of the land. Tribal treaties are binding legal agreements between or among two or more sovereign nations. Only Congress can abrogate or interfere with Tribal treaty rights, and this authority has not been delegated to USACE. USACE therefore cannot authorize, approve, or carry out any permit activities which would result in a violation of a Tribal treaty right.

Tribal Nations' treaty rights objections focused on their views that the project would impermissibly impinge upon their rights of access and treaty-protected resources. For Tribal Nations, the Straits are at the center of the Anishinaabe creation story and sacred to their beliefs. USACE detailed its treaty rights determination in its August 11, 2026 MFR,¹⁹ which is incorporated by reference in this ROD but not included so as not to publicly disclose sensitive cultural information.

USACE determined that its treaty rights scope of analysis included the construction of the tunnel between the tunnel boring machine entry and exit portals; installation of structures within the tunnel; associated construction activities, equipment use, and materials staging within the limits of disturbance, including site restoration; transport and disposal of spoils material; select operation and maintenance activities related to the tunnel and structures within it; and decommissioning of the existing dual pipelines by abandoning them in place. USACE did not consider activities outside of its authority, such as pipeline operational activities, including transportation of oil or natural gas liquids through the pipeline in its treaty rights analysis.

USACE also did not consider treaty rights objections related to climate change, the social cost of carbon, or greenhouse gas emissions, pursuant to Executive Order 14154, *Unleashing American Energy*, 90 Fed. Reg. 8353 (Jan. 29, 2025), which rescinded numerous Executive Orders pertaining to these and other matters, and the Environmental Protection Agency's elimination of its 2009 Greenhouse Gas (GHG) Endangerment Finding, "Recession of the Greenhouse Gas Endangerment Finding and Motor Vehicle Greenhouse Gas Emission Standards Under the Clean Air Act," 91 Fed. Reg. 7686 (Feb. 18, 2026).

In its August 11, 2026 MFR, the USACE analyzed Tribal Nations' fishing, gathering, and ceremonial access claims, along with the Tribal Nations' environmental degradation claims.

USACE ultimately concluded that under existing case law, it does not have an affirmative obligation to secure resources for Tribal Nations, and that the alleged impacts concerning the proposed project would not, if authorized, impermissibly impinge upon or abrogate Tribal treaty rights.

¹⁹ August 11, 2026 Memorandum for the Record, Subject: Treaty Rights Analysis pertaining to the U.S. Army Corps of Engineers (the "USACE" or the "Corps") Detroit District's Regulatory Permit Application Review of the Great Lakes Tunnel Project, LRE-2010-00463-56-A19

10.5 Section 401 of the Clean Water Act – Water Quality Certification (WQC)

10.5.1 Section 401 WQC requirement

An individual Section 401 WQC is required and was issued by the certifying authority (i.e., the State of Michigan, through EGLE) on July 15, 2026.

10.5.2 401(a)(2) Process

Upon issuance of an individual WQC by the certifying authority, on July 17, 2026, the United States Environmental Protection Agency decided to not make a “may affect” finding.

10.5.3 Coastal Zone Management Act (CZMA) consistency concurrence

An individual CZMA consistency concurrence or presumed concurrence is required. EGLE identified the applicable statutory requirements encompassed in Michigan’s Coastal Zone Management Consistency review for this Project as Part 303, Wetlands Protection and Part 325, Submerged Lands, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, which are encompassed EGLE’s Joint Permit Application review. EGLE considered the certification statement complete on July 16, 2025, and did not concur with or object to the certification statement within six months of its receipt. In accordance with 33 C.F.R. § 325.2(b)(2)(ii), state agency concurrence with the certification statement is conclusively presumed.

10.6 Wild and Scenic Rivers Act

10.6.1 National Wild and Scenic River System

The Project is not located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system.

10.7 Effects on USACE Civil Works Projects (33 U.S.C. § 408)

10.7.1 Permission requirements under Section 14 of the Rivers and Harbors Act (33 U.S.C. § 408)

The applicant does not require permission under Section 14 of the Rivers and Harbors Act (33 U.S.C. § 408) because the activity would not alter, occupy, or use a USACE Civil Works project. There are no federal projects in the vicinity of the proposal.

10.8 USACE Wetland Policy (33 C.F.R. § 320.4(b))

10.8.1 Wetland Impacts

The proposed Project would impact wetlands, as described in Sections 5.3 and 6.1 above.

10.8.2 Wetland Impact Public Interest Review

Refer to the findings of the public interest review in Section 7 above.

10.9 Compliance Statement

USACE has determined that it has fulfilled its responsibilities under the following laws, regulations, policies, and guidance listed Table 17:

Table 17. Compliance with Federal Laws and Responsibilities

Laws, Regulations, Policies, and Guidance	Yes	N/A
Section 7(a)(2) of the ESA	X	
EFH provisions of the Magnuson-Stevens Act		X
Section 106 of the NHPA	X	
Tribal Trust Responsibilities	X	
Section 401 of the Clean Water Act	X	
CZMA	X	
Wild and Scenic Rivers Act		X
Section 408 - 33 U.S.C. § 408		X
USACE Wetland Policy (33 C.F.R. § 320.4(b))	X	

11 Special Conditions

11.1 Special Condition(s) Requirement(s)

Special conditions required to ensure minimal effects, ensure the authorized activity is not contrary to the public interest and/or ensure compliance of the activity with any of the laws above are listed below, with the rationale for their inclusion.

The following conditions would require erosion and sedimentation control measures to minimize potential impacts to water quality, aquatic organisms, and disturbance to adjacent areas.

The permittee must clearly demarcate all construction area boundaries (i.e., the North and South Limits of Disturbance (LODs), Excavated Material Placement Sites (EMPSs), and laydown areas, as shown on drawing sheets 5 through 11) with erosion controls, such as silt fencing, to prevent disturbance to areas outside the construction footprint and to prevent discharge material or disturbed sediment from entering adjacent areas. These boundaries must be erected prior to starting work, and their effectiveness must be maintained until all work at the site is completed and the area has been stabilized against erosion. No construction activities may occur outside of the demarcated areas.

All work and placement of fill needed for construction of the outfall aprons must take place landward of the OHWM of Lake Michigan.

Prior to horizontal directional drilling (HDD) emergence from the lakebed associated with installation of the water intake structure, the permittee shall install two concentric commercial-grade turbidity curtains that extend from a floating boom on the lake surface down to the bed of the waterway creating a uniform enclosure around the workspace. The turbidity curtains must continuously and completely enclose the HDD emergence point on the lakebed. The turbidity curtains must be properly anchored to provide a stable and functional barrier. The turbidity curtains must be maintained in effective working condition until all in-water work is completed and turbidity has returned to background levels. If the turbidity curtain remains in place overnight, the permittee will coordinate proper marking of the turbidity curtain with the USCG.

All in-water work is prohibited during the period October 15 to November 30, as designated in the issued Michigan Department of Environment, Great Lakes, and Energy

(EGLE) permit. If the EGLE modifies the in-water work window, the permittee must provide a copy of such modification to the USACE prior to the start of in-water work.

Within six (6) months after completion of construction in each respective work area (i.e., LOD, laydown area, or EMPS), all disturbed areas must be stabilized with native seed mixes and/or trees or shrubs native to the area and already represented on the site(s).

Within six (6) months after completion of construction, all temporarily filled area(s) must be restored with fills being removed in their entirety, the ground surface restored to pre-construction contours with the native topsoil put back into place, and revegetated with native seed mixes and/or by planting trees or shrubs native to the area and already represented on the site(s).

All fill material shall be clean material from an offsite, upland source or existing onsite material (topsoil) that would be reused.

All excavated material (excluding topsoil that would be reused onsite within the same LOD) must be disposed of in the identified EMPSs within the footprints shown in drawings 7 and 9.

The conditions provided in the attached Section 401 Water Quality Certification, dated July 15, 2026, from the Michigan Department of Environment, Great Lakes, and Energy, are binding and must be incorporated into this project.

The following conditions would minimize impacts to navigation by requiring appropriate coordination to comply with applicable USCG requirements and minimizing potential hazards to navigation.

The permittee must contact the U.S. Coast Guard in writing a minimum of 14 days prior to the start of work to: 1) provide vessel information and anticipated work dates; 2) request permission to anchor in the restricted zone; and 3) request publication of a Notice to Mariners. The permittee shall provide this office with a concurrent copy of the request(s).

All vessels and work equipment must be marked and lit in accordance with U.S. Coast Guard requirements. The permittee must adhere to all U.S. Coast Guard requirements, including the installation and maintenance of any safety lights, signals and/or markers (buoys) prescribed by the U.S. Coast Guard through regulations or otherwise, on authorized facilities in the Straits so that the facility is lighted to prevent navigation hazards.

All project-related debris must be removed from the waterway immediately. All debris removed must be prevented from reentering any waterway or wetland area.

This permit authorizes abandonment of the Dual Pipelines in place within the Straits of Mackinac. You must maintain the structures in good condition and in-place to not become an obstruction to navigation.

The following conditions would reduce and address adverse effects on historic properties by requiring the Applicant to mitigate the effects in accordance with plans developed through Section 106 consultation.

The permittee must comply with the terms and conditions of the Memorandum of Agreement between the United States Army Corps of Engineers, Detroit District, and Enbridge Energy Limited Partnership Regarding an Application for a Department of the Army Permit by Enbridge Energy Limited Partnership, To Construct a Tunnel Under the Straits of Mackinac, Emmet and Mackinac Counties, Michigan (MOA). If the MOA is

terminated, you must strictly adhere to and fully implement the procedures in the Archaeological Recovery Plan (title truncated to omit sensitive resource information), dated May 22, 2026, the Construction Monitoring and Inadvertent Discoveries Plan, dated May 22, 2026, and the Mitigation of Impacts on the Living Landscape Plan, dated May 22, 2026. Any amendments to these plans must be agreed to in writing by USACE and may require consultation prior to USACE approval.

The permittee must comply with the requirements of stipulation III.B. of the MOA notwithstanding any termination of the MOA.

The following conditions would minimize and mitigate impacts to wetlands, consistent with the Section 404(b)(1) Guidelines and USACE mitigation policy.

The permittee must ensure successful restoration of 0.22 acres of wetland 19 (as shown on drawing sheet 34). You must restore the wetland soil to pre-existing compaction, permeability, and ground contours, using the native topsoil, and ensure the reestablishment of native hydrophytic vegetation. Prior to conducting authorized discharges in wetlands, the permittee must submit and receive approval for a restoration plan that includes monitoring and restoration-success criteria.

The top 6 inches of wetland topsoil removed from the North LOD must be stockpiled separately from other soils for later re-use. Excess soils must be transported to the appropriate EMPS.

The permittee must provide receipt of payment from the Michigan Department of Environment, Great Lakes and Energy (EGLE) for the purchase of 2.02 forested wetland credits from the Carp River Wetland Mitigation Bank located in the Carp River Watershed Region VIII.1.1 St. Ignace service area, with documentation of the amount and type of credits purchased. These credits must be purchased prior to initiation of construction activities authorized by this permit.

The following conditions would require minimization and mitigation for potential impacts to federally listed species, consistent with USACE's consultation with USFWS under Section 7 of the ESA.

If erosion control blankets or revegetation blankets are used during restoration activities, no plastic mesh netting or other similar material that could ensnare Eastern Massasauga Rattlesnake (EMR) shall be used.

To increase human safety and awareness of EMR, we recommend that those implementing the project first watch MDNR's "60-Second Snakes: The Eastern Massasauga Rattlesnake" video (available at https://youtu.be/-PFnXe_e02w), or review the EMR factsheet (available at <https://www.fws.gov/midwest/endangered/reptiles/eama/pdf/EMRfactsheetSept2016.pdf> or by calling 517-351-2555).

We recommend that any observation of EMR or other federally listed threatened or endangered species during project implementation be reported to the U.S Fish & Wildlife Service (USFWS) East Lansing Field Office within 24 hours.

Tree clearing must be completed between October 1 and April 14, when roosting bats are not present, to avoid lethal take of federally listed bats.

The permittee must offset impacts to threatened plant species (Houghton's goldenrod (*Solidago houghtonii*) and dwarf lake iris (*Iris lacustris*)) by executing a mitigation plan approved by the USFWS. You must provide USACE with the USFWS's written approval of the plan prior to undertaking any mitigation activities not yet completed. The plan may

include a combination of mitigation strategies, including habitat preservation and research funding. Any land preservation agreement must prohibit ground disturbance and tree clearing activities that could impact known or undiscovered historic properties that may be present. The permittee must provide any draft easement/agreement language to USACE and incorporate USACE's input in the final easement/agreement to comply with this requirement. The activities in the mitigation plan must be completed within one year of permit issuance, or the permittee must provide the USACE with a written notice explaining why you have not completed the plant mitigation, with the steps and timeline for completion of the mitigation. Upon completion of the mitigation, the permittee must provide USACE with a written notice documenting the mitigation activities completed, including documentation from the USFWS indicating that it considers the mitigation complete. Should the T/E mitigation plan change, the permittee must notify the USACE of the proposed changes so that USACE may determine the need for additional consultation.

The following measures require the Applicant to carry out the project as shown on the plans, as reviewed by USACE, so that USACE may determine appropriate requirements for legal and regulatory compliance in case of changes.

Construction must be completed as shown on the attached plans. Any changes to project methods or footprints, including EMPS or laydown area footprints, must be provided to this office so that USACE may determine needs for additional consultation, review, or authorization.

12 Findings and Determinations

12.1 Section 176(c) of the Clean Air Act General Conformity Rule Review:

The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 C.F.R. § 93.153. Any later indirect emissions are generally not within USACE's continuing program responsibility and generally cannot be practicably controlled by USACE. For these reasons, a conformity determination is not required for this permit action.

12.2 Presidential Executive Orders (EO)

12.2.1 EO 11988, Floodplain Management

Alternatives to location within the floodplain, minimization and compensatory mitigation of the effects were considered in the EIS.

12.2.2 EO 13112, Invasive Species, as amended by EO 13751

The evaluation in the EIS included invasive species concerns in the analysis of impacts at the Project site.

12.2.3 EO 13212 and EO 13302, Energy Supply and Availability

The Applicant's proposal would address pipeline safety. As such, the review was expedited while complying with applicable laws and regulations.

12.2.4 EO 14156, National Energy Emergency

The proposal was identified as an energy project subject to E.O. 14156, and all necessary or appropriate actions were taken to expedite the decision.

12.2.5 EO 14241, American Mineral Production

N/A.

12.3 Compliance with the Section 404(b)(1) Guidelines

The proposed discharge complies with the Section 404(b)(1) Guidelines.

12.4 Public Interest Determination

I have determined that the proposed Project is not contrary to the public interest.

12.5 Permit Decision

I have considered the environmental impacts of the proposed Project, reasonable and practicable alternatives to the Project, and the No Action Alternative, as well as proposed or available mitigation measures associated with each alternative. Based on the findings of compliance with the Section 404(b)(1) Guidelines and my determination that the proposed Project is not contrary to the public interest, I find that a permit should be issued for the proposed regulated activities, with inclusion of the special conditions identified in Section 11 above, which encompass all practicable means to avoid or minimize adverse environmental impacts from the proposed Project.

PREPARED BY:



Katie Otanez, Regulatory Project Manager

Date: August 12, 2026

REVIEWED BY:



Rebecca Graser, MVP Regulatory Deputy

Date: August 12, 2026

APPROVED BY:

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Date: 2026.08.12 08:54:16 -04'00'

Donald K. Lew,
Lieutenant Colonel, U.S. Army
District Engineer

Date: August 12, 2026