Brookfield
Renewable

February 16, 2021

Penobscot Mills Project
North Twin Development
FERC No. 2458

Ms. Shannon Ames, Executive Director
Low Impact Hydropower Institute C/O NPCM
P.O. Box 211
Sterling, MA 01564

Subject: Low Impact Hydropower Institute Application for the Penobscot Mills Project - North Twin Development

Dear Ms. Ames:

On behalf of the Licensee, Great Lakes Hydro America, LLC (GLHA), please find attached the Application for the North Twin Development of the Penobscot Mills Project on the West Branch of the Penobscot River in Maine. GLHA is requesting certification of these facilities.

The current application includes the following required submittals:

- Introduction
- Project Description and LIHI Table B-1
- Summary of Regulatory and Other Requirements and Compliance Status
- Zones of Effect descriptions and overview maps and images
- Matrix of Alternative Standards for each Zone of Effect identified evaluating the LIHI certification standards for each requisite criterion including water quality, fish passage and recreation
- Sworn Statement and Waiver Form
- Facility Contacts Form including pertinent NGOs, as appropriate.
- List of hyperlinks to and supplemental documentation for pertinent FERC and regulatory documents for the Development

Please call me at (207) 755-5606 or email me at Kelly.Maloney@brookfieldrenewable.com if you have any questions or need additional information regarding this submittal.

Sincerely,

Kelly Maloney
Manager, Compliance - Northeast

Cc: J. Cole, N. Stevens, S. Michaud, S. Farrington, K. Bernier, A. Frechette, S. Mascarenas, GLHA

Great Lakes Hydro America, LLC
1024 Central Street
Millinocket, ME 04462
www.brookfieldrenewable.com
Tell: 207.723.4341
Fax: 207.723.3948

LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

PENOBSCOT MILLS PROJECT (FERC NO. 2458)

NORTH TWIN DEVELOPMENT

February 16, 2021

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CERTIFICATION APPLICATION FOR THE

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LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

PENOBSCOT MILLS PROJECT (FERC NO. 2458)

NORTH TWIN DEVELOPMENT

1.0 PROJECT DESCRIPTION

1.1 PROJECT FACILITIES AND HISTORY

The Penobscot Mills Project (FERC No. 2458) consists of four hydroelectric developments and a storage dam located in the general vicinity of Millinocket/East Millinocket, Maine. The four hydroelectric developments are located between river miles 2 and 15 on the West Branch of the Penobscot River (West Branch). The four hydroelectric developments, listed in order from upstream to downstream, are: North Twin, Millinocket, Dolby, and East Millinocket. The Project developments were originally constructed beginning around the turn of the century to meet the hydromechanical and hydroelectric demands of the Millinocket Mill, constructed in 1900, and the East Millinocket Mill, constructed in 1906. The Millinocket Lake Storage Development contains a pumping station, located on the opposite end of the lake from the Millinocket Lake Dam, that allows water to be pumped up 12 ft from Millinocket Lake to Ambajejus Lake (part of the North Twin impoundment). The Project developments are owned and licensed by Great Lakes Hydro America, LLC (GLHA), and they are operated to supply 60 Hz electrical power to the electrical grid.

This application is for the certification of only the North Twin Development described in greater detail below.

The North Twin Development is located in Penobscot and Piscataquis Counties to the west of Millinocket, Maine, and North Twin Dam is positioned approximately 14.9 river miles above the confluence of the East and West Branches of the Penobscot River (see Exhibit G, Sheet 1 of 10). The North Twin Dam and powerhouse are located approximately 2.6 miles upstream of the Quakish Lake (a.k.a. Stone) Dam, and approximately 33.4 miles downstream of GLHA's Ripogenus Dam (FERC No. 2572).

The Project consists of : 1) an impoundment having a normal high water surface elevation of 491.92 ft; 2) a concrete and earth-filled dam measuring approximately 1,051 ft in length, including an intake structure and powerhouse containing three generating units and appurtenant equipment; 3) a series of six earthen dikes having a combined length of 2,530 ft, located upstream of the dam; 4) a 60 Hz substation containing six transformers; and 5) a transmission line approximately 4.2 miles in length that extends to GLHA's Millinocket substation.

The North Twin Dam is a concrete and earth-filled structure located at the outlet of the North Twin impoundment (at Elbow Lake). The powerhouse and concrete sections of the dam

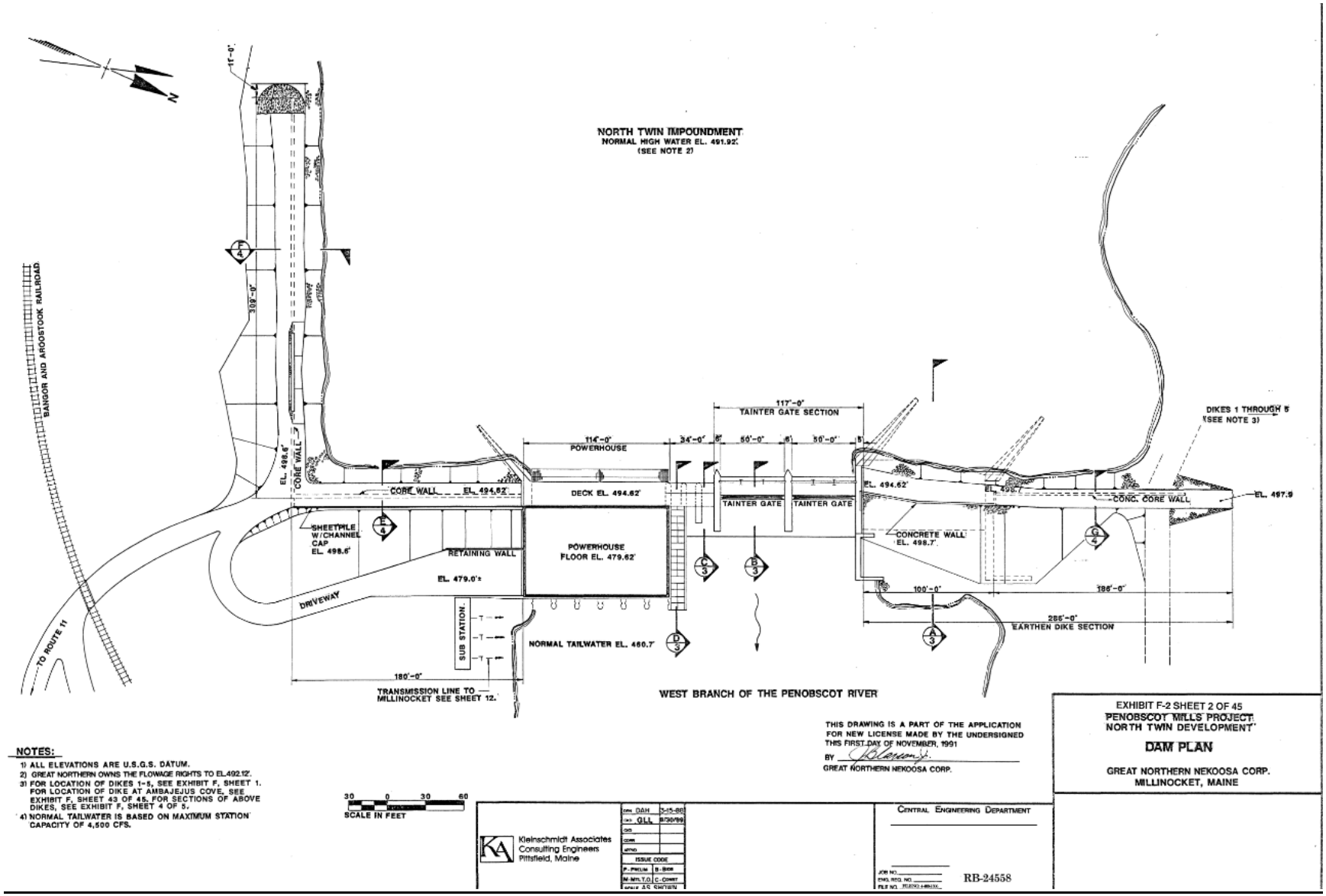
are located between the earthen dike sections; a 500 ft long southern dike and a 286 ft long northern dike. The dam also consists of a 114-ft-wide intake structure and powerhouse and a 117-ft-long Tainter gate section.

A 34-ft-wide concrete section, containing a pool and weir design fishway and two gated log sluice sections, is located on the opposite end of the powerhouse from the southern earthen dike. Three gates located upstream of the fishway control the flow of water into the chambers of the fishway. Each of the gates measures 1 ft 3 in. wide by 2 ft high. The gates are located at different depths so the fishway can remain operable at various impoundment elevations. The chambers of the fishway extend downstream of the gate approximately 98 ft along the northeastern side of the powerhouse.

A series of five auxiliary dikes, having a combined length of approximately 1,850 ft, are located along the eastern shore of the impoundment near the dam. All of the dikes have a crest elevation of between 497.6 ft and 498.1 ft and a minimum top width of 10 ft. The dikes are of common earth fill construction with sheet pile located within the fill. A sixth auxiliary earthen dike, measuring approximately 680 ft in length, is located approximately 11 river miles upstream of the dam in the area located between the North Twin impoundment (at Ambajejus Lake) and Millinocket Lake.

The North Twin impoundment is comprised of Elbow, South Twin, North Twin, Pemadumcook, and Ambajejus lakes (see Figure 2). Mean depth of the impoundment is approximately 27.7 ft. The North Twin impoundment measures approximately 11.8 miles in length (river course), and has a surface area of approximately 17,790 acres at the full pond elevation of 491.92 ft. Usable storage of the impoundment is approximately 344,355 acre-ft (15.0 billion cubic feet), with a drawdown capability of 22 ft. The gross storage capacity of the impoundment that is impounded by the dam is approximately 346,000 acre-ft.

FIGURE 1. PROJECT FACILITIES – NORTH TWIN DEVELOPMENT



NOTES:
1) ALL ELEVATIONS ARE U.S.G.S. DATUM.
2) GREAT NORTHERN OWNS THE FLOWAGE RIGHTS TO EL.492.12'.
3) FOR LOCATION OF DIKES 1-5, SEE EXHIBIT F, SHEET 1. FOR LOCATION OF DIKE AT AMBAJEJUS COVE, SEE EXHIBIT F, SHEET 43 OF 45. FOR SECTIONS OF ABOVE DIKES, SEE EXHIBIT F, SHEET 4 OF 5.
4) NORMAL TAILWATER IS BASED ON MAXIMUM STATION CAPACITY OF 4,500 CFS.

30 0 30 60
SCALE IN FEET

THIS DRAWING IS A PART OF THE APPLICATION FOR NEW LICENSE MADE BY THE UNDERSIGNED THIS FIRST DAY OF NOVEMBER, 1991
BY _____
GREAT NORTHERN NEKOOSA CORP.

EXHIBIT F-2 SHEET 2 OF 45
PENOBSCOT MILLS PROJECT
NORTH TWIN DEVELOPMENT
DAM PLAN
GREAT NORTHERN NEKOOSA CORP.
MILLINOCKET, MAINE

Kleinschmidt Associates
Consulting Engineers
Pittsfield, Maine

CENTRAL ENGINEERING DEPARTMENT

RB-24558

FIGURE 2. PROJECT IMPOUNDMENT – NORTH TWIN DEVELOPMENT

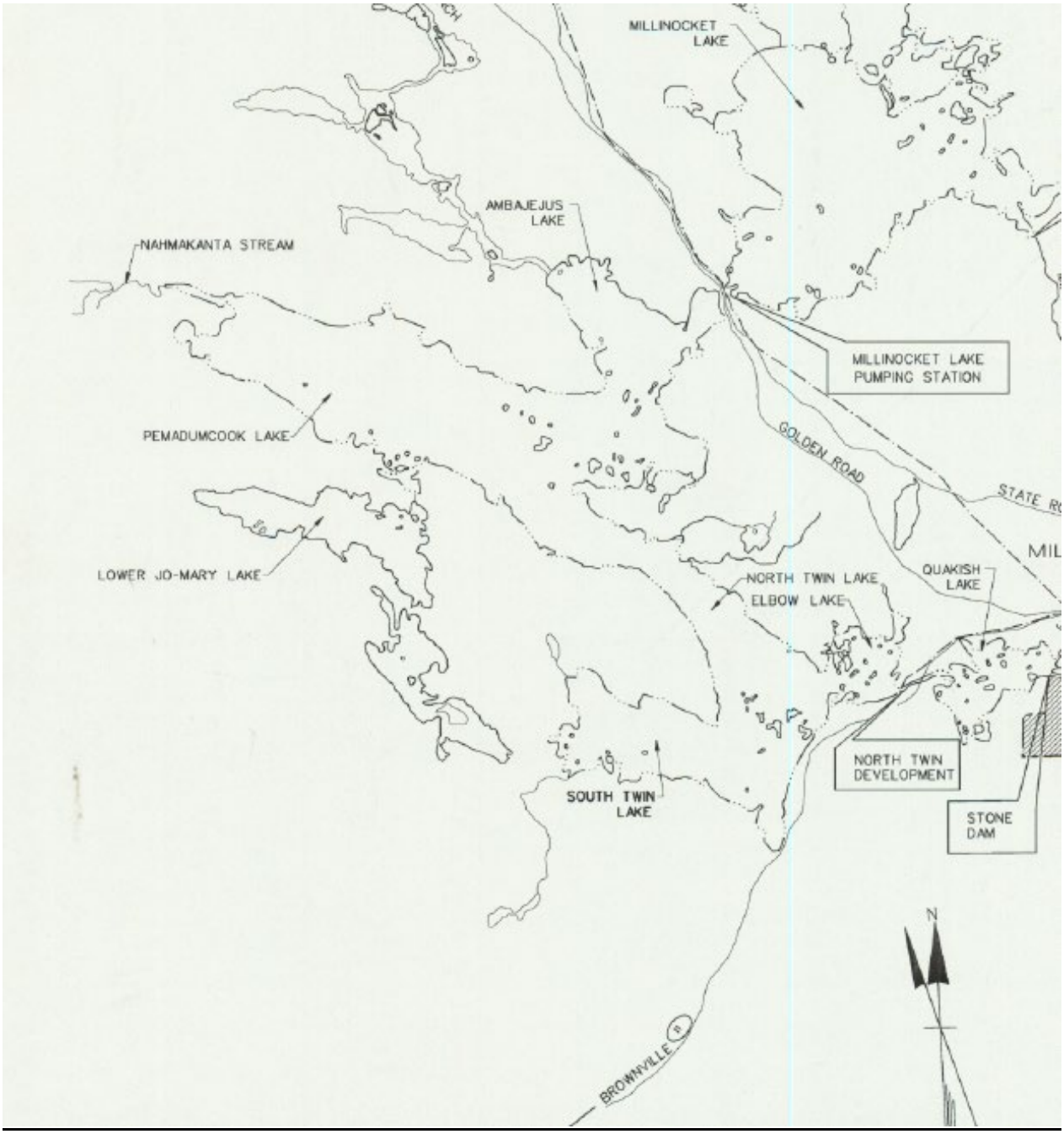


FIGURE 3. PROJECT STRUCTURES – NORTH TWIN DEVELOPMENT

FIGURE 4. AERIAL OF PROJECT – NORTH TWIN DEVELOPMENT – DAM, POWERHOUSE AND TAILRACE

FIGURE 5. PROJECT BOUNDARY – NORTH TWIN DEVELOPMENT STRUCTURES

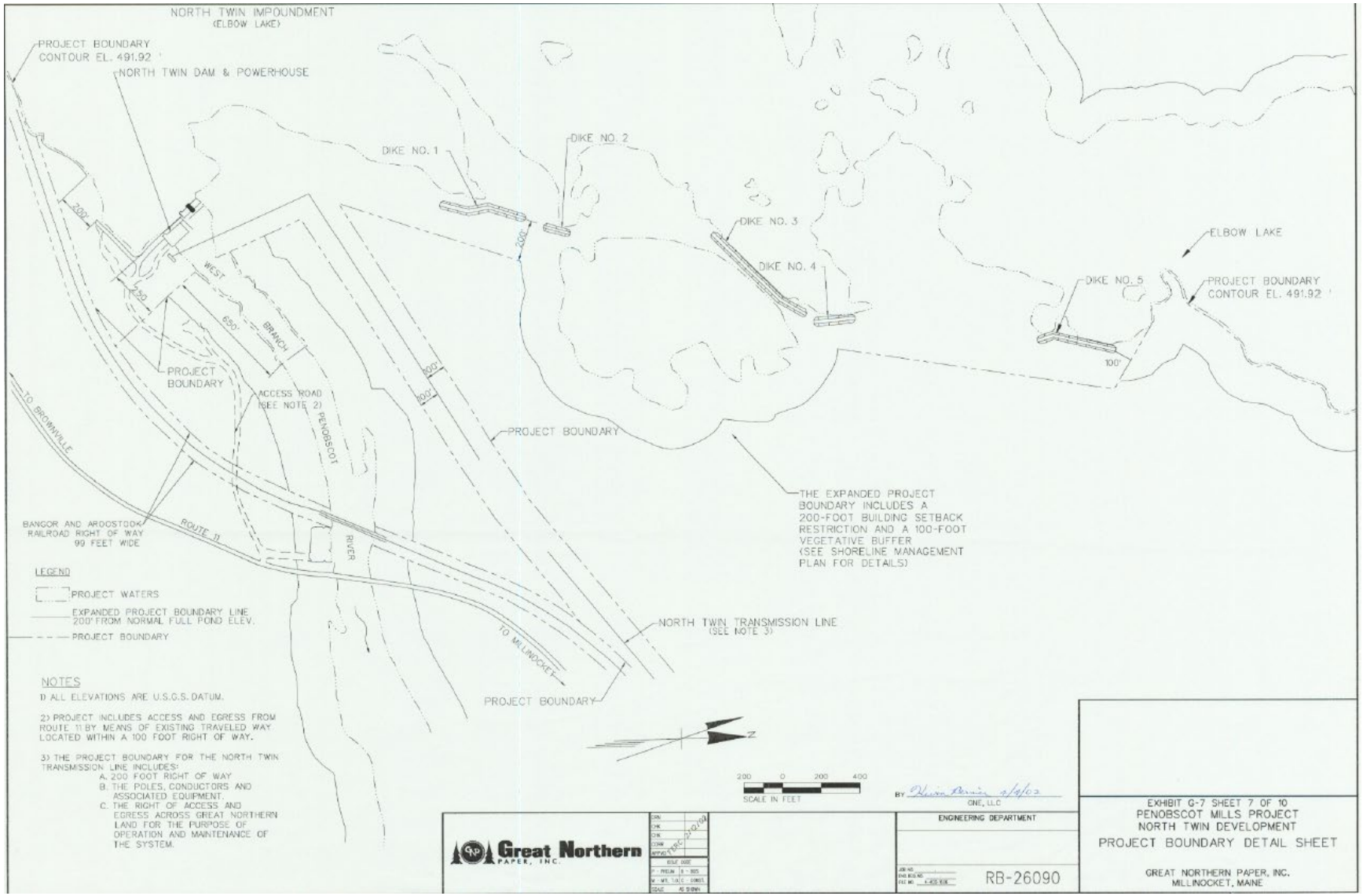


FIGURE 6. PROJECT BOUNDARY – NORTH TWIN IMPOUNDMENT (PEMADUMCOOK LAKE)

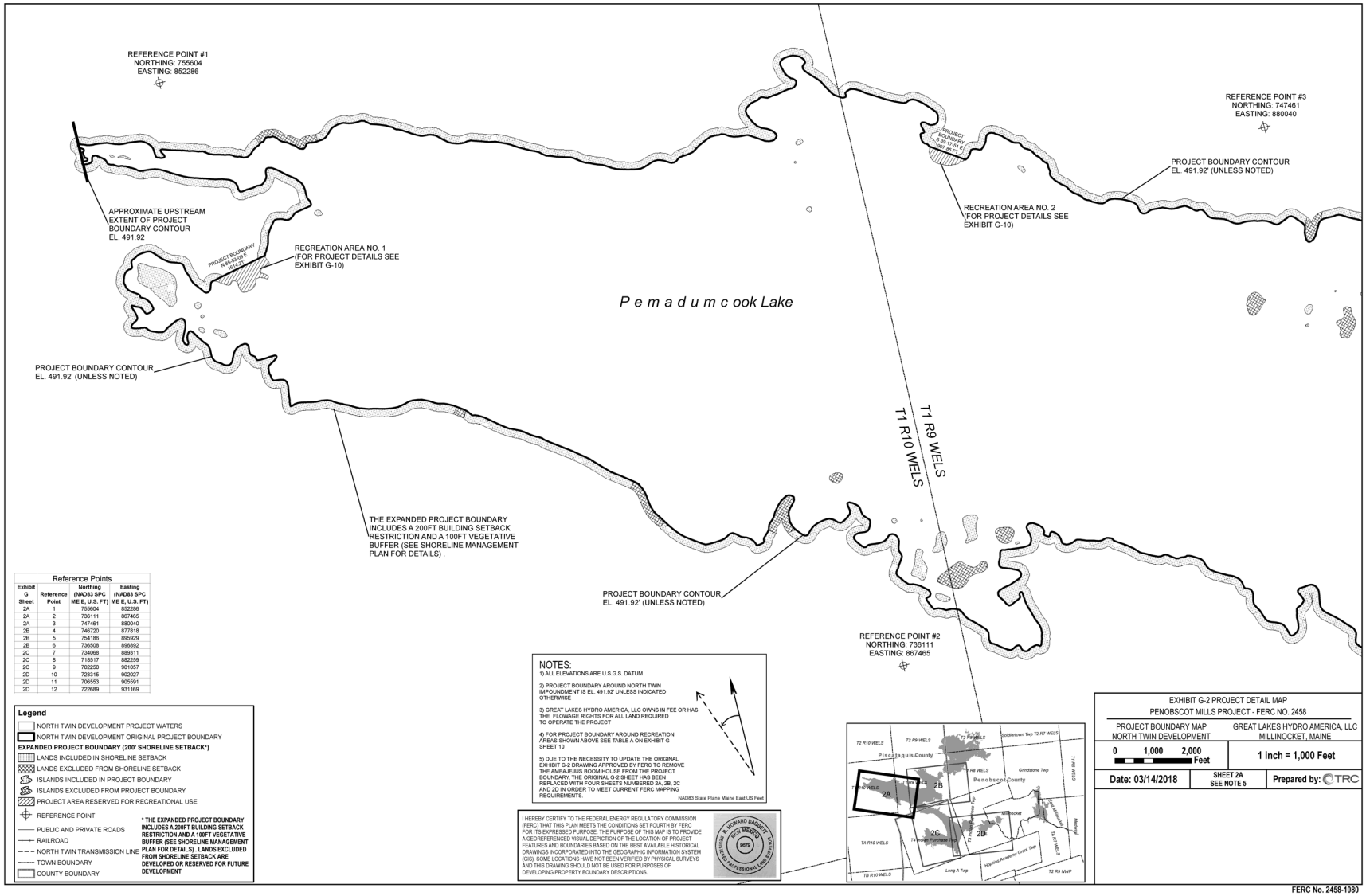


FIGURE 7. PROJECT BOUNDARY – NORTH TWIN IMPOUNDMENT (AMBAJEJUS, PEMADUMCOOK AND NORTH TWIN LAKES)

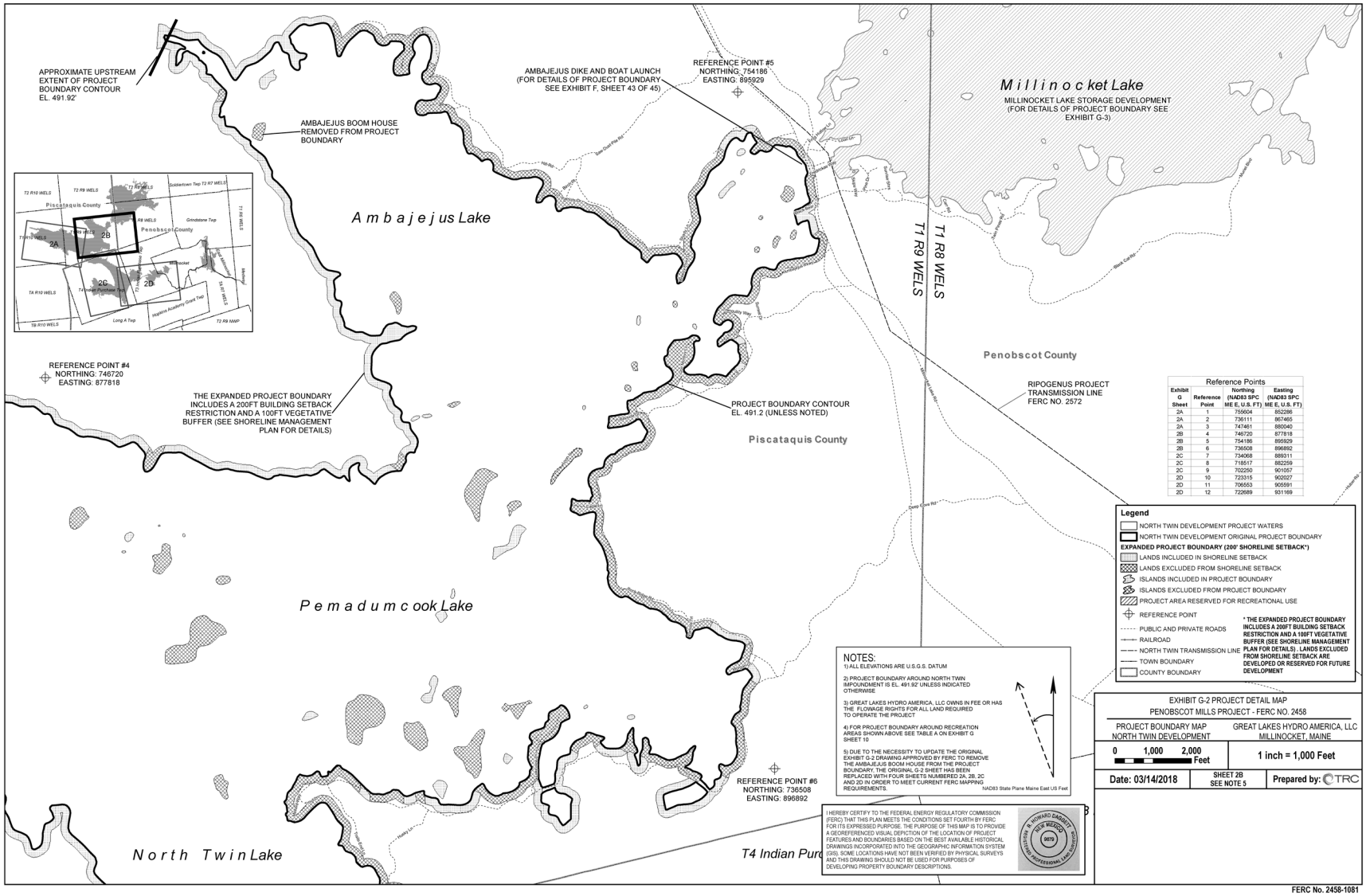


FIGURE 8. PROJECT BOUNDARY – NORTH TWIN IMPOUNDMENT (SOUTH TWIN AND NORTH TWIN LAKES)

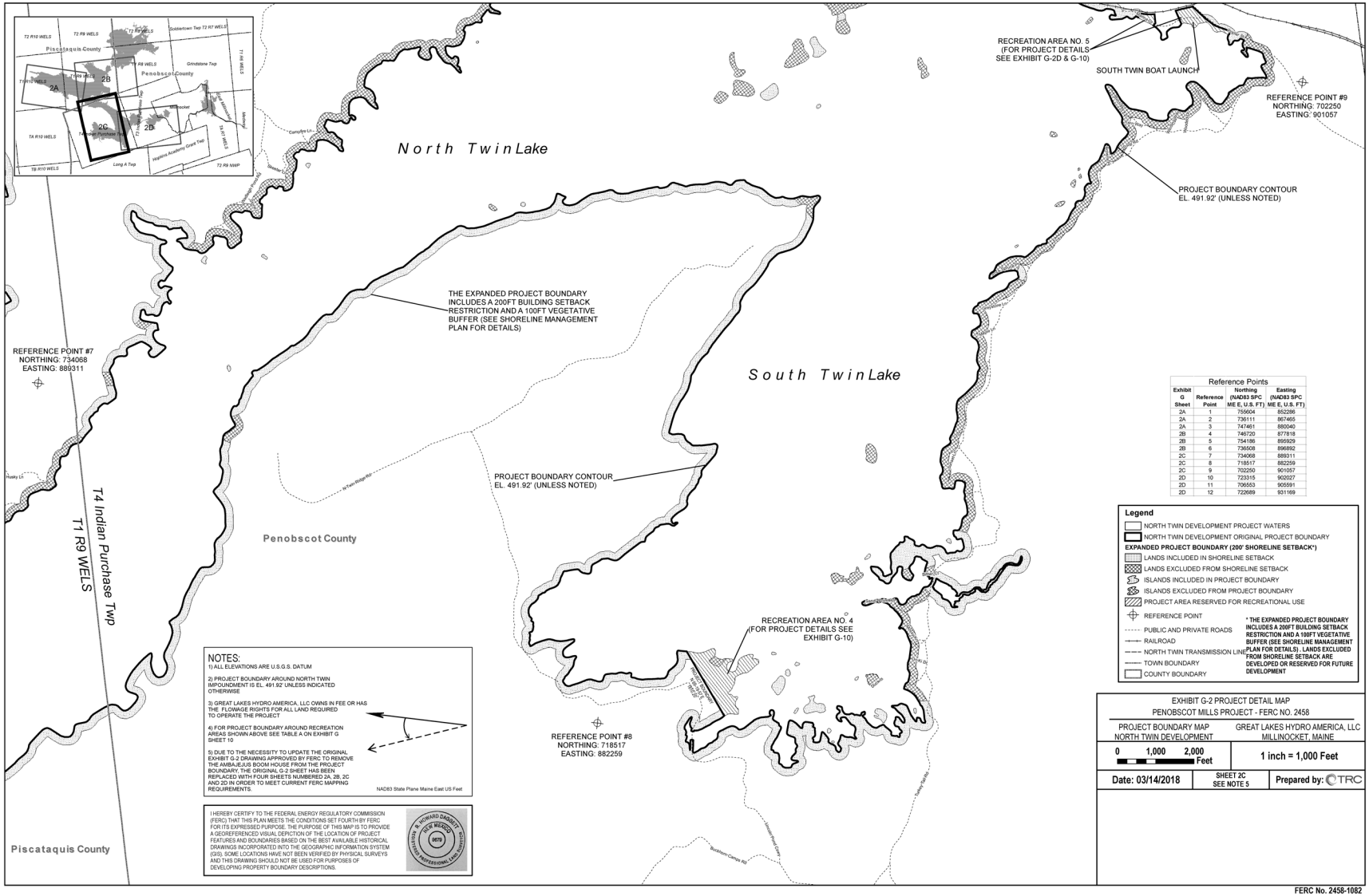
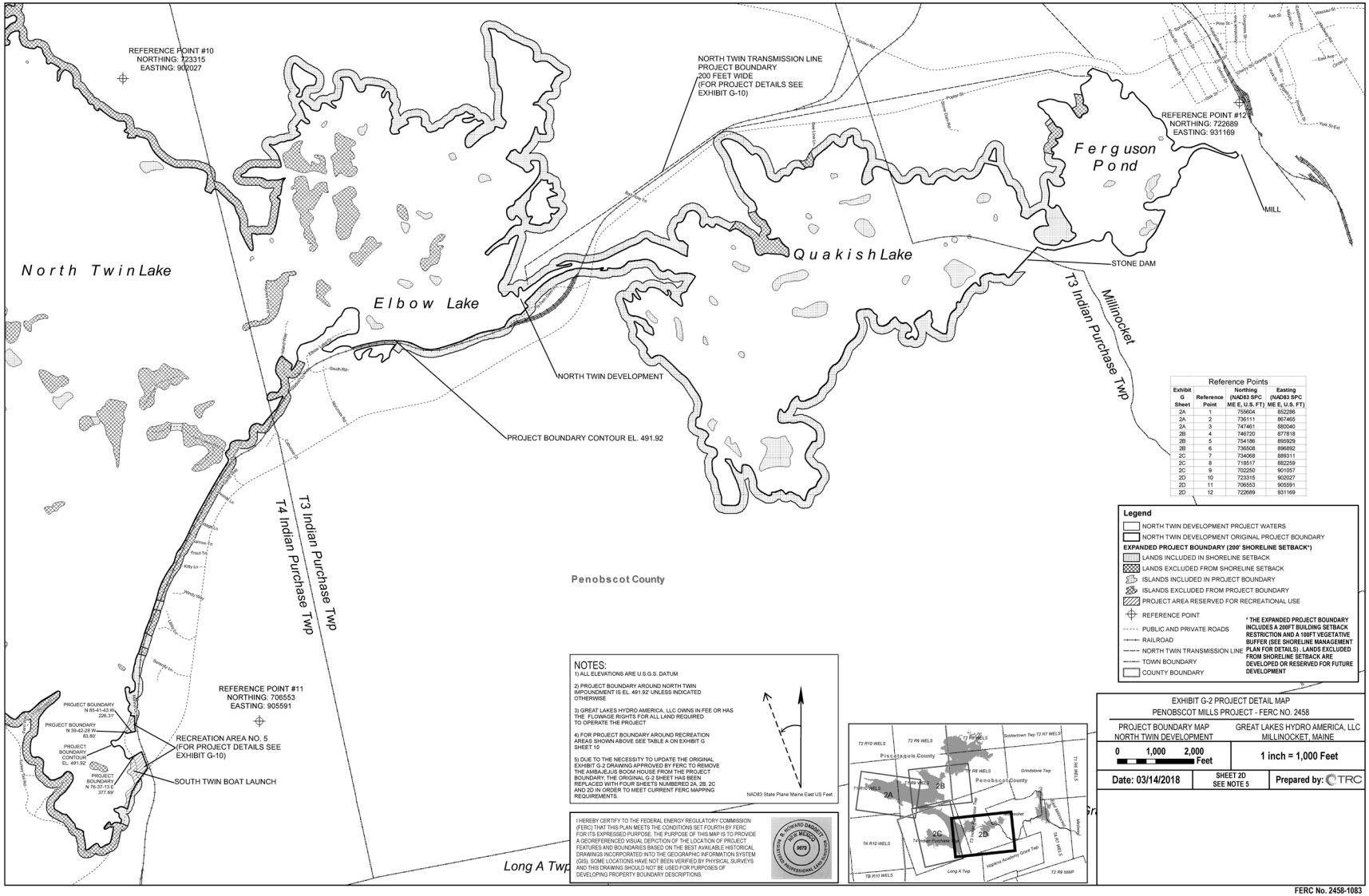


FIGURE 9. PROJECT BOUNDARY – NORTH TWIN IMPOUNDMENT (NORTH TWIN AND ELBOW LAKES) AND NORTH TWIN BYPASS REACH/TAILRACE



1.2 PROJECT OPERATIONS

GLHA operates the Penobscot Mills Project to maintain an instantaneous minimum flow of 2,000 cfs downstream of the Millinocket Development and a minimum flow of 60 cfs into Millinocket Stream. Operation of the Project is managed in conjunction with the water flow and storage of upstream and downstream projects.

Impoundment Operations

The North Twin impoundment is operated according to a Water Use Plan (WUP) in order to provide flood control, maintain tailrace fishery opportunities, enhance summer water levels, and manage flows for downstream generation. The North Twin Development is one of two storage impoundments of the Penobscot Mills Project that are operated on an annual storage cycle, together with storage dams located further upstream in the basin, in accordance with a system rule curve to provide controlled flows downstream. The spring run-off is typically used to replenish storage in these impoundments. Water is withdrawn at a controlled rate from the storage impoundments during the entire year to meet the requirements of the WUP, to provide maximum sustained base-load energy in accordance with the rule curve, and to provide storage capacity (flood control) for the next spring, all within the constraints of the WUP. The annual cyclic system of operating these storage impoundments provides flood control during high flow periods by storing most of the runoff, while providing a more even distribution of water flow in the entire West Branch and the downstream mainstem of the Penobscot River throughout the year. Even when the storage impoundments are filled to capacity and water must eventually be spilled, the maximum discharge is greatly reduced in magnitude and delayed in time until peak flows from the unregulated rivers have subsided.

Highlights of the WUP are as follows:

1. GLHA maintains a 2,000 cfs minimum flow in the West Branch at Millinocket, as long as water remains in storage (North Twin, Millinocket Lake) upstream.
2. Unless GLHA is unable to maintain the 2,000 cfs minimum flow at Millinocket, GLHA provides relatively stable water levels in the North Twin impoundment from May 1 through August 22.
3. GLHA maintains a 3,000 cfs flow minimum flow from the North Twin Dam from August 22 to October 15, so long as the North Twin impoundment water level exceeds 488.42 feet in elevation.
4. Unless GLHA is unable to maintain the 2,000 cfs minimum flow at Millinocket, GLHA maintains a minimum target level of 488.42 feet USGS (3.5-foot drawdown) for the period August 22 through October 15.
5. GLHA operates the Millinocket Lake Development to provide water to maintain North Twin impoundment levels (see 1, 2, 3, and 4 above) and Millinocket Stream minimum flow requirements (see Article 401 below), while providing flood control benefits to the town of Millinocket.

Article 408 states, consistent with Condition 2.A. of the water quality certification, as amended in part:

Except as temporarily modified by approved maintenance activities, by inflows to the project area, by the inability to maintain the minimum flow of 2,000 cfs at Millinocket, or by operating emergencies beyond the licensee's control, the water level in the North Twin impoundment shall be maintained at a relatively stable level from May 1 through August 22 annually, and at a minimum target level of 488.42 feet USGS (3.5-foot drawdown) for the period August 22 through October 15. A minimum flow of 3,000 cfs from North Twin Dam shall also be in effect for the August 22-October 15 period, so long as the impoundment water level exceeds 488.42 feet in elevation… The licensee shall, within six months of the date of issuance of this license, submit a plan for maintaining a relatively stable water level in the North Twin impoundment from May 1 through August 22 annually. The plan shall be prepared in consultation with the U.S. Fish and Wildlife Service (FWS), the Maine Department of Inland Fisheries and Wildlife (DIFW), and the Maine Department of Environmental Protection (DEP).

The North Twin impoundment is operated in an annual cyclic pattern wherein the impoundment is drawn down to a target level 12 ft below full pond (479.92 ft) in anticipation of spring runoff and to provide the required minimum flows at Millinocket throughout the winter. In reality, the level to which the impoundment is drawn down is usually determined by the actual and potential precipitation for the period of the year, and the water content of the snow cover. A normal spring runoff is used to replenish storage in the impoundment. While El. 491.92 ft is the normal high water level of the North Twin impoundment, GLHA has flowage rights to El. 492.12 ft. During those times of low regulated inflow, water is withdrawn from the North Twin storage to supplement inflow, in order to maintain generation and minimum flow requirements. From May 1 to August 22, impoundment elevations are maintained relatively stable; from August 22 to October 15, higher minimum flows are provided for fisheries, so long as the impoundment has sufficient storage. Based on availability of storage, water is pumped from Millinocket Lake to the North Twin impoundment to supplement the regulated inflow being received into that impoundment from the upstream storage impoundments and natural inflows. Pumping water from Millinocket Lake to the North Twin impoundment also provides flood control benefits for the town of Millinocket, which is located downstream on Millinocket Stream.

Minimum Flows

Article 401 of the Penobscot Mills Project License requires the following:

Except as temporarily modified by operating emergencies beyond the licensee's control, the licensee shall release a minimum flow of 60 cfs from the Millinocket Lake storage dam to Millinocket Stream from May 1 to October 15 annually, and a minimum flow of 60 cfs or inflow shall be released during the remainder of the year…The licensee shall, within six months of the date of the issuance of this license, file for Commission approval a plan for providing and monitoring the minimum flows required above…The licensee shall consult with the Maine Department of Environmental Protection and the U.S. Fish and Wildlife Service in developing the plan.

Article 403 of the Penobscot Mills Project License (consistent with Condition 1.A. of the Project's Water Quality Certification) in part requires the following:

The licensee shall operate the Millinocket, Dolby, and East Millinocket Developments in a run-of-river mode while providing an instantaneous minimum flow of 2,000 cubic feet per second (cfs) to the West Branch of the Penobscot River at Millinocket, for the protection of water quality and aquatic habitat in the Penobscot River… The licensee shall, within six months of the date of this license, file for Commission approval a plan for providing and monitoring the run-of-river operations and minimum flows required above. The licensee shall consult with the Maine Department of Environmental Protection and the U.S. Fish and Wildlife Service in developing the plan.

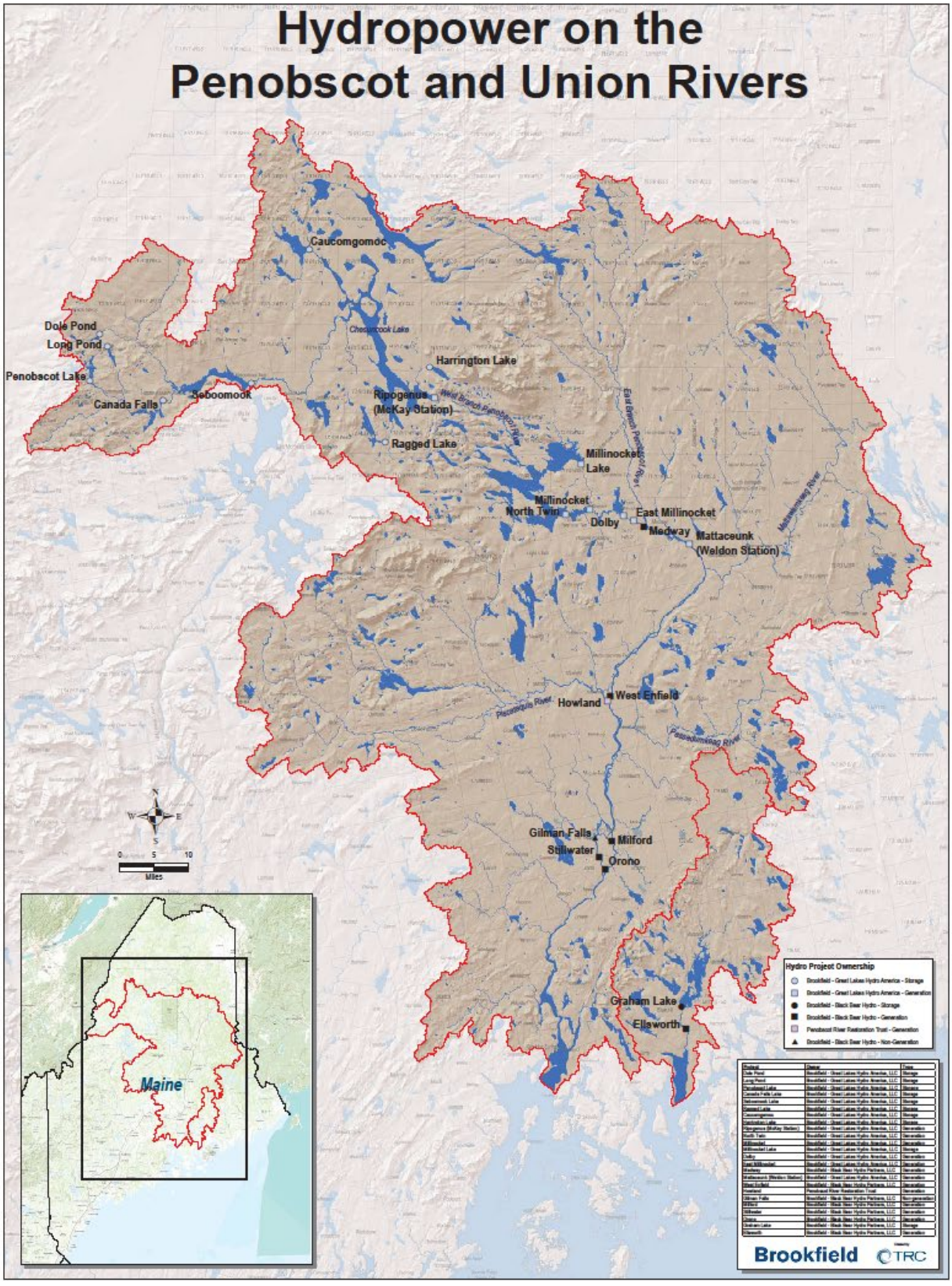
The Millinocket Development is operated with inflow from the North Twin impoundment. Under normal conditions, the daily outflow from the Millinocket Development approximately equals that from the North Twin Development, with an average daily regulation flow variation of approximately 130 cfs between the two outflows due to tributary inflows. Quakish Lake and Ferguson Pond, the bodies of water impounded by Stone Dam, are operated in a run-of-river mode with minor water level fluctuations, based on inflow of water from the North Twin Development.

1.3 PROJECT LOCATION

The North Twin Development is located on the West Branch of the Penobscot River. The next upstream dam from the North Twin Development is the Ripogenus Project, located approximately 33.4 miles upstream. The next downstream dam below the North Twin Development (Stone Dam) is at the Millinocket Development, located approximately 2.6 miles downstream.

FIGURE 10. AERIAL OF PROJECT LOCATION – NORTH TWIN DEVELOPMENT

FIGURE 11. OVERVIEW MAP OF THE PENOBSCOT WATERSHED



1.4 REGULATORY AND OTHER REQUIREMENTS

1.4.1 FERC LICENSE AND WATER QUALITY CERTIFICATION REQUIREMENTS

On October 22, 1996, FERC issued a license for the Penobscot Mills Project, effective October 1, 1996, for a period of 30-years authorizing the continued operation of the Project with required operational, structural, mitigation and enhancement measures outlined in the requisite license articles and the Section 401 Water Quality Certificate, issued on April 22, 1993 and incorporated, in part, into the FERC license. The current FERC license is set to expire on September 30, 2026. The license contains multiple Articles governing how the Project is operated, discussed in greater detail below. The Articles refer to issues such as power production, public safety, streamflow, and recreation, among others. The current license can be found in Section 6.0. Articles 1 through 23 of the license are "standard content" modeled after FERC's 1975 Form L-3. Project-specific license Articles include Articles 201 to 502. In addition, several License Amendments and Orders have been issued since the original Order Issuing License in 1996. See table below and Section 6.0 for amendments.

Date Issued	FERC Order
December 6, 2000	Order Approving Revised Exhibit A and F Drawings and Revising Annual Charges approving a rubber dam at the Stone Dam of the Millinocket Development and correcting the authorized installed capacities
July 26, 2012	Order Approving Amendment of Article 408 to eliminate the water level management requirements for lake trout spawning/incubation in the North Twin impoundment
August 18, 2016	Order Amending License to Remove Land from the Project Boundary to remove a 2.5 acre island located within the Ambajejus Lake portion of the North Twin impoundment
March 24, 2020	Order Amending Licenses to Include Battery Systems to construct and maintain two battery systems on lands partially within the project boundary to store energy generated from the Ripogenus and Penobscot Mills Projects

Other amendments pertinent to the various resource plans filed pursuant to the Project licenses are discussed within their respective resource areas throughout this document.

Operations

The North Twin Development is operated in a storage mode, dictated by the WUP, pursuant to Article 408, as described above, and consistent with Article 401, outlining minimum flows to Millinocket Stream, and Article 403, outlining the minimum flows to the West Branch of the Penobscot River. The resulting flows from North Twin Dam provide flood control, environmental, recreational, and power generation benefits for the West Branch and mainstem of the Penobscot River.

In addition to the plan required under Articles 401 and 403 for providing and monitoring the minimum flows, and Article 408 for maintaining North Twin headpond elevations, Article

404 required the following: *The licensee shall, within six months of the date of this license, file for Commission approval a plan for complying with all instream flow requirements at the Penobscot Mills Project…The licensee shall consult with the U.S. Fish and Wildlife Service, U.S. Geological Survey, Maine Department of Environmental Protection and the Maine Department of Inland Fisheries and Wildlife in developing the plan.* The Water Management Plan for the Penobscot Mills Project was filed by the licensee in February 1997 (see Section 6.0) pursuant to the requirements of Articles 401, 403, 404 and 408.

Modifications to run-of-river and minimum flows that have occurred related to the operation of the North Twin Development over the past 5 years have been permitted by the Penobscot Mills FERC license, i.e., they were planned in consultation with resource agencies (see Section 6.0). No operating emergencies beyond the control of GLHA have occurred in the last 5 years.

Water Quality

The Project is subject to two State of Maine water quality classifications, those for the North Twin impoundment (GPA) and those for the reach downstream of North Twin Dam (Class B). The Project holds a Section 401 Water Quality Certification, issued by the Maine Department of Environmental Protection (MDEP) on April 22, 1993, which was incorporated into the Project license in part. Water quality classifications and Project attainment are discussed in Sections 3.1 and 3.2. License Article and water quality conditions are discussed below.

Article 405 required: *The licensee shall cooperate in a study to be conducted by the U.S. Environmental Protection Agency and the Maine Department of Environmental Protection to determine the inter-relationship and impacts of atmospheric deposition and water level fluctuations on concentrations of mercury, cadmium, lead, and other toxic metals on aquatic life in the project's waters. The licensee shall submit annual reports describing the nature of its activities and cooperation with the two agencies.*

MDEP's Section 401 WQC Condition 4 required: *TOXIC METALS STUDY. The applicant shall cooperate in a study to be conducted by the Department and the Environmental Protection Agency to determine the interrelationship and impacts of atmospheric deposition and water level fluctuations on concentrations of mercury, cadmium, lead, and other toxic metals on aquatic life in the project waters.*

Water quality studies conducted during relicensing indicated that concentrations of metals and mercury were present in higher concentrations in the impoundments of the Penobscot Mills Project than in those impoundments upstream of the Project. The MDEP requested the licensee to conduct a study to determine the interrelationship and impacts of atmospheric deposition and water level fluctuations on concentrations of mercury, cadmium, lead, and other toxic metals on aquatic life in the Project waters. The study plan included fish samples from the North Twin impoundment and other local waterbodies to test for mercury in fish.

A study was conducted in 1999 to sample mercury concentrations in fish collected in several Penobscot Mills Project impoundments, including North Twin. Specifically, white perch were collected, and comparisons of fish mercury concentrations among study lakes were

conducted. White perch mercury concentrations were determined to be highest in North Twin Lake and lowest in Lobster Lake (a comparative survey natural lake); North Twin had a mean concentration of 574 ng/g compared with 332 ng/g for Lobster Lake. However, because the North Twin mercury concentration was lower than the state-wide mean (642 ng/g), and because other impoundments vs. natural lake comparisons were inconsistent, the impoundment effect was not determined to necessarily be among the key factors contributing to mercury concentrations.

On October 4, 2000, FERC approved the licensee's final mercury contamination report, filed on June 11, 1999 and supplemented on October 6, 1999, agreeing that, due to the confounding factors, the study did not indicate that impoundment operations had any impact on the mercury levels. FERC, in its October 4, 2000 order, indicated that "Several confounding factors may play a very large role in maintaining the levels of mercury in the water column. The licensee's study could be used to conclude that lakes with large watersheds accumulate more mercury, or that lakes that stratify accumulate more methyl-mercury, or that lakes with thick layers of sawdust in the sediments continue to be impacted by new reservoir syndrome. The study results do not indicate that reservoir fluctuations…have any impact of the levels of mercury in fish." FERC determined that "The licensee's report indicated that they successfully completed the approved study plan under the requirements of license article 404. The intent of the licensee's plan was to work with the MDEP to increase the breadth of usefulness of the mercury contamination study. The licensee's study helps the MDEP to further understand the rate of mercury deposition in the drainage of the West Branch of the Penobscot River, and the rest of the State of Maine."

Article 405 requires annual reports on cooperation with the MDEP and EPA on ongoing toxic metals investigations in the watershed. Annual reports have been filed since the initial report in 1999 and are included in Section 6.0, though no additional studies have been initiated by EPA nor MDEP.

Fish Resources

Article 406 required: *The licensee shall undertake appropriate repairs and/or modifications to the existing North Twin fishway. The licensee shall, within 12 months of the date of issuance of this license, file for Commission approval a plan for repairing and/or modifying the North Twin fishway, prepared in consultation with the Maine Department of Inland Fisheries and Wildlife.*

Condition 5 of the Section 401 WQC required: *NORTH TWIN FISHWAY -*

A. *The applicant shall undertake appropriate repairs and/or modifications to the existing North Twin fishway.*
B. *The applicant shall, within 12 months of FERC relicensing or upon such a schedule as may be established by FERC, submit a plan for repairing and/or modifying the North Twin fishway, prepared in consultation with the Department of Inland Fisheries & Wildlife. This plan shall be reviewed by and must receive approval of the DEP Bureau of Land Quality Control.*

The fishway plans for repairs and modifications to the fishway were submitted to the FERC, following consultation with the MDEP and MDIFW, on October 16, 1997. The

repairs/modifications, discussed in detail in Section 3.3, were approved by the FERC on May 27, 1998, and they were completed in 2000.

Article 409 required: *The licensee shall, within 12 months of the date of issuance of this license, file for Commission approval a plan for monitoring togue (lake trout) reproductive success in the North Twin impoundment. The plan shall be prepared in consultation with the U.S. Fish and Wildlife Service (FWS), Maine Department of Environmental Protection (DEP) , and the Maine Department of Inland Fisheries and Wildlife (DIFW) . The plan shall include provisions for documenting togue spawning success and for correlating water level management and other aberrations that may be factors if success is not achieved.*

Condition 6 of the Section 401 WQC required: *6. NORTH TWIN TOGUE MONITORING*

A. *The applicant shall conduct a study to monitor togue reproductive success in the North Twin impoundment following licensing.*
B. *The applicant shall, within 12 months of FERC relicensing or upon such a schedule as may be established by FERC, submit a plan for monitoring togue reproductive success in the North Twin impoundment, prepared in consultation with the Department of Inland Fisheries & Wildlife. This plan shall include provisions for documenting togue spawning success and for correlating water level management or other aberrations which may be factors if success is not achieved. The plan shall be reviewed by and must receive approval of the DEP Bureau of Land Quality Control.*
C. *The applicant shall submit the results of the study and any recommendations to improve togue reproductive success in the North Twin impoundment to the consulting agencies and to the DEP.*

The lake trout study plan for the North Twin impoundment, required under Article 409 and Condition 6 of the Project's Section 401 WQC and submitted to FERC on October 16, 1997, required biannual sampling and follow-up reports for evaluating the reproductive success of lake trout in the impoundment. The study plan was then approved by FERC on December 19, 1997. Studies, conducted from 1998 to 2010, showed that the intended propagation of wild lake trout had not occurred on the North Twin impoundment, despite water levels that had been carefully controlled for many years (per Article 408 license requirements) to provide conditions suitable for lake trout reproduction. The lack of wild lake trout was confirmed through lake trout sampling (gill net) studies conducted jointly with the MDIFW over the referenced study period. As a result of these studies, MDIFW management goals for the impoundment were modified to no longer include the propagation of wild lake trout.

On January 27, 2011, GLHA obtained concurrence from the resource agencies (MDEP, USFWS, and MDIFW) that lake trout monitoring at the project was no longer necessary. FERC issued an order on March 30, 2011 concurring with GLHA's request to discontinue lake trout monitoring.

As a further result of these studies, on April 13, 2012, GLHA filed a request to eliminate the water level management requirements for lake trout spawning/incubation in the North Twin impoundment pursuant to Article 408. Previously, Article 408 had required that the "North Twin impoundment shall be maintained at or above the lake trout spawning/incubation level for the period from October 15 through May 1 annually, and shall be maintained at a relatively

stable level from May 1 through August 22 annually." Article 408 was included in the license to provide water levels in the North Twin impoundment suitable for the reproduction of lake trout. However, as discussed above, the propagation of lake trout did not occur in the North Twin impoundment, despite controlling water levels to accommodate their natural reproduction for many years. In addition, the rapid impoundment drawdowns that were necessary from late August to early October to allow for natural lake trout spawning and incubation reduced boating/fishing access in September and October and caused many camp wells and water supplies to go dry in the fall. Therefore, through consultation with resource agencies and the camp owners, and by FERC Order dated July 26, 2012, Article 408 was amended, as indicated in Section 1.4.1. The resulting water management provides a more gradual impoundment drawdown and more flexibility for addressing flood control, environmental, recreational, and power generation goals; the FERC Order also included a provision for higher flows from North Twin Dam in the fall (subject to available water in the North Twin impoundment) to benefit the dam's tailrace fishery.

Wildlife Habitat and Resources

Article 410 required: *Within 12 months of the date of issuance of this license and at least 90 days before the start of any land disturbing or land-clearing activities, the licensee shall file with the Commission, for approval, a plan to enhance wetlands at the Deep Cove East and Deep Cove West sites on the North Twin impoundment, to benefit existing wetlands affected by operation of the project. The plan, at a minimum, shall include:*

1. *Details of the final designs and proposed maintenance procedures for the wetlands enhancement structures;*
2. *A plan for monitoring the effectiveness of the wetlands enhancements, which includes steps to be taken in the event the proposed methods are not effective in enhancing the wetlands, or if enhancement of either of the sites is proven to be infeasible. The plan shall include, but will not necessarily be limited to, modification of the enhancement methods, selection of different enhancement methods, enhancing additional wetlands, and selection of alternative sites;*
3. *A proposal to provide recommendations to the agencies and the Commission for alternative wetland mitigation techniques or sites if monitoring indicates that the implemented wetland enhancements are not successful; and*
4. *Schedules for the wetlands enhancements, for filing the results of the monitoring program, for maintenance of the enhancement structures, and for filing recommendations for alternative wetland mitigation.*

The licensee shall prepare the plan after consultation with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Maine Department of Environmental Protection, and the Maine Department of Inland Fisheries and Wildlife.

MDEP's Section 401 WQC Condition 7 required: *WETLANDS ENHANCEMENT*

A. The applicant shall provide enhancement of existing wetlands in the Penobscot Mills Project area.

B. The applicant shall, within 12 months of FERC relicensing or upon such a schedule as may be established by FERC, submit plans for evaluating, implementing, and monitoring wetland enhancements as required by Part A of this condition. These plans shall be developed in consultation with IF&W and the Department. These plans

shall be reviewed by and must receive approval of the DEP Bureau of Land Quality Control.

As required by Article 410 and Condition 7, a plan for enhancing wetlands at the Ripogenus and Penobscot Mills projects was submitted to FERC on October 20, 1997. However, in lieu of enhancing wetlands at the Deep Cove East and Deep Cove West sites on the North Twin impoundment, the plan called for enhancing wetlands at Umbazooksus Lake (part of the upstream Ripogenus Project) by permanently removing gates at Umbazooksus Lake Dam. FERC approved this plan on November 17, 1997, which also called for monitoring of wetlands enhancement at Umbazooksus Lake at 2-year intervals from 1998 to 2004, with reports forwarded to FERC and resource agencies by June 1 following each monitoring year. The final report, which was filed with FERC on June 1, 2005, found that wetlands at Umbazooksus Lake increased by 117 acres since wetland enhancement efforts began in 1998, and that substantial progress had been made towards the enhancement objectives of substantially increasing the extent, vegetation density, and plant species richness of Umbazooksus Lake's wetlands. Since Umbazookus Lake is an offsite wetlands mitigation project, it is not discussed further for the Zones of Effect for the North Twin Development below.

Lands within the project boundary are generally limited to those required for project operations, project structures, and project recreation facilities. Article 418 requires a Shoreline Management Plan (SMP) for lands owned by the licensee around the Penobscot Mills Project impoundments to include:

1. *maps of the project showing the project boundary;*
2. *the criteria used for selecting the buffer zone widths (using for each impoundment a 200-foot distance outward from the impoundment's normal maximum surface elevation);*
3. *substantiation for any proposed deviations for building set-back and buffer zone restrictions*
4. *provisions for maintaining no tree-cutting, vegetative protection zones and building set back restrictions around the project's impoundments;*
5. *descriptions and substantiation for designating the buffer zone; the no-tree cutting, vegetative protection area; and building set-back restrictions;*
6. *allowable uses for the buffer zone lands;*
7. *conditions to be specified for such allowable uses; and*
8. *provisions for maintaining appropriate public access to the project impoundment.*

An SMP for the Penobscot Mills Project was initially submitted to FERC on October 17, 1997. As the result of field surveys conducted to support the conveyance of the Penobscot Mills FERC license and assets to a new licensee (GNE, LLC), the SMP was updated and resubmitted to FERC on September 25, 2001 (see Section 7.0). The SMP details how the licensee oversees and controls the uses allowed within the project boundary, which was expanded in 1996 (when the new Penobscot Mills license was issued) to include areas within 200 feet of the normal full pond elevation on licensee-owned lands along the Project impoundments, but excluding existing camp lots and areas reserved for future development. The SMP incorporates license requirements for building setback restrictions (200 feet) and a 100-foot vegetative buffer restriction, and it provides for appropriate public access to Project impoundments for recreation. It also describes how the licensee will manage lands within the project boundary to

provide for the continued effective management of the renewable forest and water resources on Project lands, while recognizing and protecting the recreational and other natural resource values on those lands. FERC approved the SMP on February 12, 2002 (see Section 6.0 and 7.0).

GLHA submitted a subsequent minor revision to the SMP to FERC on January 17, 2011, due to additional surveys that identified two small parcels that should not have been included in the SMP. FERC approved these minor SMP revisions on February 16, 2011.

Recreation Resources

Article 414 stated, in part: *Within two years of issuance of the license, the licensee shall construct and provide for the operation and maintenance of the following recreational facilities…Remove boulders and other obstruction at the shoreline and provide six additional gravel vehicle spaces to the parking area at the Green Bridge boat access site above Quakish Lake. The design and construction of all proposed recreational facilities shall consider the needs of the disabled in accordance with the Americans with Disabilities Act.* In addition, Condition 9 of the Project's Section 401 WQC states, in part: *The applicant shall improve existing recreational access facilities in the project area by… removing boulders at the boat launch and adding gravel to expand the size of the parking area at the boat put-in site located upstream of Quakish Lake at the Green Bridge.*

There are four public boat launches, including the Green Bridge boat launch, and one private boat launch providing access to Project lands and waters. In addition, there is a beach, picnic area and three campsites. In compliance with Article 414, the Green Bridge boat launch was improved in October 1998 by increasing the parking and by improving the boat access. Recreation is discussed specific to each Zone of Effect in greater detail below.

The Penobscot Mills Project also has FERC-required recreation monitoring requirements in place per Article 415 of the FERC license which state in part: *The licensee, after consultation with the U.S. Fish and Wildlife Service (FWS), U.S. National Park Service (NPS), Maine Department of Inland Fisheries and Wildlife (DIFW), Maine Department of Conservation (DOC), and Maine Bureau of Parks and Recreation, shall monitor recreation use of the Penobscot Mills project area to determine whether existing recreation facilities are meeting recreation needs. Monitoring studies shall begin within six years of the date of issuance of the license, and shall include at a minimum the collection of annual recreation use data. Every six years during the term of the license, the licensee shall file a report with the Commission on the monitoring results. This report shall include:*

1. *Annual recreational use figures;*
2. *A discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation demand;*
3. *A description of the methodology used to collect all study data;*
4. *If there is a need for additional facilities, a recreation plan proposed by the licensee to accommodate recreational demand in the project area;*
5. *If there is need for additional facilities, the licensee's design of recreational facilities shall conform to the national standards established by the Architectural and Transportation Barriers Compliance Board pursuant to the Americans with Disabilities Act of 1990;*

6. *Documentation of agency consultation and agency comments on the report after it has been prepared and provided to the agencies; and*
7. *Specific descriptions of how the agency comments are accommodated by the report.*

Following the required agency consultations, a Recreation Facility Monitoring Plan for 2001 covering the Penobscot Mills and Ripogenus Projects was distributed on April 11, 2001 (see Section 7.0). Monitoring of Project recreation facilities has subsequently been conducted in 2001, 2008, and 2014, following study plans developed for each monitoring effort and coincident with "Form 80" recreation monitoring, to determine if these facilities are meeting recreation needs. The monitoring, which has provided annual usage estimates for the facilities, has demonstrated (with resource agency and FERC concurrence) that the existing facilities are adequate to meet the current and future recreation needs at these Projects, including at the North Twin Development (see Section 6.0).

Article 420 required: *The licensee shall consult with the Maine Department of Conservation (DOC) regarding the need for a study to mark and remove submerged hazards to recreational navigation in the Millinocket Lake and North Twin impoundment. If a study is requested by DOC, the licensee shall, within six months of the date of issuance of the license, file a plan for establishing benchmark impoundment levels in Millinocket Lake and North Twin impoundment and investigating the need for marking or removing submerged hazards in the lake and impoundment. This plan shall be prepared in consultation with the DOC.*

Section 401 WQC Condition 8 states: *NORTH TWIN HAZARD STUDY*

A. *The applicant shall consult with the Department of Conservation regarding the need for a study to mark and remove submerged hazards to recreational navigation in the North Twin impoundment.*
B. *If a study is requested by DOC, the applicant shall, within 6 months of FERC relicensing or upon such a schedule as may be established by FERC, submit a plan for establishing benchmark impoundment levels in the North Twin impoundment and investigating the need for marking or removing submerged hazards in the lake. This plan shall be prepared in consultation with the Department of Conservation and shall be reviewed by and receive approval of the DEP Bureau of Land Quality Control.*
C. *The applicant shall submit the results of a hazard study, if required, to DOC and the DEP. The applicant shall then develop and submit a plan for marking and/or removing hazards in the North Twin impoundment as recommended by DOC. This plan shall be reviewed by and must receive approval of the DEP Bureau of Land Quality Control.*

The licensee filed this final report on April 27, 2001 with the FERC, MDEP, Maine Department of Conservation (now known as the Maine Department of Agriculture, Conservation and Forestry (MDACF)), and the MDIFW. The report described a plan for dealing with the navigational hazards, identified through aerial mapping, which involved the distribution of hazard maps to the public. Subsequent to this final report, the licensee conducted field verifications of the North Twin impoundment maps using a boat and GPS unit in the fall of 2001, and then finalized the boating hazard maps based on the field verification efforts. FERC approved the final report on August 24, 2001.

Cultural Resources

Article 417 required: *The licensee shall implement the provisions of the Programmatic Agreement among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the Maine State Historic Preservation Officer, for managing historic properties that may be affected by license issuing for the continued operation of the Penobscot Mills hydroelectric power projects in the state of Maine, executed on July 1, 1996. The Commission reserves the authority to require changes to any Cultural Resources Management Plan or plans at any time during the term of the license.*

Pursuant to final Cultural Resource Management Plans (CRMPs) that were submitted to FERC on April 9, 1998 for the Ripogenus and Penobscot Mills Projects, annual reports on activities related to the management of historic properties at these Projects are submitted to FERC.

1.4.2 LIHI CERTIFICATION REQUIREMENTS

As this is an initial application for LIHI Certification, the North Twin Development is not currently subject to LIHI Certification Conditions.

TABLE 1. FACILITY INFORMATION

Item	*Information Requested*	*Response (include references to further details)*
Name of the Facility	Facility name (use FERC project name or other legal name)	Penobscot Mills Project (FERC No. 2458) – North Twin Development
Location	River name (USGS proper name)	West Branch of the Penobscot River
	Watershed name (select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html)	01020001 - West Branch Penobscot
	Nearest town(s), county(ies), and state(s) to dam	Town of Millinocket, Penobscot County, Maine
	River mile of dam	Dam and Powerhouse: RM 14.9, *as measured from the confluence of the East and West Branches of the Penobscot River at Nicatou Island*
	Geographic latitude of dam	Dam and Powerhouse: 45° 38’ 5.16"N
	Geographic longitude of dam	Dam and Powerhouse: 68° 46’ 50.88"W
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Kelly Maloney, Compliance Manager, Northeast Region
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Brookfield Renewable Partners LP Kelly Maloney, Compliance Manager, Northeast Region
	FERC licensee company name (if different from owner)	Great Lakes Hydro America, LLC
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	FERC No. 2458 Issued October 22, 1996 Expires September 30, 2026
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", “non-jurisdictional”)	Hydropower license for Major Project; Federal Power Act
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	WQC #L-17166-33-A-N, Issued April 22, 1993 by the Maine Department of Environmental Protection.

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td></td><td>Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories</td><td>See Sections 6.0 and 7.0 for hyperlinks to or documentation of relevant records including FERC License and Amendment Orders; Section 401 Water Quality Certification; FERC and regulatory filings; and other key documents.</td></tr>
<tr><td>Powerhouse</td><td>Date of initial operation (past or future for pre-operational applications)</td><td>1935</td></tr>
<tr><td></td><td>Total installed capacity (MW)
For recertifications: Indicate if installed capacity has changed since last certification</td><td>9.84 MW</td></tr>
<tr><td></td><td>Average annual generation (MWh) and period of record used
For recertifications: Indicate if average annual generation has changed since last certification</td><td>51,541 MWh (Period of Record: 2010 to 2019)</td></tr>
<tr><td></td><td><u>Mode of operation</u> (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)
For recertifications: Indicate if mode of operation has changed since last certification</td><td>Storage operations with minor fluctuations in headpond elevation during the summer months and supplemental flows to ensure downstream minimum flows of 2,000 cfs year-round.</td></tr>
<tr><td></td><td>Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit</td><td>3 operable Turbine-Generators,
Unit 1 - 2: Vertical Francis
Unit 3: Vertical Kaplan
<table>
<tr><th>Unit</th><th>Max Hydraulic Capacity (cfs)</th><th>Unit Authorized Installed Capacity (MW)</th></tr>
<tr><td>1</td><td>1,350</td><td>3.20</td></tr>
<tr><td>2</td><td>1,350</td><td>3.20</td></tr>
<tr><td>3</td><td>1,800</td><td>3.44</td></tr>
<tr><td>TOTAL</td><td>4,500</td><td>9.84</td></tr>
</table></td></tr>
<tr><td></td><td>Trashrack clear spacing (inches), for each trashrack</td><td>The trashracks are constructed of 3/8 in. bar steel with a 2-5/8 in. clear opening between the bars and measure 8 ft wide by 13 ft high. There are nine in total.</td></tr>
</table>

Item	*Information Requested*	*Response (include references to further details)*
	Dates and types of major equipment upgrades	No major equipment upgrades: 2004 installed walkway on gate hoists 2005 Grout injection into the headwall 2008 Added electric actuator to sluice gate 2010 Installed oil water separator 2011 Painted upstream side of taintor gates 2013 Refurbished fishway 2013 Painted downstream side of taintor gates 2015 Unit 3 draft tube repairs and intake rack repairs 2016 New stoplogs for taintor gates
	Dates, purpose, and type of any recent operational changes	Storage facility since FERC license issued in 1996, only short-term operational changes for maintenance and inspections. The Project license was amended on July 26, 2012 to adjust requirements for flows and water levels (see Section 1.4.1). There have been no other license modifications pertaining to operational changes.
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	None

Item	*Information Requested*	*Response (include references to further details)*
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1903–1904 - Construction of North Twin Dam (replaced timber crib dam) 1933–1935 - Powerhouse and fishway were constructed, and a section of the original gated spillway was removed. 1965–1966 - Another section of the spillway was removed, and the two radial gate bays were constructed. 1998 - Installation of riprap at Ambajejus Dike 1999 - Upgraded EOS system. 2002 - Rehabilitation of the radial gates and operators. 2002 - Replacement of the north slide gate. 2003 - Anchorage stabilization of the spillway. 2004 - Spillway downstream erosion protection. 2019 - Tainter gate stoplog sill and slot repairs
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	Max Height – 35 ft South dike – 498.1 ft (sheet pile section adjacent to Powerhouse – 498.6 ft) North dike – 494.62 ft to 498.7 ft (topped by 100 ft long concrete parapet wall – 498.7 ft) Auxiliary dikes (5) – 497.6 ft to 498.1 ft Auxiliary dike (Ambajejus Lake) – 495.0 ft to 497.6 ft (topped by a 450 ft long sheet pile wall – 500.5 ft)
	Spillway elevation and hydraulic capacity	Two steel Tainter gates and associated piers. Each Tainter gate measures approximately 50 ft wide and 27.3 ft high. The maximum discharge capacity near the top of the dam and abutments (at elevation 497.6 feet) through the Tainter gates is 72,000 cfs.
	Tailwater elevation (provide normal range if available)	Tailwater elevation of 460.7 ft at normal operating maximum powerhouse hydraulic capacity of 4,500 cfs
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	Intake measuring 37 ft by 114 ft with nine gate openings – each gate is 8 ft by 13 ft; intake is integral to powerhouse

Item	*Information Requested*	*Response (include references to further details)*
	Dates and types of major infrastructure changes	See "Dates and types of major equipment upgrades and Date of original construction and description and dates of subsequent dam or diversion structure modifications" section above.
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power, flood control
	Source water	Elbow, South Twin, North Twin, Pemadumcook, and Ambajejus Lakes
	Receiving water and location of discharge	West Branch of the Penobscot River; Quakish Lake
Conduit	Date of conduit construction and primary purpose of conduit	N/A
Impoundment and Watershed	Authorized maximum and minimum water surface elevations **For recertifications: Indicate if these values have changed since last certification**	Surface area of approximately 17,790 acres at the full pond elevation of 491.92 ft; drawdown capability of 22 ft., but 12 ft is targeted in the WUP
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	Same as above; relatively stable level from May 1 through August 22 annually; minimum target level of 488.42 feet USGS (3.5-foot drawdown) for the period August 22 through October 15; target drawdown to 479.92 feet USGS (12-foot drawdown) prior to spring runoff
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	The gross storage capacity of the impoundment that is impounded by the dam is approximately 346,000 acre-ft, and the surface area is approximately 17,790 acres at the normal high pond elevation of 491.92 ft.
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	Usable storage of the impoundment is approximately 344,355 acre-ft (15.0 billion cubic feet) at the normal high pond elevation of 491.92 ft.
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	North Twin is operated as a storage facility, as discussed elsewhere, to capture and store significant run-off. There are no ramping rate requirements at the Development.

Item	*Information Requested*	*Response (include references to further details)*
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Millinocket Lake, Rivermile 19 Great Lakes Hydro America, LLC; FERC No. 2458, Penobscot Mills Project; no upstream or downstream fish passage Ripogenus, Rivermile 48.3 Great Lakes Hydro America, LLC; FERC No. 2572, Ripogenus Project; no upstream or downstream fish passage
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Millinocket Development (Stone Dam), Rivermile 12.3 Great Lakes Hydro America, LLC FERC No. 2458, Penobscot Mills Project; no upstream or downstream fish passage Dolby Dam, Rivermile 4.2 Great Lakes Hydro America, LLC FERC No. 2458, Penobscot Mills Project; no upstream or downstream fish passage East Millinocket Dam, Rivermile 2.5 Great Lakes Hydro America, LLC FERC No. 2458, Penobscot Mills Project; no upstream or downstream fish passage Medway Dam, Rivermile 0.7 Black Bear Hydro Partners, LLC FERC No. 2666, Medway Project; upstream eel passage, downstream eel passage
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	Except for the Medway Project, Great Lakes Hydro America, LLC owns and operates all facilities in the West Branch of the Penobscot River drainage.
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	Water: 17,790 acres Land: Approximately 2,700 acres

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td rowspan="4">Hydrologic Setting</td><td>Average annual flow at the dam, and period of record used</td><td>Period of Record 2010-2019
<table><tr><th>Year</th><th>Average Flow (cfs)</th></tr><tr><td>2010</td><td>3,604</td></tr><tr><td>2011</td><td>4,890</td></tr><tr><td>2012</td><td>3,327</td></tr><tr><td>2013</td><td>3,240</td></tr><tr><td>2014</td><td>3,473</td></tr><tr><td>2015</td><td>3,618</td></tr><tr><td>2016</td><td>3,174</td></tr><tr><td>2017</td><td>3,616</td></tr><tr><td>2018</td><td>3,391</td></tr><tr><td>2019</td><td>4,148</td></tr><tr><td>Average</td><td>3,648</td></tr></table></td></tr>
<tr><td>Average monthly flows and period of record used</td><td>Period of Record 2010-2019
<table><tr><th>Month</th><th>Average Flow (cfs)</th></tr><tr><td>January</td><td>3,753</td></tr><tr><td>February</td><td>4,102</td></tr><tr><td>March</td><td>3,970</td></tr><tr><td>April</td><td>3,661</td></tr><tr><td>May</td><td>5,560</td></tr><tr><td>June</td><td>3,728</td></tr><tr><td>July</td><td>3,445</td></tr><tr><td>August</td><td>2,982</td></tr><tr><td>September</td><td>3,468</td></tr><tr><td>October</td><td>2,981</td></tr><tr><td>November</td><td>2,689</td></tr><tr><td>December</td><td>3,440</td></tr></table></td></tr>
<tr><td>Location and name of closest stream gauging stations above and below the facility</td><td>USGS 01034500 Penobscot River at West Enfield, Maine</td></tr>
<tr><td>Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.</td><td>1,877 sq. miles</td></tr>
</table>

Item	*Information Requested*	*Response (include references to further details)*
Designated Zones of Effect	Number of zones of effect	2
	Upstream and downstream locations by river miles	Zone 1: Elbow, South Twin, North Twin, Pemadumcook, and Ambajejus lakes (which comprise the North Twin impoundment) and North Twin Dam; RM 14.9 to RM 19 Zone 2: Dam Bypass Reach and Tailrace; RM 14.11 to 14.9
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Zone 1: Impoundment Zone 2: Bypass Reach and Controlled River (Powerhouse Tailrace)
	Delimiting structures or features	Ambajejus Dike (located between Millinocket Lake and Ambajejus Lake) – upstream limit of North Twin impoundment (Zone 1) Dam and Powerhouse – downstream limit of North Twin impoundment (Zone 1) and upstream limit of bypass reach and project tailrace (Zone 2) Millinocket impoundment - downstream limit of bypass reach and project tailrace (Zone 2)
	Designated uses by state water quality agency	Drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation; navigation; and as a habitat for fish and other aquatic life.
Pre-Operational Facilities		
Expected operational date	Date generation is expected to begin	N/A

Item	*Information Requested*	*Response (include references to further details)*
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	N/A
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	N/A

2.0 ZONES OF EFFECT

The storage impoundments of the Penobscot Mills Project (North Twin and Millinocket Lake) are located upstream of the run-of-river stations (Millinocket, Dolby, and East Millinocket) of the Project. There are no unregulated river reaches upstream or downstream of the North Twin Development, as Millinocket Lake, the Ripogenus Project impoundment, and the Storage Project (FERC No. 2634) impoundments are located upstream of the North Twin Development, while the North Twin Development discharges to Quakish Lake, part of the impoundment for the Millinocket Development. The North Twin Dam and Powerhouse are integral and delineate the impoundment (Zone of Effect 1) and the bypass reach and tailrace (Zone of Effect 2)

The water impounded by North Twin Dam that backwaters to Millinocket Lake (separated from the North Twin impoundment by Ambajejus Dike) comprises Zone 1 – Impoundment. The North Twin impoundment is comprised of Elbow, South Twin, North Twin, Pemadumcook, and Ambajejus lakes, which are approximately 11.8 miles in length (river course) and have a surface area of approximately 17,790 acres at the normal high pond elevation of 491.92 ft. These lakes are all hydrologically connected (they are a single impoundment delineated into different sections) and controlled by North Twin Dam.

North Twin Station, which is integral to North Twin Dam, and the spillway gates of the dam both discharge to Quakish Lake, part of the impoundment of the Millinocket Development. The bypass reach and the tailrace are effectively the same reach, and the length of the water course to Quakish Lake is approximately 0.88 rivermiles and comprises Zone 2 – Bypass Reach/Tailrace.

2.1 ZONE 1 – IMPOUNDMENT

The North Twin impoundment is comprised of Elbow, South Twin, North Twin, Pemadumcook, and Ambajejus lakes. Mean depth of the impoundment is approximately 27.7 ft. The North Twin impoundment measures approximately 11.8 miles in length (river course), and has a surface area of approximately 17,790 acres at the normal high pond elevation of 491.92 ft. Usable storage of the impoundment is approximately 344,355 acre-ft (15.0 billion cubic feet), with a drawdown capability of 22 ft. The gross storage capacity of the impoundment that is impounded by the dam is approximately 346,000 acre-ft.

FIGURE 12. ZONE 1 – NORTH TWIN REGULATED RIVER REACH UPSTREAM

TABLE 2. ZONE 1 – IMPOUNDMENT MATRIX OF ALTERNATIVE STANDARDS

Facility Name: North Twin Development **Zone of Effect: 1– North Twin Impoundment**

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	**Ecological Flow Regimes**		*X*			
B	**Water Quality**		*X*			
C	**Upstream Fish Passage**	*X*				
D	**Downstream Fish Passage**	*X*				
E	**Watershed and Shoreline Protection**		*X*			
F	**Threatened and Endangered Species Protection**		*X*			
G	**Cultural and Historic Resources Protection**		*X*			
H	**Recreational Resources**		*X*			

The North Twin impoundment, which consists of Pemadumcook, Ambajejus, North Twin, South Twin, and Elbow Lakes, is classified as GPA (38 M.R.S.A. § 465-A). The impoundment was determined to have a stable trophic state, and no water quality impairments for the GPA standards were identified. While this reach was identified on the 2016 305(b) report and 303(d) list, it was only to correct a misclassification typo from the 2014 report and is identified as Category 2 - Lake Waters within Hydrologic Unit Attaining Some Designated Uses - Insufficient Information for Other Uses. Mercury studies conducted at the facility indicated no connection to project operations. No impairment has been identified for this reach. North Twin is operated to ensure that minimum flows of 2,000 cfs are provided to the downstream Penobscot Mills Project run-of-river facilities, and water is pumped from Millinocket Lake into the North Twin impoundment to supplement flows as necessary and to provide flood control.

There are no upstream nor downstream fish passage facilities for migratory species in the West Branch of the Penobscot River upstream of the Medway Dam. However, a fish passage facility at the North Twin Dam provides upstream passage for resident species, including landlocked salmon and brook trout, primarily to allow species that had made their way downstream into Quakish Lake to gain access back into the North Twin impoundment.

Shoreline lands within the Penobscot Mills project boundary are managed under an SMP, including lands adjacent to this reach. However, no aspects of North Twin Development operations affects lands adjacent to this reach. Two species are federally listed as Threatened in the Project area, Canada Lynx and Northern Long-Eared Bat, but they are not affected by Project operations, as they are not aquatic species, and Project lands within 200 ft of the North Twin impoundment are protected under the SMP. While the Project is within the historical range for Atlantic salmon, these fish cannot ascend to Project waters, as there are no upstream anadromous fish passage facilities above the Mattaceunk Project, which is located on the mainstem of the Penobscot River. State listed species include two species of mussel and three species of bat that have been documented in the vicinity. There are no active archaeological sites covered by the Penobscot Mills Project's Cultural Resources Management Plan (CRMP) in this Zone of Effect. There are several boat launches and other recreation sites at the North Twin impoundment, and the licensee completed a boat hazard study which resulted in an updated boating hazard map, available to the public and posted at Project recreation sites.

2.2 ZONE 2 –DAM BYPASS AND TAILRACE REACH

North Twin Dam is comprised of the powerhouse and spillway gates. The bypass reach and project tailrace are effectively the same zone, as the bypass reach is inundated by flows from the project powerhouse and vice versa (i.e. the tailrace receives flows from the spillway) under normal operations.

FIGURE 13. ZONE 2 –DAM BYPASS AND TAILRACE REACH

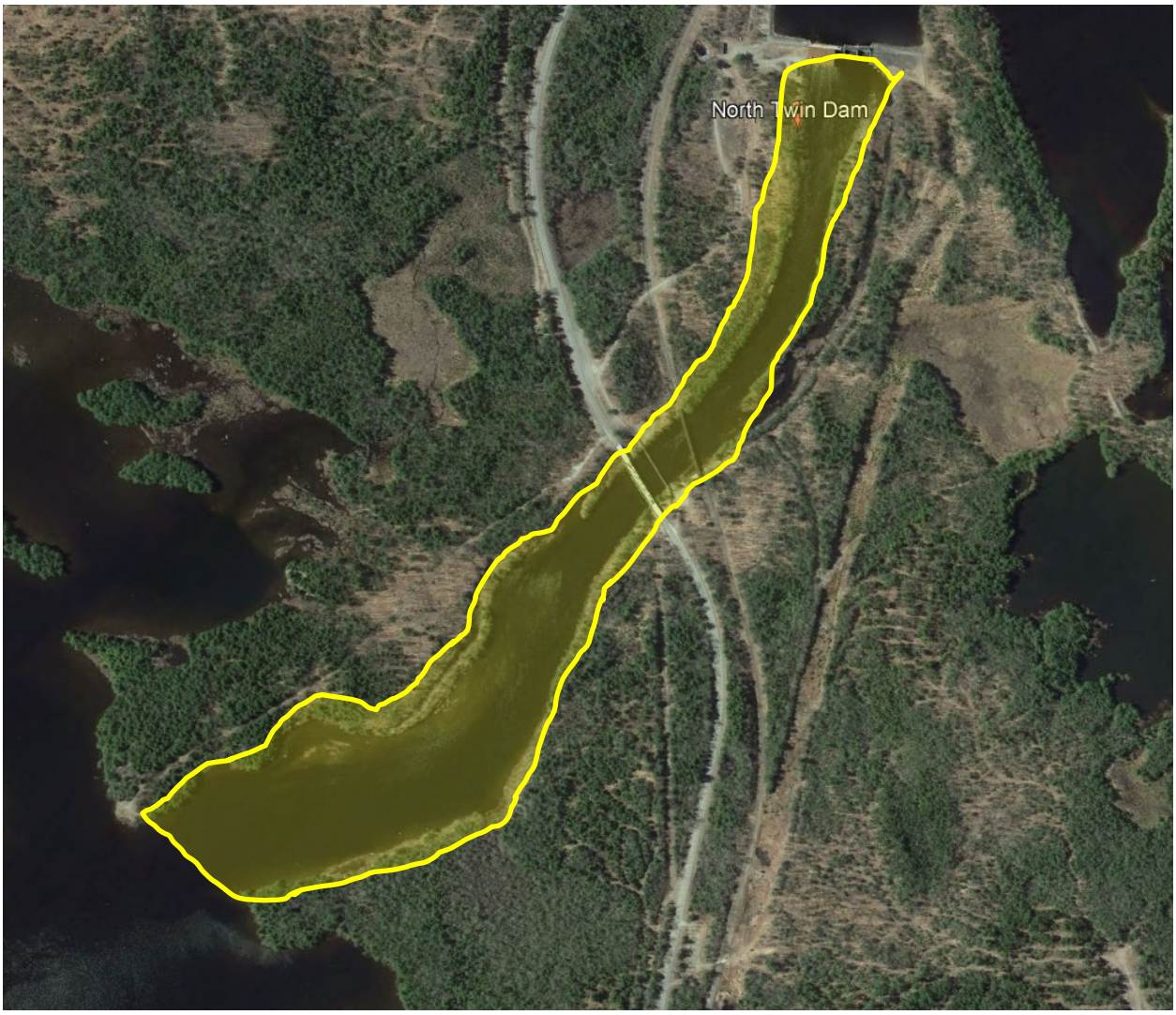


FIGURE 14. DAM BYPASS AND TAILRACE REACH (CLOSE UP)

TABLE 3. ZONE 2 – NORTH TWIN BYPASS REACH MATRIX OF ALTERNATIVE STANDARDS

Facility Name: North Twin Development **Zone of Effect:** 2 – North Twin Bypass Reach

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		*X*			
B	Water Quality		*X*			
C	Upstream Fish Passage	*X*				
D	Downstream Fish Passage	*X*				
E	Watershed and Shoreline Protection		*X*			
F	Threatened and Endangered Species Protection		*X*			
G	Cultural and Historic Resources Protection	*X*				
H	Recreational Resources		*X*			

The West Branch of the Penobscot River, from the outlet of Elbow Lake to the outlet of Ferguson Pond and Quakish Lake, is Class B (38 M.R.S.A. § 467(7)(C)(1)). While this reach was identified on the 2016 305(b) report and 303(d) list, it was only to correct a misclassification typo from the 2014 report. No impairment has been identified for this reach, and water quality studies conducted during relicensing demonstrate attainment with all water quality standards, including dissolved oxygen.

There are no upstream nor downstream fish passage facilities for anadromous species in the West Branch of the Penobscot River upstream of the Mattaceunk Project Dam (Weldon Dam), and the West Branch of the Penobscot River is not critical habitat for Atlantic salmon. However, a fish passage facility at the North Twin Dam provides upstream passage for resident species, including landlocked salmon and brook trout, primarily to allow species that had made their way downstream into Quakish Lake to gain access back into the North Twin impoundment.

Shoreline lands within the Penobscot Mills project boundary are managed under an SMP, including lands adjacent to this reach. Two species are federally listed as Threatened in the Project area, Canada Lynx and Northern Long-Eared Bat, but they are not affected by Project operations, as Project lands within 200 ft of the shoreline are protected under the SMP. State listed species include two species of mussel and three species of bat that have been documented in the vicinity. There are no prehistoric archaeological sites covered by the Penobscot Mills Project's CRMP at the Development in this Zone of Effect. A boat launch site known as the Green Bridge boat launch, with a small parking area, is located in this Zone of Effect, and it provides fishing/recreation access upstream to North Twin Dam and downstream to Quakish Lake, part of the Millinocket Impoundment.

3.0 LIHI CERTIFICATION CRITERION

3.1 ECOLOGICAL FLOWS

The stated Low Impact Hydropower Institute goal for Criterion A – Ecological Flow Regimes is "The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources." A discussion of the applicable standards by Zone of Effect is provided in the Sections below.

As discussed previously, the five developments comprising the Penobscot Mills Project are part of an integrated power system operated under a WUP that was developed in consultation with the resource agencies during the last relicensing. Key components of this integrated power system are the Penobscot Mills storage impoundments (North Twin and Millinocket Lake) located upstream of the run-of-river stations (Millinocket, Dolby, and East Millinocket). GLHA operates the Penobscot Mills Project to maintain an instantaneous minimum flow of 2,000 cfs at Millinocket and a minimum flow of 60 cfs in Millinocket Stream. Operation of the Project is managed in conjunction with the water flow and storage of upstream and downstream projects. GLHA has historically used the Penobscot Mills Project and other upstream projects to store the majority of spring runoff to provide sustained flows and to hold river flows at safe levels, thereby protecting populated areas downstream. Flows are released according to a hydro system rule curve that produces a more even distribution of water flow in the West Branch and main stem of the Penobscot River throughout the year.

3.1.1 ZONE 1 – IMPOUNDMENT

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a science-based agency recommendation	Agency Recommendation: Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

Elbow, South Twin, North Twin, Pemadumcook, and Ambajejus lakes, which together comprise the North Twin impoundment and are hydrologically connected and also hydrologically connected to Millinocket Lake via a pump house, are operated in accordance with the following WUP requirements, consistent with the amended license Article 408 and Section 401 WQC. The North Twin impoundment has a targeted drawdown of 12 feet (479.92 ft USGS), and the drawdown is used to capture spring run-off and provide flows throughout the winter in compliance with minimum flow requirements. As discussed elsewhere, the provisions of the WUP, including the targeted drawdown at the North Twin Development, were developed in consultation with the resource agencies during relicensing.

Brookfield's National System Control Center (NSCC) continuously monitors the impoundment level and flows. The Millinocket Development, from which Project minimum flows are measured, is operated with inflow from the North Twin impoundment. Depending on inflows with a corresponding incremental rise or fall of the impoundment, the NSCC will utilize the generating units at the Millinocket hydro station to stabilize headpond elevations, which ensures run-of-river operations. Alternatively, the NSCC will utilize increased flows from North Twin Dam to stabilize headpond elevations, likewise ensuring run-of-river operations and the maintenance of minimum flows. Under normal conditions, the daily outflow from Millinocket Development approximately equals that of the North Twin Development, with an average daily regulation flow variation of about 130 cfs between the two outflows due to tributary inflows. Other than normal operational flows, there is no release of water during periods of high flows in the river, unless the North Twin impoundment approaches its normal high water levels.

3.1.2 ZONE 2 – DAM BYPASS AND TAILRACE REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a science-based agency recommendation	Agency Recommendation (see Appendix A for definitions): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

A 2,000 cfs minimum flow is required in the West Branch of the Penobscot River downstream from the Millinocket Development "for the protection of water quality and aquatic life" as dictated by the Penobscot Mills Project license, the Project's 401 Water Quality Certification, and as codified in the 1997 Water Management Plan and WUP, developed in consultation with MDIFW, MDEP, and the USFWS. Although natural inflows can at times be lower than 2,000 cfs at Millinocket, water storage is typically available in the North Twin impoundment and at storage dams further upriver to ensure passage of the 2,000 cfs minimum flow at Millinocket (the exception being during extreme and infrequent drought conditions).

Brookfield's NSCC monitors operations including impoundment elevations and flows through both the Millinocket hydro station turbines and as discharged through dam structures continuously to maintain compliance with requirements for run-of-river operations and minimum flows. Water from the North Twin Development provides this 2,000 cfs minimum flow, as the Millinocket Development (and the downstream developments) are operated in a run-of-river mode. As such, inflows into the Millinocket Development to be passed downstream into the West Branch of the Penobscot River are monitored by the NSCC via North Twin discharges, along with discharges from the Millinocket Lake Dam into Millinocket Stream.

The North Twin Development does not have a true "bypass reach" for the purposes of this application, because the bypass reach is not a true hydrologic bypass,

as the powerhouse is integral to the dam and spillway. Water released from the spillway gates of the dam or from the powerhouse discharge to the same tailrace reach.

Any deviations from minimum flow requirements at the Millinocket Development, which may be related to deviations at the North Twin Development, are reported to FERC as described above in Section 1.2.

3.2 WATER QUALITY

The stated Low Impact Hydropower Institute goal for Criterion B – Water Quality is "Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions." A discussion of the applicable standards by Zone of Effect is provided in the Sections below.

As discussed elsewhere, the North Twin Development is subject to two water quality standards – the North Twin impoundment is classified as Class Great Pond A (GPA) water (38 MRS §465-A (1)). In accordance with 38 MRS §480-B (5), Great Ponds are defined as "*any inland bodies of water which in a natural state have a surface area in excess of 10 acres and any inland bodies of water artificially formed or increased which have a surface area in excess of 30 acres*." The reach downstream of the Dam is Class B.

A WQC was issued for the Project on April 22, 1993. An e-mail requesting concurrence that the Project is in compliance with the existing WQC was submitted to the MDEP on December 20, 2020. MDEP's response to this request will be filed with LIHI as part of the Intake Review revised application.

3.2.1 ZONE 1 – IMPOUNDMENT

Criterion	Standard	Supporting Information
B	**2** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility. Such recommendations, whether based on a generally applicable water quality standard or one that was developed on a site-specific basis, must include consideration of all water quality components necessary to preserve healthy fish and wildlife populations, human uses and recreation.	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, provide a link to the state's most recent impaired waters list and indicate the page(s) therein that apply to facility waters. If possible, provide an agency letter stating that the facility is not a cause of such limitation. • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The North Twin impoundment, which consists of Pemadumcook, Ambajejus, North Twin, South Twin, and Elbow Lakes, is classified as GPA (38 M.R.S.A. § 465-A). In accordance with 38 MRS §480-B (5), Great Ponds are defined as *"any inland bodies of water which in a natural state have a surface area in excess of 10 acres and any inland bodies of water artificially formed or increased which have a surface area in excess of 30 acres."* Water classification standards for Class GPA waters include some numeric standards and designated uses discussed below.

Class GPA waters "*must be of such quality that they are suitable for the designated uses of drinking water after disinfection, recreation in and on the water, fishing, agriculture, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other aquatic life. The habitat must be characterized as natural*" (38 MRS §465-A (1)(A)).15. Class GPA waters "*must be described by their trophic state based on measures of the chlorophyll a content, Secchi disk transparency, total phosphorus content, and other appropriate criteria. Class GPA waters must have a stable or decreasing, trophic state, subject only to natural fluctuations, and must be free of culturally induced algal blooms that impair their use and enjoyment*" (38 MRS §465-A (1)(B)).

There may be no new direct discharge of pollutants into Class GPA waters with the exception of those listed under 38 MRS §465-A (1)(C). "*Discharges into these waters licensed prior to January 1, 1986 are allowed to continue only until practical alternatives exist. Materials may not be placed on or removed from the shores or banks of a Class GPA water body in such a manner that materials may fall or be washed into the water or that contaminated drainage may flow or leach those waters, except as permitted pursuant to section 480-C. A change of land use in the watershed of a Class GPA water body may not, by itself or in combination with other activities, cause water quality degradation that impairs the characteristics and designated uses of downstream GPA waters or causes an increase in the trophic state of those GPA waters*" (38 MRS §465-A (1)(C).

In addition, Maine Water Quality standards provide provisions for hydropower impoundments as cited in 38 MRS §464 (9). More specifically, 38 MRS §464 (9-A) (D) notes that: *"Other than those described in paragraphs A, B, and C, all hydropower projects with impoundments in existence on June 30, 1992 that remain classified under section 465-A after June 30, 1992 and that do not attain the habitat and aquatic life criteria of that section must, at a minimum, satisfy the aquatic life criteria contained in section 465, subsection 4, paragraph C."*

Section 465, subsection 4, paragraph C as noted above refers to water quality standards for waters classified as Class C, which is the 4th highest classification of Maine waters. More specifically, 38 MRS §465 (4)(C) notes: *"Discharges to Class C waters may cause some changes to aquatic life, except that the receiving waters must be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community…"* The North Twin impoundment would be subject to 38 MRS §464 (9-A) (D) and §465 (4)(c) as noted above.

As described in the *2016 Integrated Water Quality Monitoring and Assessment Report*, North Twin is listed as Category 2 – Lake Waters within Hydrologic Unit Attaining Some Designated Uses Insufficient Information for Other Uses.

A comprehensive water quality sampling program was conducted in 1986-1987, which was supplemented with a less extensive water quality sampling program in 1988, as part of the Project relicensing. The water quality sampling programs were conducted in accordance with the Department's "Lake Trophic State Sampling Protocol". The licensee had compared the results of the 1986-1988 sampling program to the results of its 1981-1985 sampling program. The comparisons revealed no appreciable increase in trophic state, and MDEP determined that the Development was in a stable trophic state.

Water quality studies conducted during relicensing indicated that concentrations of metals and mercury were present in higher concentrations in the Project impoundments than in those impoundments upstream of the Penobscot Mills Project. The MDEP requested the licensee to conduct a study to determine the interrelationship and impacts of atmospheric deposition and water level fluctuations on concentrations of mercury, cadmium, lead, and other toxic metals on aquatic life in the Project waters. In summary, the reasons for the variable mercury contamination rates

were inconclusive due to several confounding factors (size of the watershed; stratification effects; thick layers of sawdust in the sediment). Thus, on October 4, 2000, FERC approved the licensee's final mercury contamination report, filed on June 11, 1999 and supplemented on October 6, 1999, agreeing that, due to the confounding factors, the study did not indicate that impoundment operations had any impact on the mercury levels.

3.2.2 ZONE 2 – DAM BYPASS AND TAILRACE REACH

Criterion	Standard	Supporting Information
B	**2** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility. Such recommendations, whether based on a generally applicable water quality standard or one that was developed on a site-specific basis, must include consideration of all water quality components necessary to preserve healthy fish and wildlife populations, human uses and recreation.	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, provide a link to the state's most recent impaired waters list and indicate the page(s) therein that apply to facility waters. If possible, provide an agency letter stating that the facility is not a cause of such limitation. • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The West Branch of the Penobscot River, from the outlet of Elbow Lake (at North Twin Dam) to the outlet of Ferguson Pond and Quakish Lakes, is Class B. 38 M.R.S.A. § 467(7)(C)(1)(e). Numeric standards for Class B are as follows:

The dissolved oxygen content of Class B waters may not be less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration may not be less than 9.5 parts per million and the one-day minimum dissolved oxygen concentration may not be less than 8.0 parts per million in identified fish spawning areas. Between April 15th and October 31st, the number of Escherichia coli bacteria in these waters may not exceed a geometric mean of 64 CFU per 100 milliliters over a 90-day interval or 236 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval.

Also, "*discharges to Class B waters may not cause adverse impact to aquatic life in that the receiving waters must be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community."*

Class B waters shall be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as habitat for fish and other aquatic life. The habitat shall be characterized as unimpaired. 38 M.R.S.A. § 465(3)(A).

Water quality studies conducted as part of relicensing indicate that the dissolved oxygen levels in the Millinocket impoundment (the receiving water for North Twin Dam outflows) meet Class B criteria. All designated uses were deemed to have been met as outlined in the 1993 Water Quality Certification. Specific to aquatic habitat, this designated use was deemed to be met though run-of-river operations (stable impoundment elevations) and a minimum flow of 2,000 cfs that is maintained downstream at the Millinocket Development.

This section of the West Branch of the Penobscot River is not identified as impaired in MDEP's 2016 305(b) report.

The fishery resource agencies recommended, during relicensing, that a minimum flow of 2,000 cfs be maintained in the West Branch of the Penobscot River at Millinocket in order to protect downstream aquatic habitat, and that the Millinocket Development be operated in run-of-river mode. Specific to aquatic habitat, this designated use was deemed to be met though run-of-river operations (stable impoundment elevations) and a minimum flow of 2,000 cfs maintained downstream at the Millinocket Development, as provided primarily through outflows from the North Twin Development.

3.3 UPSTREAM FISH PASSAGE

The stated Low Impact Hydropower Institute goal for Criterion C – Upstream Fish Passage is "The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy, sustainable fish and wildlife resources in areas affected by the facility."

While the North Twin Dam does have an upstream fish passage facility, it is not in place to pass migratory species, and no migratory species are present within the Project area. Further, there are no fish passage facilities at any of the downstream Penobscot Mills Developments on the West Branch of the Penobscot River. The upstream fishway at the North Twin Development serves resident fish species only, as anadromous fish are not present in the reaches occupied by the Development. As such, all Zones of Effect meet Standard C-1.

Criterion	Standard	Supporting Information
C	**1** The facility does not create a barrier to upstream passage, or there are no migratory fish in the vicinity of the facility and the facility is not the cause of extirpation of species that were present historically.	Agency Recommendation: • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

Landlocked salmon (salmon) are the principal species of fisheries management concern at the North Twin Dam. The North Twin upstream fishway is primarily in place to allow salmon that have passed downstream over the dam to move back upstream into the North Twin impoundment. This fishway was incorporated into the dam in 1934, was repaired in 1984, and was modified in 1998 to address dewatering of the fishway exit at low impoundment elevations, excessive turbulence within the pools, and to increase attraction water. The upstream fishway consists of a pool and weir design with 1 ft 9 inch slots. The conveyance flow for the fishway is 7 cfs, with approximately 2 cfs through the orifices and 5 cfs over the weirs. A supplemental attraction flow of 3.5 cfs is provided through an 8 inch diameter gravity pipe.

There are currently no anadromous fish species present in the West Branch of the Penobscot River, because there are no upstream fish passage facilities for anadromous fish at the downstream Medway Project, nor at the East Millinocket, Dolby, or Millinocket Developments. The West Branch of the Penobscot River is within historical habitat for Atlantic salmon, but it is not designated as critical habitat, and thus is not managed for Atlantic salmon. Likewise, the West Branch of the Penobscot River is not managed for alosines (river herring; American shad). American eels are present in the West Branch of the Penobscot River, including Project waters. However, there are no fish passage or eel passage facilities at the downstream Penobscot Mills Developments, and no requirement for anadromous fish passage or eel passage at the Project. Only the Medway Project has eel passage; however, very few eels have been recorded as passing the Medway Project, which is located downstream of the East Millinocket Development (the downstream-most development of the Penobscot Mills Project). Specifically, eels were only observed passing the Medway Project in 4 out of 12 years of monitoring (2004 – 2015), with an average of 7 eels observed per year.

FIGURE 15. NORTH TWIN FISHWAY

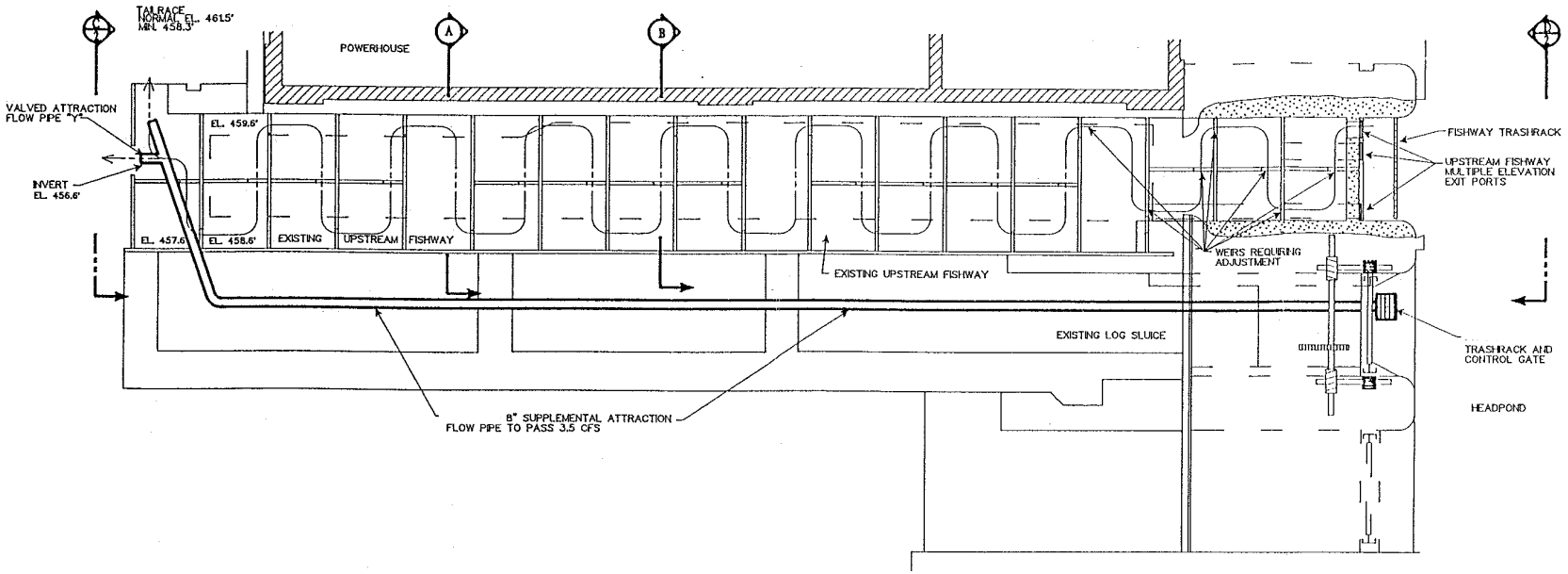


FIGURE 16. NORTH TWIN FISHWAY (PHOTO)

3.4 DOWNSTREAM FISH PASSAGE

The stated Low Impact Hydropower Institute goal for Criterion D – Downstream Fish Passage is "The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by facility operations. All migratory species can successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the facility."

There are no anadromous fish species in the West Branch of the Penobscot River, where the Project is located. The Project does not have, and is not required to have, fish passage

facilities for migratory species. As such, all Zones of Effect meet Standard D-1 and are discussed collectively below.

Criterion	Standard	Supporting Information
D	**1** The facility does not create a barrier to downstream passage, or there are no migratory fish in the vicinity of the facility; if migratory fish were present historically, the facility did not contribute to the extirpation of such species; the facility does not contribute adversely to the sustainability of riverine fish populations or to their access to habitat necessary for the completion of their life cycles.	Agency Recommendation: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There are currently no anadromous fish species present in the West Branch of the Penobscot River, because there are no upstream fish passage facilities for these species at the Medway Project, nor at developments upstream of Medway. The West Branch of the Penobscot River is within historical habitat for Atlantic salmon, but it is not designated as critical habitat. Eels are present in low numbers in the lower portion of the West Branch of the Penobscot River.

There are no downstream passage facilities at North Twin Dam. Upstream passage is in place to allow any resident fish species (primarily landlocked salmon) to move back upstream into the North Twin impoundment after moving downstream of North Twin Dam during high flow events.

3.5 SHORELINE AND WATERSHED PROTECTION

The stated Low Impact Hydropower Institute goal for Criterion E – Shoreline and Watershed Protection is "The facility has demonstrated that sufficient action has been taken to

protect, mitigate or enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility."

Article 418 requires a Shoreline Management Plan (SMP) for Project lands owned by the licensee around the Penobscot Mills Project impoundments. The resulting SMP was initially submitted to FERC on October 17, 1997. As the result of field surveys conducted to support the conveyance of the Penobscot Mills license and assets to a new licensee (GNE, LLC), the SMP was updated and resubmitted to FERC on September 25, 2001 to correct errors identified during the surveys (SMP attached). The SMP details how the licensee oversees and controls the uses allowed along shoreline areas within the project boundary, which was expanded after FERC license issuance in 1996 to include areas within 200 feet of the normal full pond elevation on licensee-owned lands along the Project impoundments, but excluding existing camp lots and shoreline areas reserved for future development. Since it is part of the Penobscot Mills Project, the project boundary was also expanded along the riverine reach downstream of North Twin Dam and upstream of the Millinocket impoundment (Quakish Lake).

The SMP incorporates license requirements for building setback restrictions (200 feet) and a 100-foot vegetative buffer restriction, and it provides for appropriate public access to Project impoundments for recreation. It also describes how the licensee will manage lands within the project boundary to provide for the continued effective management of the renewable forest and water resources on Project lands while recognizing and protecting the recreational and other natural resource values on those lands. FERC approved the SMP on February 12, 2002.

There are several rare and exemplary botanical features within 4 miles of Project (see Section 7.0). As discussed above, the SMP provides protections for lands within 100 ft of the shoreline which provides protections should any of the botanical features be within proximity of the Development.

3.5.1 ZONE 1 – IMPOUNDMENT

Criterion	Standard	Supporting Information
E	**2** The facility is in compliance with all government agency recommendations in a license or certificate, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the project.	Agency Recommendation: • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans). • Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.

The FERC project boundary along the impoundment shoreline is expanded to include areas within 200 feet of the impoundment's full pond elevation, except for existing camp lots and shoreline areas reserved for future development. In addition, licensee-owned islands within the impoundment are also included in the Penobscot

Mills project boundary. The Penobscot Mills SMP covers all of these shoreline and island areas included in the project boundary.

3.5.2 ZONE 2 –DAM BYPASS AND TAILRACE REACH

Criterion	Standard	Supporting Information
E	**2** The facility is in compliance with all government agency recommendations in a license or certificate, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the project.	Agency Recommendation: • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans). • Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.

Zone 2, which comprises the riverine reach downstream of North Twin Dam and upstream of the Millinocket impoundment, has an associated project boundary that is expanded to include shoreline areas within 200 feet of the river; these shoreline areas are thus covered by the Penobscot Mills SMP. Although there are no camp lots excluded from the project boundary in Zone 2, this section of river does include a DOT highway bridge crossing (Route 11), a railroad bridge crossing, and a recreational trail bridge crossing for snowmobiles and ATVs. Zone 2 also includes GLHA's Green Bridge concrete boat launch, which provides boating access upstream to North Twin Dam and downstream to the Millinocket impoundment.

3.6 THREATENED AND ENDANGERED SPECIES

The stated Low Impact Hydropower Institute goal for Criterion F – Threatened and Endangered Species Protection is "The facility does not negatively impact federal or state listed species". A USFWS Information for Planning and Consultation (IPaC) report and MDIFW MESA information are applicable to all Zones of Effect for the North Twin Development. These are discussed collectively below.

Criterion	Standard	Supporting Information
F	**2** There are listed species in the area, but the facility has been found by an appropriate resource management agency to have no negative effect on them, or habitat for the species does not exist within the project's affected area or is not impacted by facility operations.	Finding of No Negative Effects: • Identify all federal and state listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the ZoE or is not impacted by facility operations.

An IPaC report and USFWS Official Species List were developed for the Project and are provided in Section 7.0. The following federally-listed Endangered or Threatened species may be present in the Project vicinity: Canada Lynx (Threatened; for which critical habitat in the Project vicinity has been identified); Northern Long-Eared Bat (NLEB) (Threatened; for which a Final Section 4(d) rule has been published for activities that may affect the species for streamlined consultation). Routine Project operations are not anticipated to affect terrestrial species such as bats and Canada Lynx. There may be periodic vegetation clearing for dam safety, access, and other purposes, but these would be conducted in accordance with the Section 4(d) rule for NLEB using the USFWS streamlined consultation process, and would be limited given vegetative buffer restrictions contained in the Project's SMP. As such, no negative effects are anticipated by this periodic activity.

Atlantic salmon, federally-listed as Endangered and historically documented as occupying the West Branch of the Penobscot River, are not in the Project area. The West Branch is not managed for Atlantic salmon, as restoration efforts have focused on the mainstem and East Branch of the Penobscot River, the latter of which provides 75 miles of unimpounded river of high quality habitat (Class AA). As such, critical habitat for Atlantic salmon has not been designated on the West Branch of the Penobscot River, nor in the Project vicinity, and there are no anadromous fish passage facilities on the West Branch, including at the North Twin Dam.

In addition, the following state-listed Endangered, Threatened, and Special Concern species have been documented in the general vicinity of the Penobscot Mills Developments Project Area: Bigmouth Pondsnail (Special Concern); Tidewater Mucket (State Threatened); Yellow lampmussel (State Threatened); and Wood Turtle (Special Concern). Bald eagles have also been documented in the project area but were de-listed on both the state and federal level[1]. In addition, several of species of bats could occur within the project area during migration and/or the breeding season: Little brown bat (State Endangered); Northern long-eared bat (State Endangered); Eastern small-footed bat (State Threatened); Big brown bat

[1] Eagles continue to be protected under the federal Bald Eagle and Golden Eagle Protection Act ("Eagle Act") as well as other federal laws.

(Special Concern); Red bat (Special Concern); Hoary bat (Special Concern); Silver-haired bat (Special Concern); and Tri-colored bat (Special Concern).

With respect to the aquatic species, the Millinocket and Dolby Developments are operated in run of river mode with stable headpond. Periodic dam repairs may require some drawdown for which the resource agencies are notified. In addition, the impoundment may drop below the elevation of 1 ft from normal full pond at times when pinned flashboards fail. Normal routine operations, however, are not anticipated to have a negative effect on mussel and reptile species.

Routine project operations are not anticipated to affect terrestrial species such as bald eagle and bats. There may be periodic vegetation clearing for dam safety, access, and other purposes but these would be conducted in accordance with the Section 4(d) rule using the USFWS streamlined consultation process. As such, no negative effects are anticipated by this periodic activity.

3.7 CULTURAL AND HISTORIC RESOURCES

The stated Low Impact Hydropower Institute goal for Criterion G – Cultural and Historic Resource Protection is "The facility does not unnecessarily impact cultural or historic resources that are associated with the facility's lands and waters, including resources important to local indigenous populations, such as Native Americans."

Article 417 of the Penobscot Mills Project License implements the Programmatic Agreement for the Project's cultural resources, of which the Cultural Resource Management Plan (CRMP) is a part. Pursuant to final CRMPs that were submitted to FERC on April 9, 1998 for the Ripogenus and Penobscot Mills Projects, annual reports on activities related to the management of historic properties at these Projects are submitted to FERC. However, only one of the seven prehistoric archaeological sites identified in the Penobscot Mills CRMP is located at the North Twin Development in Zone 1, as discussed below.

3.7.1 ZONE 1 - IMPOUNDMENT

Based on the archaeological Phase I survey and the Phase II archaeological testing report, only one cultural or historical site covered by the April 9, 1998 CRMP is located in the Impoundment Zone of Effect:

- Site 121.59 – Pemadumcook Lake – multicomponent deposit attributable to the Late Archaic period on the basis of the above-mentioned feature, and the general Archaic, general Ceramic (Woodland) and Late Ceramic (Woodland) periods

Because there are limited cultural and historic resources at the Development and the Development is covered under an agency and FERC-approved CRMP, the application of the G-2 Standard for Cultural and Historic Resources is appropriate.

Criterion	Standard	Supporting Information
G	**2**	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

Site 121.59 was initially deemed significant and eligible for listing in the National Register of Historic Places, based on an archaeological Phase I survey conducted at the Penobscot Mills Project in the late 1980s and a Phase II archaeological testing report completed circa 1990. A field reconnaissance to site 121.59 conducted in 2004 resulted in the discovery of a few stone artifacts on the shore, but very little backshore area for archaeological testing. In 2007, this site was determined to not require a field study, because past reporting failed to consider the lack of context for the site. The site was thus removed from further annual reporting.

3.7.2 ZONE 2 – DAM BYPASS AND TAILRACE REACH

Criterion	Standard	Supporting Information
G	**1**	Not Applicable / De Minimis Effect: • Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility; or • Document that the facility construction and operation have not in the past, nor currently adversely affect any cultural or historic resources that are present on facility lands.

As discussed above, there are no prehistoric archaeological sites within this reach covered by the CRMP.

3.8 RECREATIONAL RESOURCES

The stated Low Impact Hydropower Institute goal for Criterion H – Recreation Resources is "The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge." Several license articles pertain to Recreational Resources at the North Twin Development and are discussed in Section 1.4 and summarized below.

Article 414 requires the licensee to construct, operate and maintain specified recreational facilities, including six parking spaces at the Green Bridge boat access site above

Quakish Lake, which provides access to Zone 2 – Dam Bypass and Tailrace. These improvements were completed, and photos of the boat launch (known as the Green Bridge boat launch) can be found in the 2016 Environmental Inspection Report (see hyperlink in Section 6.0).

Article 415 requires the licensee to monitor recreational use. Specifically, and as discussed in Section 1.4.1, Article 415 requires (1) consultation with the USFWS, U.S. National Park Service (NPS), MDIFW, and MDOC (now known as MDACF), (2) monitoring of recreation use of the Penobscot Mills Project area to determine whether existing recreation facilities are meeting recreation needs every six years, and (3) filing of a report that discusses the methodology, adequacy of the licensee's recreation facilities at the Project site to meet recreation demand, and any updates to the recreation plan proposed by the licensee to accommodate recreational demand in the Project area. Recreation Facility Monitoring Reports for the Project (provided as links in Section 6.0) were filed in October 2002; April 2009; and April 2015. The next Recreation Facility Monitoring Report is due March 31, 2022, following FERC's April 17, 2020 approval of a one year time extension due to the COVID-19 pandemic. Recreation use at the North Twin Development, as reported in the 2015 Recreation Report, was 3,605 daytime recreational use days and 10 nighttime use visits.

Though not discussed in Section 1.4 above, Article 416 of the Penobscot Mills Project license required the licensee to file a plan for establishing and collecting fees for recreational facilities. The conclusion of the Report, filed with the FERC on October 6, 1997 (provided as a link in Section 6.0) was "For the term of the current Penobscot Mills license, (the Licensee) proposes to continue its current policy of providing free use of all Penobscot Mills recreational facilities".

As discussed in Section 1.4, Article 420 required the licensee to consult with the MDOC (now known as MDACF) to determine the need for a study to mark or remove submerged hazards to recreational boaters using Millinocket Lake and the North Twin Impoundment. As discussed in Section 1.4, the study was concluded and maps of navigational hazards were developed. These maps are periodically updated, are available to the public, and are posted at all public access sites of the North Twin and Millinocket Lake Developments. The North Twin Development is also subject to the requirements of FERC's Part 8 regulations, including safety signage. Inspections of Part 8 signs are scheduled annually at the start of the recreation season, and signs are replaced, as necessary.

FIGURE 17. SUBMERGED HAZARDS MAP (AS POSTED AT RECREATION SITES)

FERC's most recent Environmental Inspection report was issued on December 28, 2016 for the Penobscot Mills Project after the inspection was conducted on September 8, 2016. A link to the report and follow-up letter are provided in section 6.5. The inspection report identified the following requirements related to recreation resources within the Project lands: a) the licensee was required to review the Form 80 report for the North Twin Development and the Dolby Development to determine if the roadside picnic areas are Project facilities or not, b) review the fence on the south shore of Elbow Lake, and c) the licensee was required to replace the Part 8 sign at the South Twin boat ramp. As outlined in FERC's letter dated December 28, 2016, the roadside picnic areas were located during the inspection and were determined to be State of Maine Department of Transportation Rest Areas that are not Commission-approved sites. The Part 8 sign for the South Twin Boat Launch was documented as deteriorated to the point of being illegible. The sign was replaced by December 31, 2016. The security fence on the south shore at North Twin Dam was noted to not go all the way to the water, though FERC required no follow-up actions.

3.8.1 ZONE 1 –IMPOUNDMENT

Criterion	Standard	Supporting Information
H	**2** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

There are three public boat launches providing access to Project lands and waters at the North Twin impoundment:

1. Ambajejus Boat Launch – this boat launch provides parking and a launch facility for motorized watercraft at the dike separating Ambajejus Lake and Millinocket Lake and provides access from the upstream extent of Ambajejus Lake.
2. Partridge Cove Boat Launch – this site provides parking and a launch facility for motorized watercraft at the Partridge Cove section of South Twin Lake. This site was improved in 2005 by expanding the parking area and adding signage.
3. Norcross Launch – this site provides hand-carry access for non-motorized watercraft and parking at Elbow Lake.

In addition to the public boat launches, there are two private boating facilities on the Project impoundment:

1. 5 Lakes Lodge (formerly known as Barton's Marina) providing access at South Twin Lake
2. North Woods Trading Post Boat Dock on Ambajejus Lake (in proximity to the Ambajejus Lake boat launch)

Additional recreation sites at the North Twin impoundment include the Ambajejus Lake Beach and three campsites.

Pursuant to Article 415, recreational use of the facility is monitored periodically. As reported in the 2015 recreational monitoring report, fishing, boating, picnicking, sightseeing and camping were activities observed in this Zone of Effect. GLHA will continue to periodically monitor use, update facilities, and maintain and improve the existing sites as needed in conjunction with interested parties (See Section 6.5.5 for linked reports and FERC correspondence).

3.8.2 ZONE 2 – DAM BYPASS AND TAILRACE REACH

Criterion	Standard	Supporting Information
H	**2** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

The recreation facility improvement identified in Article 414 was completed before October 1998, and maintenance of this site has been completed as needed since 1998. The Green Bridge Boat Launch site located in this Zone of Effect provides public access to the North Twin bypass/tailrace reach and to the Quakish Lake portion of the Millinocket impoundment.

Pursuant to Article 415, recreational use of the facility is monitored periodically. As reported in the 2015 recreational monitoring report, only fishing activities were observed in this Zone of Effect where the Green Bridge Boat Launch site is located. GLHA will continue to periodically monitor use, update facilities, and maintain and improve the existing site as needed in conjunction with interested parties (See Section 6.5.5. for linked reports and FERC correspondence).

4.0 SWORN STATEMENT AND WAIVER FORM

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

SWORN STATEMENT

As an Authorized Representative of Great Lakes Hydro America, LLC, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: Great Lakes Hydro America, LLC

Authorized Representative:

Name: Thomas Uncher

Title: VP, Operations

Authorized Signature: _____

Date: 2/16/21

5.0 CONTACTS FORM

5.1 APPLICANT RELATED CONTACTS

Facility Owner: Great Lakes Hydro America LLC.	
Name and Title	Tom Uncher, Vice President
Company	Great Lakes Hydro America, LLC
Phone	518-743-2018
Email Address	Tom.Uncher@brookfieldrenewable.com
Mailing Address	150 Main St. Lewiston Maine 04240
Facility Operator (if different from Owner):	
Name and Title	James Cole, Senior Operations Manager
Company	Great Lakes Hydro America, LLC
Phone	207-723-4341 Ext, 127
Email Address	James.Cole@brookfieldrenewable.com
Mailing Address	1024 Central Street, Millinocket, Maine 04462
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Kelly Maloney; Manager, Compliance - Northeast
Company	Brookfield Renewable
Phone	(207) 755-5606
Email Address	Kelly.Maloney@brookfieldrenewable.com
Mailing Address	150 Main Street, Lewiston, Maine 04240
Party responsible for accounts payable:	
Name and Title	Judith Charette; Manager, Accounts Payable, Finance & Accounting
Company	Brookfield Renewable
Phone	819-561-8099
Email Address	Judith.charette@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC, Canada J8X2A1

5.2 CURRENT AND RELEVANT STATE, FEDERAL, AND TRIBAL RESOURCE AGENCY CONTACTS WITH KNOWLEDGE OF THE FACILITY

Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _x_, Recreation __):	
Agency Name	Advisory Council on Historic Preservation
Name and Title	John M Fowler, Executive Director
Phone	202-517-0200
Email address	jfowler@achp.gov
Mailing Address	401 F Street N.W. Suite 308 Washington, DISTRICT OF COLUMBIA 20001-2637
Agency Contact (Check areas of responsibility: Flows__, Water Quality _x_, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Environmental Protection
Name and Title	Nick Livesay, Director
Phone	(207) 530-0965
Email address	Nick.Livesay@maine.gov
Mailing Address	Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	National Marine Fisheries Service
Name and Title	Jeff Murphy; Penobscot SHRU
Phone	(207) 866-7379
Email address	Jeff.Murphy@noaa.gov
Mailing Address	Maine Field Station, 17 Godfrey Drive, Orono, Maine 04473
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Environmental Protection
Name and Title	Kathy Davis Howatt, Hydropower Coordinator
Phone	207-446-2642
Email address	kathy.howatt@maine.gov
Mailing Address	Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Inland Fisheries and Wildlife
Name and Title	Kevin Dunham, Regional Fisheries Biologist
Phone	207-732-4131
Email address	Kevin.Dunham@maine.gov
Mailing Address	16 Cobb Road, Enfield, Maine 04493
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Dept. of Agriculture, Conservation & Forestry
Name and Title	Kathleen Leyden, Director
Phone	207-287-5254
Email address	Kathleen.Leyden@maine.gov
Mailing Address	93 State House Station, Augusta, Maine 04333-0038

Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Marine Resources
Name and Title	Gail Wippelhauser, Marine Resources Scientist
Phone	207-624-6349
Email address	gail.wippelhauser@maine.gov
Mailing Address	21 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _x_, Recreation __):	
Agency Name	Maine Historic Preservation Commission
Name and Title	Kirk Mohney; Director
Phone	(207) 287-3811
Email address	Kirk.Mohney@maine.gov
Mailing Address	55 Capitol Street, 65 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds _x_, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. National Park Service
Name and Title	Kevin Mendik, ESQ. NPS Hydro Program Coordinator
Phone	617-223-5299
Email address	kevin_mendik@NPS.gov
Mailing Address	15 State Street 10th floor, Boston, Massachusetts 02109

5.3 CURRENT STAKEHOLDER CONTACTS THAT ARE ACTIVELY ENGAGED WITH THE FACILITY

Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _X, Recreation __):	
Stakeholder Organization	Penobscot Indian Nation
Name and Title	Mark Chavaree, Legal Counsel
Phone	207-817-7324
Email address	
Mailing Address	6 River Road, Indian Island, Old Town, Maine 04468
Stakeholder Contact (Check areas of interest: Flows_X_, Water Quality _X_, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	Penobscot Indian Nation
Name and Title	Dan Kusnierz; Water Resources Program Manager
Phone	207-817-7361
Email address	Dan.Kusnierz@penobscotnation.org
Mailing Address	12 Wabanaki Way, Indian Island, ME 04468

6.0 FERC AND REGULATORY INFORMATION

6.1 FERC LICENSE AND AMENDMENT ORDERS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=3058862 - October 22, 1996 - Order Issuing New License

6.2 WATER QUALITY CERTIFICATION, AMENDMENTS, AND REPORTS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10377857 - April 22, 1993 Water Quality Certification
- https://www.maine.gov/dep/water/monitoring/classification/reclass/BEP_2018_ReclassProposals_ForBEP_Dec_final.pdf - 2016 Water Quality Monitoring Report for the State of Maine

6.3 SETTLEMENT AND OTHER AGREEMENTS

- None

6.4 PERMITS

- 2018 Maine Pollution Discharge Elimination System Permits for the North Twin Development - hyperlink unavailable; included in Section 7.0

6.5 COMPLIANCE PLANS AND MONITORING REPORTS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14452962 - FERC December 28, 2016 - Environmental Inspection Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14453759 - FERC Letter to GLHA December 28, 2016 regarding the responses to the 11/2/16 and 11/29/16 letters discussing the Environmental Inspection
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8251002 - Stone Dam flashboard modifications
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=11735044 - FERC's Final Environmental Impact Statement for the Ripogenus Hydro Project et al under P-2572 et al. Volume 2, Part 1 of 2.
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=11738150 - FERC's Final Environmental Impact Statement for the Ripogenus Hydro Project et al under P-2572 et al. Volume 2, Part 2 of 2

6.5.1 ECOLOGICAL FLOWS AND WATER QUALITY

- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=9064103:1 – Water level and Flow Management Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8183436 - FERC Order Approving Water Level and Flow Management Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8337994 - May 31, 1999 Mercury Report to FERC

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=144537 - October 6, 1999 Mercury Report supplement to FERC:
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10866885 - FERC October 4, 2000 Approval of Mercury Report
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15485963 - Great Lakes Hydro America, LLC submits the Mercury Studies Annual Report for the Penobscot Mills Project et al under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15177126 - 20190307 Penobscot Mills P-2458, Article 405 Compliance; Ripogenus P-2572, Article 405 Compliance; Mercury Studies Annual Report
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=14842513 - 20180315 Penobscot Mills, Article 405 Compliance; Ripogenus Project, Article 405 Compliance; Mercury Studies Annual Report
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=14510004 - 20170306 Penobscot Mills P-2458, Article 405 Compliance; Ripogenus P-2572, Article 405 Compliance; Mercury Studies Annual Report
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=14170350 - Great Lakes Hydro America, LLC 20160314 Penobscot Mills Project, Article 405 Compliance; Ripogenus Project, Article 405 Compliance; Mercury Studies Annual Report under P-2458, et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=13797340 - 20150309 Penobscot Mills P-2458, Article 405 Compliance; Ripogenus P-2572, Article 405 Compliance; Mercury study annual report.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=13483911 - 20140313 Penobscot Mills Project 2458; Article 405 Compliance; Ripogenus Project 2572, Article 405 Compliance. Mercury Study Annual Report / Form of Julie A Day under P-2458-000, et. al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=13005140 - Letter order accepting Great Lakes Hydro America, LLC's March 12, 2012 filing of the 2011 Annual Toxic Metals Report, pursuant to Article 405 of the Penobscot Mills and Ripogenus Projects under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12913425 – 2011 Report Mercury Cooperation Report Article 405 Compliance Penobscot Mills and Ripogenus under P-2458, et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12641563 - Letter order accepting Great Lakes Hydro America, LLC's annual toxic metals report per Article 405 under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12368869 - Letter order accepting Great Lakes Hydro America, LLC's 3/15/10 letter transmitting the annual filing of toxic metals report re the Penobscot Mills Project et al under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12292346 - Great Lakes Hydro America, LLC submits annual reports describing its activities and cooperation with the US Environmental Protection Agency et al, Pursuant Article 405 under P-2458 et al

- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12029913 - Letter order accepting Great Lakes Hydro America, LLC's 3/13/09 filing of the toxic metals report for the Penobscot Mills and Ripogenus Projects under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11967676 – 2008 Great Lakes Hydro America, LLC submits annual report in compliance with Article 405 describing its toxic metal study activities in the West Branch of the Penobscot River drainage under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11777501 - Letter order accepting Great Lakes Hydro America, LLC's 3/17/08 filing of annual toxic metals reports describing its activities and cooperation with the US Environmental Protection Agency et al re Penobscot Mills Proj-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11620975 - Great Lakesha Hydro America, LLC submits their annual reports describing activities and cooperation with US Environmental Protection Agency et al in a study of the inter-relationship etc pursuant to Article 405 re the Penobscot Mills Proj-2458 et al
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11408052 - Letter informing Great Lakes Hydro America, LLC that its letter filed on 3/16/07 fulfills the reporting requirement under Article 405 re the Penobscot Mills Project et al under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11292104 - Great Lakes Hydro America, LLC's letter to FERC to satisfy the Annual Reporting Requirements of Article 405 for the Ripogenus and Penobscot Mills Projects under P-2458 et al
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11082124 - Letter order accepting Great Lakes Hydro America, LLC's 3/15/06 filing of an Annual Report of Toxic Metals as fulfilling the requirements of Article 405 for the Penobscot Mills & Ripogenus Projects under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10975486 - Great Lakes Hydro submits annual report to satisfy the annual reporting requirement of Article 405 for the Ripogenus Penobscot & Penobscot Mills Project under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10567351 - Letter order finding that Great Lakes Hydro America, LLC's 5/15/05 letter re the annual filing of toxic metals report fulfills the reporting requirement for 2005 re Penobscot Mills Project et al under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10446809 - Great Lakes Hydro American, LLC reports activities & cooperation with US Environmental Protection Agency etc to satisfy the reporting requirements of Article 405 for Penobscot Mills Proj-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10090214 - Great Lake Hydro America, LLC submits compliance filing to satisfy the annual reporting requirements of Article 405 under P-2458 et al
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10052825 - Letter order accepting Great Lakes Hydro America, LLC's 3/14/03 letter regarding toxic metals report - Article 405 of its project license for its Penobscot Mills Project et al under P-2458 et al.

- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=1043772 - Letter order informing Great Northern Paper Inc that its 3/12/02 letter re the Penobscot Mills and Ripogenus projects licenses satisfies the annual report requirements of Article 405 under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=8078515 - Great Northern Paper, Inc submits report detailing Toxic Metal Study Activities in Ripogenus and Penobscot Mills Project Waters for 1999 under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9021795 - Second Supplement to Certificate of Record in Lieu of Record re Conservation Law Foundation, Inc et al v FERC under P-2458 et al.
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13961005 - GLHA's August 19, 2015 minimum flow excursion report to FERC:
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14000950 - FERC's September 30, 2015 notice of violation
- https://www.maine.gov/dep/water/monitoring/classification/reclass/BEP_2018_ReclassProposals_ForBEP_Dec_final.pdf - 2016 Water Quality Monitoring Report for the State of Maine
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12945074 - 20120413 Proposed License Amendment to Eliminate Water Management for Lake Trout - Penobscot Mills under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=13034318 - Order approving amendment of Article 408 re the Great Lakes Hydro America, LLC under P-2458

6.5.2 FISHERIES RESOURCES

- October 16, 1997 North Twin Upstream Fishway Repair/Modification Plan – attached in Section 7.0.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=3122864 - Order approving plan for repairing & modifying upstream fish passage facility at North Twin Dam of Great Northern Paper, Inc's Penobscot Mills Proj-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=8173374 - Great Northern Paper, Inc submits plan for evaluating reproductive success of lake trout in North Twin improvement required by Art 409 of Penobscot Mills Proj-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=3106610 - Order modifying & approving plan for monitoring Lake Trout reproductive success in North Twin Impoundment re Great Northern Paper's Penobscot Mills Proj-2458
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9018580 - Great Northern Paper Inc submits 1998 monitoring report for evaluating reproductive success of lake trout in North Twin impoundment re Penobscot Mills Project-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=106338 - Letter order accepting Great Northern Paper, Inc's 1998 Lake Trout Report for Penobscot Mills Proj-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9029012 - Great Northern Paper, Inc submits 2000 monitoring report for evaluating the

reproductive success of lake trout in the North Twin impoundment re the Penobscot Mills Proj-2458.

- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=163651 - Letter order accepting Great Northern Paper, Inc's January 22, 2001 filing of North Twin Impoundment Lake Trout Reproduction year 2000 report as required by Article 409 re Penobscot Mills Project under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9626933 - Great Lakes Hydro America, LLC submits its 2002 North Twin Impoundment Lake Trout Reproduction Report, in accordance with Article 409 re the Penobscot Mills Project under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10380789 - Great Lakes Hydro America, LLC submits the 2004 monitoring report for evaluating the reproductive success of lake trout in the North Twin impoundment re the Penobscot Mills Project under per Article 409 P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10641427 - Letter order accepting Great Lakes Hydro America, LLC's filing of the Biannual North Twin Lake Trout Reproduction Report for 2004 for the North Twin Impoundment of the Penobscot Mills Project, fulfilling Article 409 under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11243226 - Great Lakes Hydro America, LLC submits its 2006 Monitoring Report for evaluating the reproductive success of lake trout in the North Twin impoundment pursuant to Article 409 under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11278620 - Letter order accepting Great Lakes Hydro America LLC's Biannual North Twin Lake Trout Reproduction Report for 2006 pursuant to Article 409 for the Penobscot Mills Project under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11923419 - Great Lakes Hydro American, LLC submits the 2008 North Twin Impoundment Lake Trout Reproduction Report per Article 409 Compliance re Penobscot Mills Project under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=11972927 - Letter order accepting Great Lakes Hydro America, LLC's 1/30/09 filing of its Biannual North Lake Trout Reproduction Report for 2008 re the Penobscot Mills Project under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12547117 - Brookfield Renewable Power request to Eliminate Article 409 Lake Trout Requirements under P-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12600755 - Order approving request to discontinue monitoring of Lake Trout Reproduction re Great Lakes Hydro America, LLC's Penobscot Mills Project under P-2458.

6.5.3 SHORELINE AND WATERSHED PROTECTION

- Shoreline Management Plan - hyperlink unavailable; included in Section 7.0
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=6012718 - FERC February 12, 2002 approval of SMP

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12536605 - GLHA January 17, 2011 update to SMP:
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12565382 - FERC February 16, 2011 approval of SMP revisions:
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=8172979 - Great Northern Paper, Inc submits plan for enhancing wetlands at Ripogenus Proj-2458 et al. Art 410.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=3102646 - Order amending & approving Great Northern Paper, Inc's wetland management plan for Penobscot Mills Proj-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10587982 - Great Lakes Hydro America's final Wetlands Enhancement Monitoring Report for the Umbazooksus Lake to satisfy Article 408 of the Ripogenus Project license and Article 410 of the Penobscot Mills Project under P-2458 et al.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10909978 - Order approving Final Wetlands Monitoring Report re Great Lakes Hydro America, LLC's Penobscot Mills and Ripogenus Projects under P-2458 et al.

6.5.4 THREATENED AND ENDANGERED SPECIES

- IPAC Report
- MDIFW Report
- MNAP Report

6.5.5 CULTURAL AND HISTORIC RESOURCES

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8177205 - Cultural Resource Management Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8158340 - April 9, 1998 Revised Cultural Resources Management Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10809851 – FERC Order Approving Cultural Resources Management Plan

6.5.6 RECREATIONAL RESOURCES

- Recreation Monitoring Plan – hyperlink unavailable; included in Section 7.0
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8178403 – 1997 Recreation Facilities Fee Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13867626 - May 5, 2015 FERC Letter to Great Lakes Hydro America, LLC discussing the Recreation Facility Monitoring Reports for the Penobscot Mills and Ripogenus Hydroelectric Projects under P-2458 et al.
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13858681 - April 28, 2015 Penobscot Mills Project 2458, Article 415; Ripogenus Project 2572, Article 411; Recreation Facility Monitoring Reports
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12049156 - June 17, 2009 FERC letter to GLHA discussing the Recreation Facility Monitoring

Reports for the Penobscot Mills and Ripogenus Hydroelectric Projects under P-2458

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11983088 - April 2, 2009 Brookfield Renewable Power submit FERC Form 80 recreation facility data report for 2008 under P-2458
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10626803 - November 18, 2002 FERC approval of recreation facility monitoring report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10658577 - October 18, 2002 Recreation Facility Monitoring Report
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=8210070 - Great Northern Paper, Inc submits Art 420 compliance, which includes consultation w/ME Dept of Conservation re study of navigational hazards for Penobscot Mills Proj-2458.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=87074 - Great Northern Paper, Inc. informs FERC of change in methodology for mapping of rocks etc at Penobscot Mills Proj-2458 per Art 402.
- https://elibrary.ferc.gov/eLibrary/filedownload?fileid=3231230 - Order approving final navigational hazards report & maps re Great Northern Paper, Inc under P-2458.

6.6 LICENSE AND CERTIFICATION COMPLIANCE

- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15170599 - February 27, 2019 Letter to FERC regarding Run of River Excursions
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15116057 - From FERC Letter informing GLHA Minimum Flow Deviations not a violation
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15078658 - October 22, 2018 Letter to FERC regarding Minimum Flow Excursion
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14768965 - To FERC 20171201 FERC Project 2458-ME; Penobscot Mills Project, Generating Station Frequency Conversion and Upgrade Plans; North Twin Development
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14708540 - From FERC Letter to Kevin Bernier re the filed notifications of deviations from License Conditions for the Penobscot Mills Project et al under P-2458 et al.
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14529081 - To FERC 20170322 Penobscot Mills Project (FERC No. 2458); Millinocket Development; March 14-15, 2017 Flow Disruption due to Winter Storm
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14355457 - From FERC Letter informing GLHA, LLC. that the Run-of-River Operations deviations that occurred on 6/20/16, 6/27/16, 7/28/16, and 8/4/16 will not be considered violations of Article 403 of the Penobscot Mills Project under P-2458
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14336550 - To FERC Great Lakes Hydro America, LLC's August 4, 2016 Flow Disruption due to Lightning Storm Penobscot Mills Project (FERC No. 2458).
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14288479 - To FERC Great Lakes Hydro America, LLC 20160624 Penobscot Mills, Article 403 Compliance; Flow Distribution due to Millinocket Hydro Unit Trip under P-2458

- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14055694 - From FERC Letter informing GLHA, LLC. that the Run-of-River Operations deviations that occurred on 9/9/2015 are not violations of license Articles 403 and 408 of the Penobscot Mills Project under P-2458.
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14000950 - From FERC Letter to GLHA, LLC regarding the August 10, 2015 deviation from the run-of-river operation at the Millinocket Development, part of Penobscot Mills Project under P-2458
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13987900 – September 15, 2015 Penobscot Mills Project, Articles 403 and 408 Compliance; Flow Excursions due to Lightning Storm and Station Trips under P-2458
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13966411 - To FERC 20150824 Ripogenus Project 2572; Article 402; Penobscot Mills P-2458; Article 403 Compliance; Flow Excursion due to transmission line trip and station outages
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13961005 - To FERC 20150819 Penobscot Mills Project P-2458; Article 403; Millinocket Development Minimum Flow Excursion
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13540056 - From FERC Letter informing Brookfield Renewable Power, Inc. et al that the minimum flow excursion will not be considered violations of license article 403 re the Penobscot Mills Project under P-2458
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13445105 - To FERC 20140123 Penobscot Mills Project 2458; Article 403 Compliance; Millinocket Development flow excursion of Brookfield Renewable Power under P-2458
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13331928 - To FERC Report of Millinocket Development Excursion due to lightning strike dated 08/20/2013
- https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13202792 - To FERC 20130312 Minimum Flow and Run of River Excursion Events at Millinocket, Dolby, and East Millinocket Developments; Penobscot Mills P-2458

7.0 SUPPORTING DOCUMENTATION

- Shoreline Management Plan
- Recreation Monitoring Plan
- October 16, 1997 North Twin Upstream Fishway Repair/Modification Plan
- North Twin Boating Hazards Map
- USFWS IPaC Report
- MDIFW MESA Information
- MNAP Report
- Maine Department of Environmental Protection letter acknowledging applicability of 401

Great Northern
PAPER, INC.

One Katahdin Avenue
Millinocket, ME 04462-1398
(207) 723-5131
ISO 9002 Certified

Project No. 2458
GNP File No. 1-8603/1

September 25, 2001

The Secretary
Federal Energy Regulatory Commission
Mail Code: DLC, HL-11.2
888 First Street, N.E.
Washington, D.C. 20426

RE: Penobscot Mills Project No. 2458; Great Northern Paper, Inc.

Please find attached an original and seven copies of revised Exhibit G drawings and a revised Shoreline Management Plan for Great Northern Paper's (GNP's) Penobscot Mills Project (FERC No. 2458). These drawings and documents were revised as the result of field surveys of project hydro and associated facilities. These surveys were necessary in order to identify the assets to be conveyed from GNP to GNE, LLC as required by the Commission's order dated May 19, 2000 conditionally approving the transfer of the license. The following Exhibit G drawings have been revised and are attached:

FERC No. 2458-1057
FERC No. 2458-1058
FERC No. 2458-1059
FERC No. 2458-1060
FERC No. 2458-1061
FERC No. 2458-1062
FERC No. 2458-1063
FERC No. 2458-1064
FERC No. 2458-1065

The drawings reflect several changes to the Penobscot Mills FERC Project Boundary that GNP is requesting as the result of the field survey:

1. Removal of Dolby Pond shoreline area from FERC boundary – a portion of GNP's landfill in East Millinocket (licensed in 1984 prior to issuance of the Penobscot Mills license) is within the expanded project boundary and should be removed.

2. Adjustment of Future Development Area on Ferguson Pond – the future development area on Ferguson Pond was adjusted during the field survey as much of it was found to be swampy and unsuitable for development.

3. Adjustment of Developed Shoreline Areas – on developed sections of shoreline, actual survey data were used to depict the developed areas. Additionally, some end lots were adjusted to meet minimum size requirements for Maine Land Use Regulation Commission regulations.

Some sections of developed shoreline (e.g., south end of South Twin Lake near Route 11) were found to be unoccupied and unsuitable for development. These areas should be removed from the developed shoreline classification and included in the FERC project boundary.

GNP requests that one short section (approximately 100 feet) of shoreline on the east shore of Ambajejus Lake (in parcel 10 on the Shoreline Management Plan map) be removed from the FERC boundary as it was found to be within a highly developed section of shoreline during the survey.

4. Removal and addition of islands to FERC Project boundary – six islands on Ambajejus Lake (5 in Spencer Cove and 1 in the main part of the lake) and one island on North Twin Lake, which were previously designated as being within the FERC boundary, were found to be leased during the field survey. These islands should therefore be removed from the FERC Project boundary. Conversely, two islands on Ambajejus Lake and one island on Millinocket Lake should be added to the FERC Project boundary since they don't have leases on them as previously thought.

5. Removal of portions of Recreation Areas from project boundary – five recreation areas were set aside in 1966 at the North Twin impoundment for future recreation needs. Three of these (3, 4 and 5) had existing leases on them at the time. Recreation Area No. 3 has 17 leases (all granted in the 60's) leaving virtually no shoreline that isn't leased. Recreation Area No. 4 ~~has~~ one lease granted in 1936, while Recreation Area No. 5 has two leases which were granted in 1955 and 1966.

   Due to the large number of existing leases, GNP requests that Recreation Area No. 3 be dropped from the project boundary. Also, GNP requests that the three leases in Recreation Area Nos. 4 and 5 be excluded from the project boundary consistent with the Penobscot Mills license issued by the Commission in 1996 (which excluded all leases from the expanded project boundary).

Most of these adjustments are minor and, therefore, are difficult to see on the maps. Final shoreline footage figures (i.e., exhibit 4 in the Penobscot Mills Shoreline Management Plan) for developed shoreline areas reflect these survey adjustments. The increased shoreline detail provided by the field survey along with improved mapping accuracy also resulted in shoreline footages which were higher than previous estimates.

Based on the actual survey results, undeveloped shoreland in the expanded project boundary was found to be approximately 2,318 acres while the developed acreage was 901 acres. Each category was slightly increased from earlier estimates due to more accurate survey data, improved mapping ability, and the adjustments listed above. Future development and mill properties remained unchanged from previous estimates at 385 and 125 acres, respectively.

Other changes made to the Exhibit G drawings include (1) the addition of non-project future development areas on Millinocket Lake, North Twin impoundment, Quakish Lake and Ferguson Pond, (2) correcting the North Twin impoundment full pond level to 491.92 feet, (3) changes to make the drawings easier to read including a change in how the maps show project and non-project areas (especially islands), and (4) other minor corrections including designating that the North Twin transmission line right of way was not centered on the poles and towers as a result of the maintenance construction in 1998.

A revised Shoreline Management Plan for the Penobscot Mills Project (originally approved by the Commission on January 4, 1999) is also attached for Commission approval. This plan, which was originally required by Article 418 of the Penobscot Mills license, provides details on the 200-foot extension of the project boundary around the impoundments of the Penobscot Mills Project. As indicated by Article 418, the Commission determined that the project boundary should only be expanded on GNP-owned land around the project impoundments, and that existing leased lots should be excluded from the project boundary. The plan also describes how GNP manages and enforces uses and activities within the project boundary.

This plan, especially the detailed shoreline boundary map in Exhibit 3 and the Table for Highly Developed Shoreline Areas found in Exhibit 4, has been updated to reflect the field survey results and project boundary changes indicated above. This revised Shoreline Management Plan is also being forwarded concurrently to all agency recipients of the original 1997 plan for review and comment.

Sincerely,

Brian R. Stetson
Manager, Environmental & Government Affairs

KRB/blw
Attachments

cc: Mr. Herb Hartman, DOC, BP&L
Ms. Elizabeth Jones, FERC
Mr. Jeffrey Martin, GNP
Mr. Andrew Raddant, DOI
Mr. Gordon Russell, F&WS
Mr. John Williams, LURC
Town of East Millinocket
Town of Millinocket

Bcc: FERC Compliance Team (cover letter by E-mail only)

Complete packages to:

Marcia McKeague
Dan Corcoran
Kevin Bernier
Ben Lund
Gary Litke

Great Northern Paper, Inc.

SHORELINE MANAGEMENT PLAN

Penobscot Mills Project
FERC No. 2458-009

October 17, 1997

(Revised September 2001)

Submitted by
Great Northern Paper, Inc.
One Katahdin Avenue
Millinocket, Maine 04462-1398

Table of Contents

TABLE OF EXHIBITS

I. Introduction

A. Overview of Penobscot Mills Project

On October 22, 1996, the Federal Energy Regulatory Commission (FERC) granted the application of Great Northern Paper, Inc. (GNP) for a new license pursuant to the Federal Power Act for GNP to continue to operate and maintain the 70.6 megawatt (MW) Penobscot Mills Hydroelectric Project No. 2458-009, located on the West Branch of the Penobscot River and Millinocket Stream in Piscataquis and Penobscot Counties, Maine. FERC License, p. 1. A copy of the FERC license is attached as Exhibit 1. The Penobscot Mills Project consists of four hydropower developments (North Twin, Millinocket, Dolby and East Millinocket) and a storage development (Millinocket Lake Storage Development). Id. The Penobscot Mills Project, together with GNP's Ripogenus Hydroelectric Project, are part of an integrated system that GNP developed to provide baseload electrical power to meet a portion of the energy needs of GNP's paper mills in Millinocket and East Millinocket. FERC License, p. 1-2, 6-7. GNP has been involved in papermaking operations in Millinocket since 1900 and in East Millinocket since 1907. Environmental Impact Statement ("EIS"), p. 1-3. The Penobscot Mills Project was originally licensed by FERC in 1968. The current license granted October 22, 1996 is for a term of 30 years. FERC License, p. 2.

GNP did not propose any major new construction or project modifications as part of its FERC relicensing. FERC License, p. 2. The total installed generator capacity of the project is 70.6 MW and the average annual generation is about 386,400 megawatt-hours (MWh). FERC License, p. 6. The dependable capacity is 36.4 MW, based on a project flow of 2,800 cubic feet per second with an 85% exceedence value. Id. GNP

operates the Millinocket Lake and North Twin developments in a store and release mode which allows GNP to maximize annual energy generation by generally keeping the flow of water within the project's hydraulic capacity and thus maximizing baseload energy generation for the mills. FERC license, p. 7. The store and release method of operation also has the effect of modulating seasonal variations in streamflows thereby reducing the risk of downstream flooding. FERC License, p. 7.

GNP operates the Millinocket, Dolby and East Millinocket developments in the Penobscot Mills Project in a run-of-river (outflow equaling inflow) mode. Id.

B. Shoreline Management Plan History

Prior to the October 22, 1996 license, FERC had generally designated the project boundary around the Penobscot Mills Project's shorelines at or near the normal full pond elevation for each of the project's impoundments. FERC License, p. 26; Application Exhibit G. During the development of the EIS prepared in connection with the relicensing, certain intervenors and agencies recommended an expansion of the project boundary outward 500 feet around all of the project impoundments in order to protect aesthetic resources, water quality, wildlife habitat and recreational opportunity. FERC License, p. 27; EIS, p. 4-59. GNP proposed no expansion of the project boundary and instead proposed to rely on adherence to existing land use controls imposed by the Maine Land Use Regulation Commission (LURC). FERC License, p. 26.

In the new license, FERC rejected the recommendation to expand the project boundary by 500 feet around all project impoundments, citing significant costs and the absence of a clear need to provide such additional protection. FERC License, p. 27.

FERC expressed a concern that local zoning ordinances alone would not be an adequate substitute for GNP's obligation to control land use for areas around project impoundments in order to fulfill project purposes, including public access to project lands and waters and the protection of aesthetic, vegetative, and water quality resources. FERC License, p. 26-27. Thus, FERC required an expansion of the project boundary and, pursuant to Article 418, required GNP to submit, by October 22, 1997, a Shoreline Management Plan (the "Shoreline Plan") for GNP's lands within the expanded project boundary. FERC License, Article 418.

The expanded project boundary includes areas within 200 feet of the normal full pond elevation on GNP-owned lands on the project impoundments but excluding existing leased lots. FERC License, p. 28. The license generally requires the Shoreline Plan to include for these areas a 200 foot building setback restriction and a 100-foot vegetative buffer restriction, and to provide for appropriate public access to project impoundments for recreation. FERC License, Article 418. The license also requires that the Plan include substantiation for any proposed deviations from the buffer zone restrictions. Id.

C. Overview of Shoreline Plan

This Shoreline Plan is submitted to satisfy the requirements of Article 418 by setting forth the proposed means by which GNP will manage those portions of its lands that are within the expanded project boundary in compliance with the license. GNP proposes to implement a Shoreline Management Program whereby GNP will oversee and control the uses allowed within the project boundary. Under the Program, GNP will be responsible for ensuring that: (1) no buildings are constructed within 200 feet of the normal full pond elevation on lands within the project boundary except as expressly

allowed by FERC and by this Plan; (2) a vegetative buffer zone will be established on project lands whereby no timber harvesting will occur within 100 feet of the normal full pond elevation and timber harvesting outside of that zone will be conducted in compliance with applicable state law; and (3) other uses will be allowed only if they are allowed under the FERC license and this Plan, and if they are allowed under applicable federal, state and local laws.

This Shoreline Plan describes how GNP will manage lands within the project boundary to provide for the continued effective management of the renewable forest and water resources on project lands while recognizing and protecting the recreational and other natural resource values on those lands. The overall objectives of the Shoreline Plan are:

- to protect water quality and quantity for present and potential uses, including hydroelectric power generation consistent with the terms of GNP's FERC license, and including public access to project lands and impoundments;
- to prohibit additional commercial and residential structures within 200 feet of the normal full pond elevation on project lands except as set forth in this Shoreline Plan;
- to prohibit timber harvesting within 100 feet of the normal full pond elevation on project lands and to describe how GNP will conduct forest management activities, including timber harvesting, on lands outside of the 100-foot vegetative buffer zone;
- to provide for the continued protection of the natural resource and recreational values of these areas consistent with the land use activities described in this Shoreline Plan and allowed under GNP's FERC license.

II. Development of Shoreline Management Plan

This Shoreline Plan was developed by GNP to comply with Article 418 of GNP's license. In accordance with that Article, on August 19, 1997, GNP sent a draft of the Shoreline Plan to the Department of the Interior (DOI), the Maine Land Use Regulation Commission (LURC), and the Towns of Millinocket and East Millinocket for their respective comments. Exhibit 2 contains the comment letters provided to GNP by these agencies and Towns. In addition, GNP also provided a copy of the draft Shoreline Plan to the Conservation Law Foundation (CLF) on behalf of the Conservation Coalition. A copy of the comment letter received on the Plan from CLF, on behalf of itself, the Appalachian Mountain Club and American Rivers, is also included in Exhibit 2. Set forth below is a description of the major recommendations on the Shoreline Plan, and a discussion of how those recommendations have been addressed in the Plan.

A. Consultation with Department of Interior

DOI's comments on GNP's draft Shoreline Plan are contained in a letter dated September 25, 1997. The major recommendations and GNP's responses are as follows:

1. *DOI defers to FERC regarding GNP's proposal to exclude certain highly-developed shoreline areas and the mill properties from the expanded project boundary, but notes that, by eliminating certain areas from the project boundary, one of the project purposes – maximizing public access – is compromised.*

As noted in DOI's letter, even if highly-developed shoreline areas and the mill properties are excluded from the expanded project boundary, there are still approximately 2,600 acres[1] of GNP-owned project shoreline that are within the expanded project

[1] The 2,600-acre figure was taken out of GNP's draft Shoreline Plan circulated to DOI and others for comment. Upon review of the acreage figures, GNP has determined that this number underestimated the total acreage that would be included within the expanded project boundary even if the mill properties and the highly-developed segments are excluded. As corrected, this figure should have been approximately 2,700 acres. GNP has used the corrected information in the remainder of this Plan.

boundary. The additional exclusion of approximately 385 acres from the project shoreline to allow for future development – which GNP has added to this Plan in response to comments from the Town of Millinocket (see Section II.C below) – will still leave over 2,300 acres of shoreline within the expanded project boundary. Clearly, there is ample shoreline to accommodate public access to project lands and impoundments. In the circumstances, GNP believes that there is adequate justification for excluding certain limited portions of shoreline, as further explained below and in Section III of this Plan.

The exclusion of the mill properties in the Towns of Millinocket and East Millinocket is justified because these properties pose very different risks and concerns than does the remainder of the project shoreline. Access through either of the mill sites would raise a host of safety and security issues for GNP and the public. These industrialized sites can be dangerous for those who are not properly trained and advised of the various hazards on the site. Undertaking such training for members of the public who might wish to pass through these properties in order to access project impoundments is clearly not practical. To suggest that providing public access through either of these sites might be more convenient ignores these important safety and security issues.

Furthermore, as noted in Section III.A.1 of the Shoreline Plan, GNP needs to maintain its flexibility to conduct its industrial activities on these sites free from the kinds of development and use restrictions that are appropriate for other portions of the expanded project boundary.

Lastly, the mill sites do not provide recreational opportunities to the public in the way that other portions of the shoreline around the project impoundments do. As to the possible need to use these sites for public access to project impoundments in the future,

review of the project boundary map (Exhibit 3) reveals that there are areas adjacent to both mill sites where the project boundary will be expanded, and therefore public access points will be available even if the mill sites are excluded. Through Article 414, FERC has already determined what additional facilities are necessary to enhance public access. FERC License, Article 414. Among the improvements required are improvements to boat launches at Green Bridge and Dead Man's Curve, both of which provide public access to the West Branch below Stone Dam or the Back Channel Wildlife Management Area – the example used by DOI. Public access to the Back Channel is also available from other areas such as Millinocket Stream/Shad Pond. Therefore, FERC has already addressed public access to these areas and there is no need to create a safety and security hazard by seeking to provide access through GNP's mill property.

In short, providing for public access to project impoundments through GNP's mill properties is unworkable, unsafe, and unnecessary given the availability and adequacy of existing access points, and given the existence of ample shoreline within the project boundary which can be used to address future access needs. Exclusion of the mill sites will decrease the total amount of land area within the expanded project boundary by approximately 125 acres. GNP therefore continues to exclude the mill properties from the expanded project boundary.

With respect to highly-developed segments of the project shoreline, DOI has deferred to FERC on the appropriateness of excluding these segments as units rather than individually excluding the numerous lease lots on the project impoundments. The basis on which GNP has excluded these areas is set forth in Section III.A.2. To summarize, it would be unnecessarily complex and burdensome for FERC and GNP to try to administer

a highly convoluted project boundary such as would be created by excluding individual lease lots in areas that are highly developed. As noted in the Environmental Impact Statement, there are over 800 leases of camp lots on the Penobscot Mills project impoundments, and it simply is not practical to seek to exclude each of these leases individually. Because the vast majority of the unleased areas that are within segments to be exempted are not developable due to site conditions, there would be very little public benefit to be gained by such an approach. The existence of over 2,300 acres of shoreline area that will remain within the expanded project boundary under this Shoreline Plan demonstrates that there will be more than enough area available to accommodate public access needs in the future. GNP therefore seeks to treat highly-developed segments as a unit and exempt them from the expanded project boundary.

With respect to areas reserved for future development, the explanation for GNP's exemption from the expanded project boundary of parcels to allow for possible future development is set forth in Sections II.C. and III.A.3 below. Again, GNP emphasizes that, even with the areas exempted as outlined above, there is still ample project shoreline available to address possible future access needs within the expanded project boundary. In addition, there is also public access that is afforded simply because of the existence of numerous leased lots on the project impoundments. GNP does not believe that public access will be compromised by the exclusion of these limited areas – approximately 385 acres in total area – from the expanded project boundary.

2. *DOI recommends that GNP continue to seek opportunities to expand its resource protection measures through the use of shoreline buffer zones and conservation easements at the Penobscot Mills project.*

GNP agrees that it is important to continue to seek ways to work with State and federal agencies and other entities to develop appropriate resource protection measures within and outside the project area. As it has in the past, GNP will continue to seek those opportunities in the future.[2]

3. *DOI recommends that GNP make every effort to accommodate the public's needs for access to project lands and waters.*

GNP agrees and will continue to work to accommodate the need for public access to project lands and waters as appropriate. Through Article 415 of the Penobscot Mills Project license, GNP is required to conduct monitoring studies and file a report every six years addressing, among other things, the adequacy of GNP's recreational facilities to meet recreation demand. The adequacy of public access to project impoundments will be assessed as part of GNP's obligations under Article 415.

4. *DOI recommends that GNP clarify whether forest management activities, including timber harvesting and road construction, within the expanded project boundary, would be subject to Article 419 and would require consultation with State and federal resource agencies.*

GNP agrees that Article 419 of the Penobscot Mills license governs construction of new roads and the replacement, expansion, realignment, or maintenance of existing roads on lands within the project boundary. GNP has explained in the Shoreline Plan how it will comply with Article 419 with regard to any such road work on project lands. Section IV.B.2 and IV.B.3.

With respect to forestry, neither Article 419 nor any other portion of the FERC license requires GNP to consult with resource agencies on its forest management

[2] DOI also recommends that GNP show all conservation areas on the map submitted with the Shoreline Plan. GNP declines to do so. Article 418 requires GNP to submit a map showing the project boundary. Nothing in Article 418 suggests that other areas subject to separate voluntary or regulatory conservation measures – many of which are not within the project boundary – should be shown on the map.

activities, including timber harvesting. Indeed, Article 418 sets forth the requirements for the Shoreline Plan and specifically imposes a vegetative buffer zone of 100 feet on project land. That buffer zone has been incorporated into GNP's Shoreline Plan. Section III.B.2. Had FERC intended to restrict forest management activities beyond the 100-foot vegetative buffer zone, GNP assumes it would have done so in Article 418 or elsewhere in the project license. It did not. Therefore, the Shoreline Plan explains that GNP will continue to conduct its forest management activities, including timber harvesting, on the 100-foot portion of the expanded project boundary that is not within the vegetative buffer zone. GNP will conduct these activities in compliance with applicable requirements of State and local law. Section IV.A.2.

B. Consultation with Maine Land Use Regulation Commission

LURC's comments on GNP's draft Shoreline Plan are contained in a letter dated September 19, 1997. The major recommendations and GNP's responses are as follows:

1. *Although the Shoreline Plan generally provides a higher level of protection than LURC's own regulations, there may be instances where the Commission's regulations are more stringent than the Plan.*

GNP agrees that, as a general matter, the Shoreline Plan provides a greater degree of protection than would otherwise be provided by LURC's regulations. In those instances where LURC's regulations are more stringent, GNP agrees that the more stringent requirement will apply. Indeed, GNP acknowledges in the Plan that any proposed structures or activities on project lands will be allowed only if they comply with applicable requirements of federal, State and local laws and regulations. *See, e.g.*, page 36.

2. *LURC notes that it would have been simpler if the 200-foot expanded project boundary had coincided with LURC's 250-foot shoreline protection zone.*

While this comment may be true as a theoretical matter, GNP does not support any further expansion of the project boundary beyond what the license has already decided on this issue.

C. Consultation with The Town of Millinocket

The Town of Millinocket's comments on GNP's draft Shoreline Plan are contained in a letter dated September 22, 1997. The major recommendation and GNP's response are as follows.

1. The Town repeats a request it has made in the past that GNP be allowed to set aside shoreline areas to allow for future development.

In response to this request, and as further explained in Section III.A.3 below, GNP has excluded segments from the project boundary in order to accommodate possible future development on certain project impoundments. The segments excluded are shown in green on the attached project boundary map (Exhibit 3).

In total, GNP has excluded approximately 385 acres from the expanded project boundary in order to allow for possible future development. Two of the impoundments -- Millinocket Lake and North Twin Lake -- already have a significant numbers of camps. A small portion of Elbow Pond is also included because it is contiguous with the parcel exempted on North Twin Lake, and a small strip on Quakish Lake is reserved for possible future development near to the Town of Millinocket. GNP has also excluded several of the larger islands within Pemadumcook Lake, Millinocket Lake and Elbow Pond for future development since these islands are proximate to existing developed shoreline areas. Finally, GNP has excluded two small segments on Ferguson Pond to allow for future commercial or other development near an existing commercial area owned by the

water company. Exclusion of these areas still leaves over 2,300 acres of shoreline on the project's nine subimpoundments that is within the expanded project boundary.

While seeking to accommodate the Town's request to set aside areas for future development, GNP has sought to cluster these areas, and to locate them adjacent to existing developed areas and away from more remote areas. Furthermore, GNP notes that any such development, while outside of the project boundaries and therefore outside of FERC's jurisdiction, would remain subject to applicable requirements of State law, including requirements of the Land Use Regulation Commission. Thus, even if these areas are excluded from the project boundary, any development of the area will still be subject to review and approval from LURC.

D. Consultation with the Town of East Millinocket

The Town of East Millinocket responded to GNP's draft Shoreline Plan by letter dated September 29, 1997. The Town reviewed the Plan but did not have any comments or objections.

E. Comments of Conservation Law Foundation on Behalf of Certain Environmental Groups

Although not required by the terms of the FERC license, GNP provided a copy of its draft Shoreline Plan to CLF on behalf of the Conservation Coalition. GNP did so because of the pending Request for Rehearing which seeks a formal consultation role for the Conservation Coalition. CLF (on behalf of itself, the Appalachian Mountain Club and American Rivers) provided comments on GNP's draft Shoreline Plan by letter dated August 29, 1997, but which was not provided to GNP until September 29, 1997. GNP assumes that the date on CLF's letter was simply a typographical error.

Because the Coalition has requested the opportunity to comment on GNP's Shoreline Plan, and in order to avoid having to go back and reopen the Plan should FERC grant the Coalition's request to consult on this Plan, GNP sets forth below its responses to CLF's comments.

1. *CLF contends that the general land use article (Article 419) allows for exemptions to the buffer zone restrictions that defeat the purposes of implementing the buffer zone.*

This argument has already been made to FERC through CLF's Request for Rehearing and GNP assumes that FERC will make its determination on this particular issue in the context of its decision on that Request. GNP therefore does not believe it is appropriate to enter into a lengthy discussion of the justification for the general land use article in the context of this Shoreline Plan. GNP does note, however, that through the issuance of the license, FERC has already determined that the general land use article should be included in the Penobscot Mills license. CLF has not provided any information to support treating GNP differently than other licensees with regard to the inclusion of this article.

Furthermore, the two specific provisions about which CLF expresses concern – Article 419(d)(7) and Article 419(d)(5) – are both provisions under which FERC retains a measure of control over the amount and type of development that can occur. GNP is obligated by the terms of the license to submit a letter to the Office of Hydropower Licensing prior to conveying any interest in project lands under Article 419(d)(5) or (d)(7). GNP is also required to consult with certain federal and State resource agencies prior to submitting that letter. Any such development must also comply with other applicable provisions of federal, State and local law. In the circumstances, it is difficult

to understand why CLF believes there will not be appropriate controls on any action sought to be authorized under those sections of the license.

2. *CLF contends that including highly-developed segments within the project boundary will ensure that new development will be consistent with the recreational and natural resource values of the project.*

The FERC license specifically requires GNP to exclude leased areas from the project boundary. FERC License p. 28. GNP presumes that FERC made this decision based at least in part on the extensive testimony from existing camp owners who were concerned about having their camp lots come within FERC's jurisdiction and oversight. FERC's decision on this issue is clear and has already been made.

The Shoreline Plan simply builds on the FERC's decision on this issue by seeking to exempt highly-developed areas as units rather than creating a convoluted project boundary that will be difficult to administer. GNP's reasons for excluding these areas are explained in Section II.A.1 above and in Section III below, and are not reiterated here.

3. *CLF requests that the shoreline buffer be extended to those portions of the shoreline of Millinocket Lake on which GNP owns a divided interest.*

GNP does not own a divided interest in any land on Millinocket Lake and this comment is therefore not applicable. GNP can only assume that CLF is using incorrect information since GNP's ownership is a matter of public record.

Even if GNP did own a divided interest in lands on the project impoundments, GNP disagrees that such lands should be included within the expanded project boundary. The FERC license makes clear that the expanded project boundary applies only to GNP-owned lands. If FERC intended to also include lands on which GNP owns a divided interest, it would have done so in the license.

4. *CLF argues that the Conservation Coalition should be provided notice and an opportunity to comment on actions that may affect public areas and the protection of aesthetic, vegetative and water quality resources of the project.*

In the Penobscot Mills project license, FERC has made a specific determination of the appropriate resource agencies and others that should be notified and consulted in connection with the numerous actions to be taken under the project license. GNP will provide notice and will consult as required under the license. Any additional notice or consultation is not required and GNP opposes any such additional notice and consultation requirements.

5. *CLF requests that the Plan include as one of its overall objectives the protection of the unique, undeveloped overall character of the project area.*

GNP declines to make this change. The project area is a working forest that has been managed by GNP and others for many years. There are also currently over 800 leased lots on the project impoundments. It is simply not accurate to suggest that the entire project area is undeveloped. With respect to areas reserved for possible future development, GNP has specifically steered away from the most remote portions of these impoundments, but the fact remains that portions of the impoundments are already developed. The additional objective requested by CLF is neither factually accurate nor pertinent to the objectives of the Shoreline Plan.

6. *CLF requests that the Plan be amended to state that structures and uses allowed on project lands are those permitted under the standard land use article or those that are required by and that otherwise comply with federal, State and local law.*

GNP clarified the language at page 22 of the Plan to state that structures and uses allowed are those permitted under FERC's general land use article and that otherwise comply with federal, State or local law.

7. *CLF requests that the Plan state that public access within the project boundary will remain open to the public unless the areas need to be closed for the purpose of safety or the protection of property or for other "similar" reasons not currently foreseen by GNP.*

GNP has made the requested change at page 28 of the Plan.

III. Determination of Project Boundary and Buffer Zones

A. Project Boundary

FERC has determined that a 200-foot expansion of the project boundary on GNP-owned lands around the Penobscot Mills Project's nine subimpoundments is appropriate, and that the project boundary should exclude lots currently under lease on these impoundments. Because of special considerations discussed below regarding GNP's mill properties in Millinocket and East Millinocket and segments of the project shoreline and islands that are highly developed with camp lot leases, certain limited portions of the GNP-owned project shoreline are excluded from the project boundary. In addition, in response to a request from the Town of Millinocket, GNP has also excluded segments on certain project impoundments to allow for possible future development. Even excluding these areas, the expanded project boundary encompasses an area of over 2,300 acres.

Attached as Exhibit 3 is a map depicting the project boundary as redrawn to comply with FERC license Article 418(1). The map shows the areas on which the project boundary has been expanded 200 feet outward from the normal full pond elevation on GNP-owned lands on each of the project's nine subimpoundments. The map also shows the following areas excluded from the project boundary: (1) the mill properties (grey

cross-hatched areas),[3] the 200-foot shoreline portions of which total approximately 125 acres, (2) areas that are highly-developed with camp leases (blue), which total approximately 901 acres, and (3) areas excluded to allow for future development (green), which total approximately 385 acres. The basis for excluding each of these areas is set forth below.

1. Exclusion of Mill Properties from Project Boundary.

GNP's mill properties in the Towns of Millinocket[4] and East Millinocket pose very different considerations with respect to allowable uses and current conditions than does the remainder of the project shoreline around the project's nine subimpoundments. They are industrial properties on which GNP has conducted its papermaking operations for many decades, and they do not represent a recreational or aesthetic resource to the public. Because of these different considerations, and because GNP must retain the flexibility to erect structures and conduct its papermaking activities free from the kinds of development and use restrictions that are appropriate for the remainder of the project shoreline, GNP has excluded these two properties from the expansion of the project boundary, as shown on Exhibit 3. Other GNP-owned land within the Town of Millinocket is treated in the same fashion as the remainder of the GNP-owned land around the project impoundments and is included within the expanded project boundary.

[3] Note that the grey cross-hatched area in the Town of East Millinocket includes both the mill property and the Town's industrial park which is located more than 200-feet back from the impoundment shoreline.
[4] With respect to the mill property in Millinocket, there is a small segment of the shoreline of Ferguson Pond along the northernmost shore that is adjacent to and contiguous with the mill property. This segment contains a portion of State Route 11 which is immediately adjacent to the impoundment and between the impoundment and GNP's Golden Road. Although a portion of this parcel is owned by GNP, the area is excluded from the expanded project boundary because it is part of the mill property.

2. Exclusion of Highly-Developed Segments from Project Boundary

As noted in the EIS, GNP has granted over 800 leases of camp lots on its land around the project's impoundments and on islands within the impoundments. EIS, p. 3-48. In many instances, these leases are concentrated on certain portions of the project shoreline and islands. Segments of highly-developed shoreline exist on seven of the project's nine subimpoundments: Millinocket Lake, Ambajejus Lake, Pemadumcook Lake, North Twin Lake, South Twin Lake, Quakish Lake and Dolby Pond. On some of these highly-developed segments of the shoreline, there are small pockets between existing leases which are not currently leased. Similarly, some of the islands that include leased lots also include areas that are not currently leased. The vast majority of these unleased pockets are not developable due to lot size, slope, wetlands or other site conditions.

The FERC license directs that existing camp lot leases be excluded from the project boundary. On segments that are highly developed, however, attempting to exclude leased lots individually would create a project boundary that goes in and out avoiding numerous leased lots in order to include small pockets of largely undevelopable land in areas that are already devoted to camp lots. Similarly, for islands that contain leases, seeking to treat the leased areas as excluded from the project boundary while including any remaining areas as within the project boundary would create a convoluted project boundary. The result would be a shoreline management scheme that is both unnecessarily complex and burdensome to administer.

Given the difficulty and confusion that would be created for FERC, GNP and lessees by seeking to differentiate leased and unleased segments within highly-developed

areas and islands with leases, GNP has instead treated such areas as units. For islands, GNP has treated most islands on which there are leases as excluded from the project boundary, regardless of whether a portion of the island is not subject to an existing lease. Islands on which there are no current leases are included within the project boundary.

For GNP-owned shoreline areas around the impoundments, GNP has treated each area on which there are leases as a separate shoreline parcel. Where there are two or more leases on a given parcel, GNP has treated the parcels as a unit rather than treating the leased lots individually. These areas are marked in blue and sequentially numbered by impoundment on Exhibit 3.

As noted above, some of the highly-developed shoreline segments include areas that are not currently leased. Attached as Exhibit 4 is a Table which provides, for each of these parcels (other than islands) containing one or more leases, an approximation of: (1) the total amount of shoreline footage in the parcel; (2) the amount of shoreline footage that is currently leased, and (3) the amount of shoreline footage, if any, that is not currently leased.[5] For each impoundment, summary information is also provided estimating the percentage of the impoundment shoreline that is exempted from the project boundary and the percentage of these segments that is exempted but not currently under lease. The Table describes only those portions of the project boundary that are excluded

[5] GNP has made revisions in the table and to Exhibit 3 since the draft was circulated for consultation. These changes are minor and reflect corrected information on leased and unleased shoreline areas. One minor inaccuracy in Exhibit 3 that was not corrected is the expanded project boundary shown at the town line between Millinocket and Indian Township No. 3 on Quakish Lake just to the east of the parcel labeled Parcel 1. The portion of the expanded project boundary on the town line that extends into the Town of Millinocket from Indian Township No. 3 (approximately ½ acre of land) is actually land that is not owned by GNP. Although the lot has no shore frontage, it does extend to within 200 feet of the impoundment and would therefore be within the expanded project boundary if it were owned by GNP, which it is not. The expanded project boundary should therefore stop at the Millinocket/Indian Township No. 3 town line. This does not affect the long strip of GNP-owned shoreline that is within the Town of Millinocket along Quakish Lake and Ferguson Pond.

because of the exclusion of the highly-developed segments shown in blue on Exhibit 3. GNP has provided separately in Section III.A (page 16-17) above information on the total acreage that is exempted from the expanded project boundary based on exclusion of the highly-developed segments (blue segments), the mill properties, and the areas for future development (green segments).

As can be seen from Exhibits 3 and 4, the highly-developed segments represent in total only a fraction of the total project boundary. With regard to the portion of these segments that is not currently leased but is exempted from the project boundary, these portions will remain subject to applicable development restrictions of State and local law. For these segments, a significant administrative benefit to both FERC and GNP will be gained by treating the segments as a unit rather than excluding individual leases.

3. Exclusion of Areas for Possible Future Development

The Town of Millinocket, in its comments on the draft Shoreline Plan, requested that GNP be allowed to reserve areas for future development. In response to this request, GNP has excluded segments from the project boundary that can be used for possible future development on certain project impoundments. In total, GNP has excluded approximately 385 acres of project shoreline from the expanded project boundary to allow for such future development. These areas are shown in green on Exhibit 3.

Two of the impoundments -- Millinocket Lake and North Twin Lake -- already have a significant number of camps and GNP has reserved for future development areas adjacent to this existing development. A small portion of Elbow Pond is also included because it is contiguous with the parcel exempted on North Twin Lake. A small strip on Quakish Lake is reserved for possible future development near to the Town of

Millinocket. GNP has also excluded several of the larger islands within Pemadumcook Lake, Millinocket Lake and Elbow Pond for future development since these islands are proximate to existing developed shoreline areas. Finally, GNP has excluded two small segments on Ferguson Pond to allow for future commercial or other development near an existing commercial area owned by the water company. Exclusion of these areas still leaves over 2,300 acres of shoreline on the project's nine subimpoundments that is within the expanded project boundary.

GNP has sought to cluster these areas, and to locate them adjacent to existing developed areas and away from more remote areas. Furthermore, any development in these areas, while outside of the project boundaries and therefore outside of FERC's jurisdiction, would remain subject to applicable requirements of State law, including requirements of the Land Use Regulation Commission. Thus, even if these areas are excluded from the project boundary, any development of the area will still be subject to review and approval from LURC. It is worth noting that none of the impoundments on which GNP has reserved land for possible future development was rated by LURC as a remote or undeveloped lake in LURC's Wildlands Lake Assessment. In excluding these areas, GNP has sought to balance the Town's interest in accommodating possible future development with the preservation of the important recreational and aesthetic values of the project shoreline.

B. Buffer Zone Restrictions

GNP proposes to meet FERC's requirements relating to management of the shoreline areas within the project boundary through the imposition of buffer zones as described below, and the implementation of a Shoreline Management Program as

described in Section IV. Within the expanded project boundary, FERC specifically requires GNP to create two buffer zones to address building setbacks and timber harvesting within the project boundary. The license generally requires a 200-foot building setback restriction and a 100-foot vegetative buffer zone within which no timber harvesting can occur. GNP will designate and enforce these restrictions as follows.

1. Building Setback

GNP will comply with FERC's requirement for a 200 foot building setback through the implementation of its Shoreline Management Program which specifically describes the uses that would be allowed on project lands. Under this program, the structures and uses allowed are those permitted under FERC's standard land use article (Article 419 of the Penobscot Mills license attached as Exhibit 1), and that otherwise comply with federal, State or local law. GNP, with FERC's oversight, will remain responsible for controlling the amount, type and location of any structures and activities on project lands in accordance with the Shoreline Management Program described in Section IV of this Shoreline Plan.

GNP employs managers, professional foresters, engineers and technicians with expertise in managing GNP's forest land, its pulp and paper mills, and its hydroelectric facilities. These land management and environmental professionals will be responsible for overseeing GNP's program to assure that the use of project lands is in compliance with FERC license requirements, including this Shoreline Plan, and other applicable requirements of law.

2. Vegetative Buffer Zone

In accordance with Article 418, GNP will maintain a 100-foot vegetative buffer zone within the expanded project boundary around the nine subimpoundments that comprise the Penobscot Mills Project. Within this zone, timber harvesting will not be conducted. While no timber harvesting would be allowed within the vegetative buffer zone, minimal tree and brush clearing to allow for the structures and activities otherwise permitted under the FERC license and this Shoreline Plan will be permitted.

GNP's staff of professional foresters will be responsible for overseeing timber harvesting activities within the project boundary and for ensuring that no harvesting occurs within the vegetative buffer zone. GNP has over 100 years of experience in managing forest land and over 30 years of managing timber harvesting on its lands in compliance with applicable State and local environmental laws and regulations.

Consistent with GNP's practices on all of its lands, when GNP plans to conduct harvesting activities on project lands, it will first identify the requirements that govern harvesting practices on those lands, including the requirements of this Shoreline Plan and any applicable State and local laws. GNP foresters will prepare written management plans describing areas to be harvested, the type of harvesting method to be used, the volumes of wood to be removed, and measures to be used to protect sensitive areas, including the 100-foot vegetative buffer. Where necessary, vegetative buffer zones will be marked by flagging or painting the boundary line.

Outside of the vegetative buffer zone, timber harvesting will be conducted in accordance with applicable requirements of the Maine Forest Practices Act, the Land Use

Regulation Law and any applicable local ordinances, as further described below in Section IV.A.2.

C. Overview of Shoreline Management Program and Enforcement

In order to ensure that the requirements of the FERC license and this Shoreline Plan are met, GNP will implement the Shoreline Management Program described in detail in Section IV below to manage the amount, type and location of uses and structures on project lands. The general program elements are as follows.

When a project is proposed to be conducted on lands within the project boundary, either by GNP or another entity, GNP will review the proposal and the proposed site to determine whether the structure or activity is appropriate for the location. A particular activity may or may not be considered appropriate for any given location based on a variety of site-specific or more general factors. Assuming that GNP determines that the proposed activity or structure is appropriate for a given location, GNP would then determine whether it is allowable under the FERC license and this Shoreline Plan. If the proposal is of a type that requires GNP to notify FERC or to obtain prior approval from FERC under Article 419, then GNP will be responsible for ensuring that such notification is properly and timely made, and that any necessary FERC approval is obtained.

Once GNP has reviewed the proposal and obtained any necessary FERC approval, GNP will allow the use to proceed provided that certain requirements are met. Requirements may vary depending on the type of project involved, but in each case GNP will require that, prior to the start of any construction, all necessary federal, State or local permits or approvals be obtained and, for projects conducted by others, that notification is provided to GNP that all such approvals have been obtained.

GNP will also require that notification be provided when construction is completed and, for projects conducted by others, that they certify to GNP that the project has been completed in accordance with any applicable laws, permits, or approvals. GNP will then undertake to review each site to ensure that all program requirements and FERC license requirements have been met. As part of this program, GNP will be responsible for taking appropriate action to ensure that FERC requirements, as well as other federal, State and local requirements are met.

Because GNP will require that anyone wishing to conduct activities or erect structures within the project boundary demonstrate that all necessary federal, State or local approvals have been obtained, GNP anticipates that appropriate federal, State and local agencies will be the primary means of ensuring compliance with regulatory requirements. GNP, however, will implement the Shoreline Management Program described above and in Section IV to ensure that activities within the project boundary are conducted in compliance with the FERC license and this Shoreline Plan.

If at any time GNP becomes aware that any such structure or activity is in significant violation of GNP's program or applicable law, including the FERC license, GNP will take appropriate actions to ensure that such violations are promptly addressed. Possible actions to address significant non-compliance include:

- notification to the grantee of non-compliance with GNP requirements or federal, State or local laws;
- withdrawal of permission to continue activity on GNP lands (e.g., cancellation of lease, termination of contract)
- notification to appropriate federal, State or local agencies of possible violations.

Shoreline Management Program Highlights

1. GNP review of proposed structure or activity for
   - site/structure appropriateness
   - compliance with GNP programs/plans
   - compliance with FERC license requirements generally
   - compliance with Shoreline Plan requirements specifically
2. Require that federal, State and local permits or approvals be obtained
3. Require certification to GNP that all permits and approvals have been obtained
4. Notify GNP following project completion and certify compliance with approvals
5. GNP site review following construction to determine compliance
6. GNP to take appropriate actions to ensure correction of significant noncompliance

IV. The Shoreline Management Program: Allowed Uses and Conditions on Project Lands

GNP will manage activities within the project boundary in accordance with the Shoreline Management Program described in this section which is designed to comply with the terms of GNP's FERC license. Under Articles 418 and 419 of the FERC license, GNP retains the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands provided that the requirements of the license are met. In the following sections, GNP sets forth the program it will implement to manage these allowable uses of project lands in compliance with FERC's requirement that such uses and occupancies be consistent with the protection and enhancement of the scenic, recreational, and other environmental values of the project. FERC License, p. 57. As further described below, GNP will retain the responsibility for supervising and controlling the uses and occupancies of all project lands to ensure that FERC license requirements and requirements of this Shoreline Plan are met.

For ease of reference, GNP has separated out the major types of use that it anticipates will occur on project lands and has included individual sections describing its plans for conducting and managing such uses. Those uses are: (1) recreation and public access; (2) timber harvesting and associated roadbuilding; and (3) hydroelectric and associated facilities. In addition, GNP has provided a detailed description of how it will manage the development of these and other uses and structures on project lands in accordance with what is allowed under FERC's standard land use article, Article 419.

A. Major Land Uses Allowed on Project Lands

1. Recreation and Public Access

GNP has maintained a policy of open access to its lands for over 100 years and will continue to allow public access to lands within the newly-designated project boundary. With the exception of project lands on which there are project facilities relating to the generation of hydroelectric power, all of the lands within the project boundary are open to the public and will remain so, in accordance with the FERC license, unless particular areas need to be closed to the public for reasons of public safety, protection of property, safe management of the land for timber harvesting, or for other similar reasons not currently foreseen by GNP.

Currently, the public uses the project area for a variety of recreational purposes. As described in the final Environmental Impact Statement (EIS), uses include fishing, swimming, boating, hunting, ice fishing, camping, hiking, snowmobiling, canoeing, cross-country skiing, waterskiing, sailing, and sightseeing. EIS, at 3-34. GNP expects that all of these uses will continue to occur with the potential for moderate increases in levels of use on both project lands and non-project lands. GNP has no reason to believe that significant increases or decreases in the level of use will occur.

The Penobscot Mills Project is part of GNP's land ownership near Millinocket and East Millinocket. Access to the project's nine subimpoundments is over GNP's land management roads, State Road, or Route 11. Also, Route 157 between Millinocket and East Millinocket provides access to Dolby Pond.

In addition to road access, GNP and others currently maintain facilities that allow for public access and recreation on the project's impoundments. Those facilities consist of the following:

1. Campsites
2. The South Twin Lake picnic area
3. Ambajejus Lake beach
4. A public boat launch at Ambajejus Lake
5. A public boat launch at Partidge Cove on South Twin Lake
6. A private boat launch (Barton's Marina) on South Twin Lake
7. A private boat dock at the North Woods Trading Post on Ambajejus Lake
8. A private boat put-in at Norcross on Elbow Pond
9. Two public boat launches, a private boat launch, and a boat put-in on Millinocket Lake
10. A public boat put-in at Green Bridge on Quakish Lake
11. Two public boat put-ins on Dolby Pond
12. A picnic area on Dolby Pond

In addition to these existing facilities, the FERC license required GNP to construct additional recreational facilities or improvements as set forth in Article 414 of the license by October 22, 1998. Those facilities are as follows:

1. Space for three vehicles and five trailered vehicles at the existing Dead Man's Curve boat access site (#11 above) on Dolby Pond;
2. Space for four vehicles at the existing Route 157 boat access site (#11 above) along Dolby Pond; and

3. Remove boulders and other obstructions at the shoreline and provide six additional gravel vehicle spaces to the parking area at the existing Green Bridge boat access site (#10 above) above Quakish Lake.

Should it become necessary at any time during the license term for GNP to repair, reconstruct or maintain existing recreational facilities or other existing facilities within the project boundary, GNP retains the right to do so. FERC approval for such activities would not be required.

GNP will continue to allow public access to its lands within the project boundary for the same kinds of recreational experiences as are currently enjoyed by the public. Public use of the lands within the project boundary is heavy (EIS, p. 3-35), and GNP will continue to monitor the types and amount of use of project lands in accordance with Article 415 of the FERC license. Pursuant to Article 415, GNP, in consultation with various federal and State agencies, is required to begin monitoring studies within 6 years of license issuance to determine whether existing recreational facilities are adequate, and to file a recreational use report with FERC every six years which includes any recommendations for additional facilities. The adequacy of recreational facilities will be addressed through GNP's compliance with Article 415. Under the terms of GNP's FERC license, GNP is responsible for maintaining public access and managing recreational use on project lands.

GNP does not anticipate or intend that major changes in the levels or types of recreational use of project lands will occur, and it is not GNP's intent to promote or encourage a significant increase in the type or intensiveness of the recreational uses of the project lands. It is possible, however, that GNP or others may want to add to or improve the recreational facilities available on project lands during the term of the FERC license.

Such facilities would be allowed on project lands if and to the extent that they are allowable under the FERC license, either through the means established under Article 415 discussed above, or through the FERC standard land use article (Article 419) as discussed below.

Most commercial and residential structures are not allowed on project lands under the terms of the FERC license. If, however, there is a need for additional structures on project lands in order to manage recreational use or for another purpose, GNP will evaluate whether such structures would be permissible under the FERC license and applicable law. Such structures might include, without limitation, caretaker quarters, service or storage buildings, service or access roads, power or communication lines, sanitary stations or privies, gates, entry contact stations, water taps, parking areas, directional signs, waste disposal areas, campsites, boat launching facilities, access sites and picnic areas. Such structures as are necessary and appropriate may be allowed provided they fit within the restrictions of the FERC license and provided that other provisions of federal, State or local law would allow for such structures. GNP's compliance with Article 415 is a separate matter the specifics of which will be addressed pursuant to that Article. With respect to Article 419, however, the applicable requirements, and the program GNP will implement to ensure compliance with those requirements, depend upon the type of structure or use proposed and are further described below in the sections detailing how the general land uses allowed under Article 419 will be managed.

2. Timber Harvesting

GNP will continue to conduct its forest management activities, including timber harvesting and associated road building, on its lands within and adjacent to the project area. Under the FERC license, GNP retains the right to conduct timber harvesting and to construct roads on project lands, although no timber harvesting will be conducted within the vegetative buffer zone as required under the FERC license. Outside of the 100-foot vegetative buffer zone, GNP will continue to conduct timber harvesting operations and associated roadbuilding in accordance with applicable State and local law and the terms of the FERC license.

Several different but overlapping State and local regulatory programs govern GNP's timber harvesting within the project boundary but outside of the vegetative buffer zone. First, LURC's timber harvesting regulations contain restrictions on timber harvesting in Protection and Development Subdistricts, including the P-GP, P-SL and D-RS subdistricts which cover most of the project lands outside of the vegetative buffer zone. LURC Regs. §10.17(A)(5). For Protection Subdistricts, the LURC land use standards allow for forest management activities, including timber harvesting, without a permit from LURC, provided that the requirements in the regulations are met. For timber harvesting activities that do not meet these requirements, and for timber harvesting in the D-RS Development Subdistrict, a permit must be obtained from LURC.

GNP anticipates that most of its timber harvesting within the project boundary will be conducted in compliance with the LURC standards and will not require a LURC permit. The principal requirements of the timber harvesting standards for Protection Subdistricts, in combination with the 100-foot vegetative buffer zone prohibition,

currently require that GNP observe the following restrictions on timber harvesting within the project boundary:

1. Except when surface waters are frozen, skid trails and skid roads shall not utilize stream channels bordered by a P-SL1 Protection Subdistrict except to cross such channels with a culvert or bridge according to the water crossing requirements of the LURC regulations.

2. In all P-SL1 and P-GP subdistricts, at distances between 100 feet and 200 feet of the normal high water mark (the latter being the limit of the project boundary), harvesting activities may not create single openings greater than 14,000 square feet in the forest canopy, and single canopy openings of over 10,000 square feet may not be closer than 100 feet apart.

3. In all P-SL1 and P-GP subdistricts, at distances between 100 feet and 200 feet of the normal high water mark (the latter being the limit of the project boundary), harvesting shall not remove more than 40 percent of the volume (determined as equivalent to basal area) on each acre involved of trees 6 inches in diameter and larger measured at 4 1/2 feet above ground level in a 10-year period. Removal of trees less than 6 inches in diameter, measured as above, is permitted if otherwise in conformance with the LURC regulations.

4. In all P-SL1 and P-GP subdistricts, no accumulation of slash shall be left within 50 feet of the normal high water mark of surface water protected by the P-SL1 or P-GP subdistricts, and outside of the 50 foot area, all slash larger than 3 inches in diameter shall be disposed of in such a manner that no part extends more than 4 feet above the ground.

5. Skid trails and other sites where the operation of timber harvesting machinery results in the exposure of mineral soil shall be located to conform to the specific requirements in the LURC regulations relating to slopes and filter strip widths.

6. Timber harvesting operations will be conducted such that slash is not left below the normal high water mark of standing water or stream channels downstream from where they drain 300 acres or more.

7. Timber harvesting operations and skid roads and skid trails will comply with requirements designed to avoid sedimentation or damage to stream channels.

8. GNP will conduct timber harvesting operations in such a way as to reasonably avoid sedimentation of surface waters.

9. Notice of timber harvesting operations shall be provided to LURC prior to commencement of operations.

GNP will follow LURC's requirements applicable to timber harvesting on project lands between 100 and 200 feet of the normal high water mark on lands within the project boundary.

If GNP conducts timber harvesting within the project boundary that does not meet the standards for Protection Subdistricts or if it conducts timber harvesting operations in the D-RS Development Subdistrict, GNP will first obtain a permit from LURC as required. Among the requirements for obtaining such a permit, GNP will have to demonstrate that the proposed harvesting will not have an undue adverse effect on existing uses, scenic character, and natural and historic resources in the area affected, and that the harvesting will not cause unreasonable soil erosion or reduction in the capacity of the land to absorb and hold water. 12 M.R.S.A. § 685-B(4)(C) & (D). Through these permitting requirements, LURC ensures that proposed harvesting activities will not result in undue adverse environmental and aesthetic impacts.

In the organized Towns of Millinocket and East Millinocket where the LURC standards do not apply, GNP conducts some limited timber harvesting activities. These activities will continue to occur in compliance with any applicable ordinance provisions of these Towns, except that, in accordance with the FERC license, GNP will conduct no harvesting activities within the 100-foot vegetative buffer zone.

In addition to the LURC timber harvesting regulations and any applicable requirements of the Millinocket and East Millinocket ordinances, GNP also complies with the requirements of the Maine Forest Practices Act, 12 M.R.S.A. § 8867 - 8869, which governs timber harvesting throughout the State. The Forest Practices Act and its

regulations contain performance standards for clearcutting, regeneration standards, pre-harvest notification requirements, requirements for annual reporting to the State, and requirements for regularly updated forest management and harvest plans prepared by licensed professional foresters. For lands within the project boundary but outside of the 100-foot vegetative buffer zone, GNP will comply with the requirements of the Maine Forest Practices Act and its implementing regulations.

3. Hydroelectric and Associated Facilities

The FERC license describes the hydroelectric facilities that are part of the Penobscot Mills Project. FERC License, p. 36-43. The license also contains several Articles that require GNP to construct certain additional facilities or improvements to address environmental, recreational or other project purposes.[6] GNP will comply with these requirements and any additional requirements that FERC may impose. GNP also reserves the right to construct or maintain other structures that may be required by any federal, State or local governmental body.

B. Structures and Uses Allowed Under Article 419

GNP retains the right under its FERC license to allow certain specific uses of project lands and water consistent with Article 419 of its FERC license -- the general land use article. Some of the activities discussed above would be covered by Article 419's requirements and, in addition, Article 419 allows for other uses and structures not specifically mentioned elsewhere in this Shoreline Plan. The following sections describe how GNP will implement its Shoreline Management Program so as to comply with the

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[6] *See, e.g,* Articles 406-407 (fishways); Article 408 (water levels in North Twin impoundment); Article 409 (togue monitoring); Article 410 (wetlands enhancement); Article 411 (artificial nesting structures); Article 412 (wildlife management in Back Channel); Article 413 (fish stocking); Articles 414-415 (recreational facilities); Article 417 (historic properties); and Article 420 (submerged hazards).

requirements of Article 419 relating to structures and uses covered by that Article. Although the focus of the discussion in this Section is on compliance with Article 419's requirements, it should be noted that all activities conducted by GNP or others on GNP land remain subject to all applicable requirements of federal, State and local laws and regulations.

1. Article 419(b) Uses

In accordance with Article 419(b) of the license for the Penobscot Mills Project, GNP retains the right, without prior FERC approval, to use and occupy project lands for landscape plantings, non-commercial piers, erosion control structures, and food plots or wildlife enhancement projects. The specific uses allowed pursuant to Article 419(b) are:

- Landscape plantings.
- Non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where such facility is intended to serve single-family type dwellings.
- Embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline.
- Food plots and other wildlife enhancement.

GNP will implement the program described below to allow the Article 419(b) uses on lands within the project boundary:

Before conducting or granting permission to conduct any of these activities on project lands, GNP will review the proposed use to ensure that: (i) it does not unreasonably compromise the project's scenic, recreational and other environmental values; and (ii) to the extent feasible and desirable, multiple use and occupancy of facilities for access to project lands and waters will be required. If the proposed use involves construction of bulkheads or retaining walls, GNP will first inspect the proposed

construction site, consider whether planting of vegetation or use of riprap would be adequate to control erosion at the site, and determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline.

If GNP determines that the proposed use meets these criteria, then GNP will conduct or allow the use provided that GNP or the grantee shall first be required to obtain all necessary federal, State and local approvals prior to construction. GNP will require, as a condition of such use, that the grantee provide a certification to GNP prior to the start of any construction or use governed by this section that all such approvals have been obtained.

GNP will require anyone undertaking a use subject to this section to notify GNP when the construction has been completed, so that GNP can review the project to ensure that all requirements of the license and this Shoreline Plan have been met. GNP will also require, as a condition of allowing the use governed by this section, that such use be maintained in good repair and comply with all applicable State and local health and safety requirements. If the use is by GNP rather than a grantee, then GNP shall remain responsible for maintaining the use in good repair and in compliance with applicable requirements.

SUMMARY OF PROGRAM FOR ARTICLE 419(b) USES

- GNP reviews proposed use for compliance with license and compatibility with project resources and multiple use objectives
- GNP allows the use subject to GNP or grantee obtaining any necessary federal, State or local approvals
- Grantee certifies to GNP that all such approvals have been obtained
- Grantee notifies GNP when construction is completed
- GNP reviews construction/use to ensure compliance
- GNP requires maintaining use in good repair as a condition of continuing the use

2. Article 419(c) Uses

In accordance with Article 419(c) of the license for the Penobscot Mills Project, GNP retains the right under both the license and the easement to erect, or to grant easements, rights-of-way across, or leases of project lands to allow others to erect, certain utility structures, roads, and transmission lines provided that GNP complies with the conditions of Article 419(c), including the requirement to provide annual notice to FERC by means of a report filed by January 31st of each year. Article 419(c) covers the following uses on project lands:

- Replacement, expansion, realignment, or maintenance of bridges or roads where all necessary State and federal approvals have been obtained.
- Storm drains and water mains.
- Sewers that do not discharge into project waters.
- Minor access roads.
- Telephone, gas, and electric utility distribution lines.

- Non-project overhead electric transmission lines that do not require erection of support structures within the project boundary.
- Submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less).
- Water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir.

For the uses described above, GNP will institute a program to ensure that such uses are consistent with the requirements of the license. The program will operate as follows.

Before undertaking or conveying any interest in project lands for the uses described in this section, GNP will consult with federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer. Following such consultation, and prior to undertaking or conveying any interest for these uses, GNP will review the proposed use to determine that it is not inconsistent with the report on recreational resources submitted with GNP's FERC application as part of Exhibit E. As part of the review and consultation described above, GNP may impose requirements on the use, such as requirements to screen adverse visual features or to modify the proposal as necessary to minimize adverse impacts to the visual, environmental or recreational resources of the project area.

If the review and consultation described above indicate that the proposed use can be conducted consistent with project purposes, GNP will allow the use. If a conveyance is involved, GNP will prepare an appropriate instrument of conveyance to allow the use. The instrument will include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of

structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

The instrument of conveyance will require that the grantee obtain all necessary federal, State and local approvals prior to beginning construction, and certify to GNP that all such approvals have been obtained. If the structure or use is proposed by GNP, then GNP will be responsible for obtaining such approvals. The instrument of conveyance may also include other conditions or requirements necessary to address issues of concern to GNP or raised by consulting agencies, or otherwise to ensure compliance with the license and applicable laws.

GNP recognizes that FERC retains the authority to require GNP to take reasonable remedial action to correct any violation of the terms and conditions of the license, including Article 419, for the protection and enhancement of the project's scenic, recreational, and other environmental values. In order to minimize the potential for any such violations, GNP will require all entities granted any interests under this section to notify GNP when projects have been completed and that they have been completed substantially in compliance with all proposals and applicable requirements of the conveyance and of federal, State and local law. GNP will inspect the project and any associated structures and will take action to ensure that significant violations are promptly corrected in accordance with this Shoreline Plan.

GNP will maintain a record of all Article 419(c) uses on project lands, whether conducted by GNP or any other entity to whom GNP grants any right to such uses. By January 31st of each year, GNP will submit a report to FERC describing each

conveyance made, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

SUMMARY OF PROGRAM FOR ARTICLE 419(c) USES

- GNP reviews proposed use for compliance with FERC license, impact on project resources
- GNP consults with appropriate federal and State agencies and incorporates recommendations as appropriate
- GNP conveys interest to allow use, with appropriate restrictions and conditions, including requirement for grantee to obtain all required federal, State and local approvals, or obtains such approvals for GNP projects.
- Grantee certifies to GNP that all approvals have been obtained
- Grantee notifies GNP of project completion in compliance with all permits and approvals
- GNP inspects project to ensure compliance with license and Shoreline Plan
- GNP retains obligation to ensure ongoing compliance with license
- GNP maintains records of all Article 419(c) uses and provides annual report to FERC
- GNP remains responsible to require ongoing repair and maintenance as appropriate

3. Article 419(d) Uses

In accordance with Article 419(d) of the license for the Penobscot Mills Project, GNP retains the right to erect, or to convey to others fee title to, easements, rights of way across, or leases of project lands for certain types of uses, including new bridges or roads, sewer or effluent lines, pipelines, electric transmission lines, private and public marinas, recreational development, and other uses on parcels of land 5 acres or less. In order to allow such uses, GNP must comply with the conditions of Article 419(d) requiring prior notice to FERC. Article 419(d) covers the following uses of project lands:

- Construction of new bridges or roads for which all necessary State and federal approvals have been obtained.
- Sewer or effluent lines that discharge into project waters, for which all necessary federal and State water quality certification or permits have been obtained.
- Other pipelines that cross project lands or waters but do not discharge into project waters.
- Non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and State approvals have been obtained.
- Private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina.
- Recreational development consistent with the report on recreational resources submitted as part of Exhibit E to GNP's FERC application.
- Other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause in any calendar year.

For the uses described above, GNP will institute a program to ensure that such uses are consistent with the requirements of the license. The program will operate as follows:

For lands within the project boundary, before undertaking or conveying any interest for the uses described in this section, GNP will consult with federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer about the proposed use. Following such consultation and prior to allowing any of the uses described in this section, GNP will, at least 60 days prior to undertaking any use listed above or conveying any interest to allow such use, submit a letter to the Director, Office of Hydropower Licensing, stating GNP's intent to undertake the use or convey the interest, describing the type of interest to be conveyed, the location of the lands involved, the nature of the proposed use, the identity of any federal or State agency official consulted, and any federal or State approvals required for the proposed use. If the Director, within 45 days from the filing date, notifies GNP that an application for prior approval is required, then GNP will proceed to obtain such prior approval in accordance with the Director's requirements. If no notice is received within the 45 days, then GNP will proceed as discussed below without filing an application for prior approval.

In conjunction with its consultation with government agencies, including FERC, and prior to undertaking the use or conveying any interest in project lands for such use, GNP will review the proposed use to determine that it is not inconsistent with GNP's report on recreational resources submitted as part of Exhibit E to the FERC license application.

If the review and consultation described above indicate that the proposed use can be conducted in accordance with the FERC license, GNP will undertake the use or prepare an appropriate instrument of conveyance to allow the use. Any instrument of conveyance will include the following covenants running with the land: (i) the use of the

lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

The instrument of conveyance will require that the grantee obtain all necessary federal, State and local approvals prior to beginning construction, and certify to GNP that all such approvals have been obtained. If the structure or use is proposed by GNP rather than a grantee, GNP will remain responsible for obtaining all such approvals. Any instrument of conveyance may also include other conditions or requirements necessary to address issues raised by GNP or by consulting agencies, or otherwise to ensure compliance with the license and applicable laws.

GNP recognizes that FERC retains the authority to require GNP to take reasonable remedial action to correct any violation of the terms and conditions of the license, including Article 419, for the protection and enhancement of the project's scenic, recreational, and other environmental values. In order to minimize the potential for any such violations, GNP will require all entities granted any interests under this section to notify GNP when projects have been completed and to certify that they have been completed in compliance with all proposals and applicable requirements of the conveyance and of federal and State law. GNP will inspect the project and any associated structures and will take action to ensure that any violations are promptly corrected.

SUMMARY OF PROGRAM FOR ARTICLE 419(d) USES

- GNP reviews proposed use for compliance with FERC license, impact on project resources
- GNP consults with appropriate federal and State agencies and incorporates recommendations as appropriate
- At least 60 days prior to construction, GNP notifies FERC of the proposed project and provides required information
- GNP obtains prior FERC approval for project, if required
- GNP conveys interest to allow use, with appropriate restrictions and conditions, including requirement for grantee to obtain all required federal, State and local approvals, or GNP obtains such approvals itself for GNP projects
- Grantee certifies to GNP that all approvals have been obtained
- Grantee notifies GNP when project has been completed in compliance with all approvals
- GNP inspects project to ensure compliance with license, Shoreline Plan and this program
- GNP remains responsible to require ongoing repair and maintenance as appropriate

V. CONCLUSION

Through the implementation of the Shoreline Management Program described above for lands within the expanded project boundary, GNP will have in place an appropriate mechanism for ensuring that shoreline management on project lands will comply with the requirements of the FERC license, will ensure public access to project lands and waters, and will conserve natural resources in the project area.

Brookfield Power

New England Operations
Great Lakes Hydro America, LLC
1024 Central Street
Millinocket, ME 04462

Tel +1 (207) 723-4341
Fax +1 (207) 723-3948
www.brookfieldpower.com

April 28, 2008

FERC No. 2458
Penobscot Mills Project

GLHA Files: 2458/1 & 2572/1

FERC No. 2572
Ripogenus Project

Dear Consulting Agency:

Subject: Penobscot Mills Project (FERC No. 2458), Article 415
Ripogenus Project (FERC No. 2572), Article 411
Final Recreation Facility Monitoring Plan

The Ripogenus and Penobscot Mills FERC licenses require Great Lakes Hydro America, LLC (GLHA) to periodically monitor recreation use in the project areas to determine whether existing recreation facilities are meeting recreation needs. On February 22, 2008, GLHA distributed a draft plan for conducting this study in 2008. Comments (see attached) were received from the Maine Department of Environmental Protection (DEP) and the Maine Department of Conservation (DOC). The DEP had no comments on the study plan, and the DOC provided clarification on the recreation data that they could provide to the study.

DOC's comments have been incorporated into the final plan (see attached) for conducting this study in 2008. As noted in the draft study plan, GLHA intends to monitor project recreational facilities from May through September in 2008 in cooperation with the DOC, Maine North Woods (NMW), and Katahdin Forest Management (KFM). GLHA will survey public boat launches and picnic areas associated with the projects to determine existing use, while the DOC and NMW will provide use data on campsites that they manage around the Ripogenus Project impoundment. KFM will provide commercial rafting data for the McKay Station raft put-in site through the State of Maine, as a per-person commercial fee is collected from outfitters for rafting trips down the West Branch of the Penobscot River. Private boat launches, along with several primitive and unmanaged campsites, will not be monitored.

Please feel free to call (207-723-4341, x118) or write if you have any questions on the attached final recreation facility 2008 monitoring plan for the Ripogenus and Penobscot Mills projects.

Sincerely,

Kevin Bernier

Kevin Bernier
Environmental & FERC Compliance Specialist

KB/m

Attachments

cc: Dana Murch, DEP
Tim Obrey, IF&W - Greenville
Fred Seavey, F&WS
Kathy Eickenberg, DOC
Brian Stetson, GLHA
Matt Ayotte, GLHA
Steve Timpano, IF&W
Richard Dill, IF&W - Enfield
Matt LaRoche, DOC
Kevin Mendik, NPS
David Preble, GLHA
Russell Smith, GLHA

STATE OF MAINE
DEPARTMENT OF CONSERVATION
22 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0022

JOHN ELIAS BALDACCI
GOVERNOR

PATRICK K. McGOWAN
COMMISSIONER

March 10, 2008

Kevin Bernier
Great Lakes Hydro America, LLC
1024 Central Street
Millinocket, ME 04462

RE: Draft Proposed Recreation Facility Monitoring Plan
Penobscot Mills (FERC # 2458) and Ripogenus Projects (FERC # 2572)

Dear Kevin,

The Maine Bureau of Parks and Lands (Bureau) has reviewed your draft plan to monitor recreation use in 2008 for facilities within the Penobscot Mills and Ripogenus Projects, and submits the following comments related to DOC's participation:

The Bureau collects public use data from a variety of registration methods, including staff registration, self-registration, and a registration process administered under a contract with North Maine Woods, Inc. These data streams are consolidated into a single database by bureau staff, and include information on entry and exit points and/or campsites visited by park visitors. Registration forms also include a space where visitors may indicate that they are participating in the PRC "River Trip," which is defined to mean that visitors intend to visit the Upper West Branch of the PRC and portions of the Chesuncook Lake District.

The Bureau is unable to provide custom interpretation from data from this public use database, but agrees to provide a copy of data collected in this database for calendar year 2008 to Brookfield Power for the purposes of data analysis and interpretation.

That said, the Bureau has considerable first hand knowledge and understanding of uses and facilities within the Penobscot River Corridor. Based on this experience, and together with any new data provided as a result of GLHA's 2008 monitoring effort, the Bureau expects to provide comments on public recreation facility needs as part of GLHA's required recreation needs assessment.

Thank you for the opportunity to provide comments on your proposed recreation facility monitoring plan.

Sincerely,

Kathy Eickenberg
Senior Planner

Cc FERC recreation consultation agencies

BUREAU OF PARKS AND LANDS
WILLARD R. HARRIS, JR. DIRECTOR

www.maine.gov/doc
PHONE: (207) 287-3821
FAX: (207) 287-6170
FAX: (207) 287-8111
TTY: (207) 287-2213

From: Murch, Dana P [Dana.P.Murch@maine.gov]
Sent: Wednesday, March 05, 2008 3:58 PM
To: Wiley, Martha; Obrey, Tim; Fred Seavey, F&WS; Eickenberg, Katherine; Stetson, Brian; Ayotte, Matthew; Timpano, Steve; Dill, Richard; LaRoche, Matt; Kevin Mendik, NPS; Preble, David; Smith, Russell
Cc: Bernier, Kevin; Day, Julie
Subject: RE: Draft Recreation Facility Monitoring Plan

Martha, the DEP has no comments on the proposed monitoring plan.

Dana Murch

From: Wiley, Martha [mailto:martha.wiley@brookfieldpower.com]
Sent: Friday, February 22, 2008 9:01 AM
To: Murch, Dana P; Obrey, Tim; Fred Seavey, F&WS; Eickenberg, Katherine; Stetson, Brian; Ayotte, Matthew; Timpano, Steve; Dill, Richard; LaRoche, Matt; Kevin Mendik, NPS; Preble, David; Smith, Russell
Cc: Bernier, Kevin; Day, Julie
Subject: Draft Recreation Facility Monitoring Plan

Martha Wiley (For Kevin Bernier)
Engineering/Operations Assistant
Brookfield Power New England
Northern Operations
Tel: 207-723-4341, Ext. 104
Fax: 207-723-4597
martha.wiley@brookfieldpower.com

RECREATION FACILITY MONITORING PLAN

Ripogenus and Penobscot Mills Projects

Introduction

Article 415 of the Penobscot Mills Project license (FERC No. 2458) and Article 411 of the Ripogenus Project license (FERC No. 2572) require Great Lakes Hydro America, LLC (GLHA) to monitor recreation use of the project areas to determine whether existing recreation facilities are meeting recreation needs. The Articles are identical, and read as follows:

> *"The licensee, after consultation with the U.S. Fish and Wildlife Service (FWS), U. S. National Park Service (NPS), Maine Department of Inland Fisheries and Wildlife (DIFW), Maine Department of Conservation (DOC), and Maine Bureau of Parks and Recreation, shall monitor recreation use of the Ripogenus (and Penobscot Mills) project area to determine whether existing recreation facilities are meeting recreation needs. Monitoring studies shall begin within six years of the issuance date of this license, and shall include at a minimum the collection of annual recreation use data.*
>
> *Every six years during the term of the license, the licensee shall file a report with the Commission on the monitoring results. This report shall include:*
>
> 1. *Annual recreation use figures;*
> 2. *A discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation demand;*
> 3. *A description of the methodology used to collect all study data;*
> 4. *If there is a need for additional facilities, a recreation plan proposed by the licensee to accommodate recreational demands in the project area;*
> 5. *If there is need for additional facilities, the licensee's design of recreational facilities and how such design takes into account the national standards established by the Architectural and Transportation Barriers Compliance Board pursuant to the Americans with Disabilities Act of 1990;*
> 6. *Documentation of agency consultation and agency comments on the report after it has been prepared and provided to the agencies; and*
> 7. *Specific descriptions of how the agency comments are accommodated by the report.*
>
> *The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the report with the Commission."*

The license Articles originated during second stage consultations in 1990 with the U. S. Fish and Wildlife Service (U.S. F&WS), the Maine Department of Conservation (DOC), and the Maine Department of Inland Fisheries and Wildlife (IF&W). Each of these agencies suggested that post-licensing consultation should be conducted periodically to evaluate the adequacy of the recreational facilities and access at the projects.

The licensee at that time (Great Northern Paper, or GNP) agreed to continue to evaluate the adequacy of the recreation facilities in the project areas to meet demand, keeping in mind that the provisions of the conservation easement (where many of these facilities are located) call for traditional types of recreational opportunity and facilities which do not encourage significant increases in recreational use. Based on the recreation studies conducted (circa 1990) in preparation for relicensing the projects, GNP concluded that the level of recreational facilities provided was adequate at that time to accommodate both the current and projected need.

RECREATION FACILITY MONITORING PLAN

Ripogenus and Penobscot Mills Projects

The specific language of these Articles originated from a May 24, 1993 correspondence to the Federal Energy Regulatory Commission (FERC) from the U. S. Department of the Interior (DOI) responding to GNP's March 25, 1993 public notice for the relicensing of the Ripogenus and Penobscot Mills projects. In that correspondence, the DOI stated that GNP's plans for access in the project area were adequate; however, periodic assessments of recreation use were necessary to ensure that the recreation facilities are sufficient. The DOI then outlined their suggestions for post-license recreation monitoring in their Section 10(j) recommendations, from which FERC generated the Articles for recreational facility monitoring indicated above.

FERC summarized the recreation facilities for the Ripogenus and Penobscot Mills projects in a table (Table 3-8) contained in their Final Environmental Impact Statement (FEIS) for these two projects, which was published in 1996. This table is reproduced as Table 1 of this study plan.

For the two projects combined, the FEIS identified 6 public boat launches, 4 private boat launches, 4 public boat put-ins, 23 campsites, and several formal and informal picnic areas. In addition, there are facilities at McKay Station for rafters and kayakers including parking areas, privies, and a generator with compressor for inflating rafts. Numerous access sites are also available at the projects for anglers, boaters, and other recreationists.

Four of the boat launches (Caribou, Green Bridge, Dead Man's Curve, and Route 157 at Dolby Flowage) were improved as required by the 1996 FERC licenses by increasing parking and improving access. These improvements, which were all completed by October 1998, were required by separate recreation license articles (Article 410 of the Ripogenus license and Article 414 of the Penobscot Mills license).

Monitoring of the Ripogenus and Penobscot Mills recreation facilities was conducted in 2001 as required by these license requirements. Both the study plan (finalized on April 13, 2001) and the monitoring report (submitted to FERC on October 18, 2002) were prepared in consultation with the resource agencies.

Subsequent to the 2001 studies, improvements were made to the Chesuncook Dam Point and South Twin boat launches. The Chesuncook launch was improved in 2003 by relocating the access site totally onto GLHA property and by adding ripped ledge to facilitate vehicle traction. A vault privy was also constructed at the launch site in 2004. Improvements were made at the South Twin boat launch in 2005 by expanding the parking area and by adding signage.

Table 1

Table 3-8. Recreation facilities summary (Source: Staff)

Lakes	Surface Area	Recreational Use	Activities	Facilities	# Private Leases	# Commercial Leases	Access Points
RIPOGENUS PROJECT - Ripogenus Lake - Caribou Lake - Chesuncook Lake	29,270 acres	Light	Swimming Fishing Ice Fishing Snowmobiling X-C Skiing Boating Canoeing Camping Sightseeing	- 18 campsites	60	3	2 Public Boat Launches - Chesuncook Dam Point - Umbazooksus Stream 1 Private Boat Launch - Allagash Gateway Campsite 1 Informal Boat Launch - Western Shore Caribou Lake
PENOBSCOT MILLS PROJECT NORTH TWIN - N. Twin Lake - S. Twin Lake - Pemadumcook Lake - Ambajejus Lake - Elbow Lake	17,790 acres	Heavy	Fishing Boating Waterskiing Swimming Snowmobiling Ice Fishing Canoeing X-C Skiing	- S. Twin Lake Picnic Area - Ambajejus Lake Beach - 3 campsites	703	4	2 Public Boat Launches - Ambajejus Lake - Partridge Cove (S. Twin) 2 Private Boat Launches - Barton's Marina - North Woods Trading Post 1 Public Boat Put-In - Norcross (Elbow Lake)
MILLINOCKET LAKE	8,640 acres	Heavy	Fishing Boating Waterskiing Swimming Snowmobiling Ice Fishing Canoeing X-C Skiing	- 2 campsites	120	7	2 Public Boat Launches - Millinocket Lake - Millinocket Dam 1 Private Boat Launch - Robinson Twin Pines Camp 1 Informal Boat Put-In - Near Robinson's Twin Pines Camp
MILLINOCKET - Quakish Lake - Ferguson Pond	1,606 acres	Light	Fishing Canoeing Ice Fishing		0	0	1 Public Boat Put-In - Green Bridge
DOLBY POND	2,048 acres	Light	Fishing Canoeing Ice Fishing	Dolby Picnic Area	0	0	2 Public Boat Put-Ins - Dead Man's Curve (Jerry Brook) - Rt. 157 (Dolby Flowage)
E. MILLINOCKET	128 acres	Restricted	None		0	0	None

RECREATION FACILITY MONITORING PLAN

Ripogenus and Penobscot Mills Projects

Methodology

Unlike the relicensing studies during the 1980's, a gate system is not currently maintained for all visitors to the Ripogenus Project area. North Maine Woods (NMW), an organization of large and small landowners who jointly manage 3.5 million acres of forestland in northern Maine, does maintain a gate system that encompasses the northern portions of the Ripogenus Project. However, there is still no opportunity to have check point attendants collect all of the recreational information as there was in the 1980's. In order to assess whether recreational facilities are meeting current demand, GLHA proposes a season-long (May - September) recreational survey in 2008 conducted in coordination with the DOC and NMW.

The DOC, who manages and monitors recreational use along the Penobscot River Corridor ("PRC", which includes the Ripogenus impoundment), currently collects public use data from a variety of registration methods, including staff registration, self-registration, and a registration process administered under a contract with NMW. These data streams are consolidated into a single database by DOC staff, and include information on entry and exit points and/or campsites visited by recreationists. Registration forms also include a space where visitors may indicate that they are participating in the PRC "River Trip", which means that visitors intend to visit both the Upper West Branch portion of the PRC and the Ripogenus impoundment portion. Although the DOC is unable to provide custom interpretation of the data from this database, they have agreed to provide a copy of the 2008 data to GLHA for the purpose of data analysis and interpretation to allow GLHA to estimate use of the campsites on the Ripogenus impoundment.

NMW will assist this study by providing recreational use information for the two campsites at the northern end of the Ripogenus impoundment (Umbazooksus West and Umbazooksus West). Both of these campsites are within the NMW gate system, and both are managed by NMW.

In addition to the recreational use information collected by the DOC and NMW, GLHA will survey the public boat launches and picnic areas of the Ripogenus and Penobscot Mills Projects from May through September in 2008. Survey days will be randomly pre-selected from two strata: weekend/holidays and weekdays. A GLHA clerk will patrol the recreational facilities on the survey days recording information on the number of people utilizing each recreational site. Each survey day will be 10 hours in length, and the survey hours (either 7 a.m. to 5 p.m., or 10 a.m. to 8 p.m.) will be selected randomly to remove any bias. Furthermore, the travel route used by the clerk will also be randomly selected on each survey day. The recreational survey data can then be computerized and stratified to produce estimates of the total number of recreationists utilizing each facility for the season.

RECREATION FACILITY MONITORING PLAN

Ripogenus and Penobscot Mills Projects

Katahdin Forest Management and the State of Maine already collect information on the use of the raft put-in facilities at McKay Station since a per-person commercial fee is collected for their use. These data will be summarized in 2008 for inclusion in the 2008 recreation report.

These survey methodologies will provide recreational use figures for the recreational facilities as required by the license articles, and provide a basis for determining whether the facilities are adequate for existing recreational demand.

There are no plans to include any private boat launches at the project impoundments in the survey, nor the five campsites identified in Table 1 on Millinocket Lake and the North Twin impoundment. The boat launches are privately owned for commercial purposes and are not managed by GLHA, while the five campsites are very primitive and difficult to access sites which are also not managed under GLHA's recreational program.

Kevin

GREAT NORTHERN PAPER, INC.
One Katahdin Avenue
Millinocket, ME 04462-1398
(207) 723-5131
Subsidiary of Bowater Incorporated

BOWATER

Project No. 2458
Article 406

GNP File No. 1-8603/1

October 16, 1997

The Secretary
Federal Energy Regulatory Commission
Mail Code: DPCA, HL 21.3
888 First Street, N.E.
Washington, DC 20426

RE: Penobscot Mills Project (FERC No. 2458), Article 406
(North Twin Dam Fishway)

Please find attached an original and eight copies of a plan for repairing/modifying the upstream fishway at Great Northern Paper's North Twin Dam. The plan calls for a reduction in fishway flow to reduce turbulence, the addition of supplemental attraction water flow, and the installation of adjustable weirs to correct flow from changes in headwater elevation.

This plan was forwarded to the Maine Department of Inland Fisheries and Wildlife (IF&W) and the Maine Department of Environmental Protection (DEP) on August 29, 1997 as required by the license with a 30 day request for comments by October 1, 1997. The DEP responded on October 15, 1997 (see attached) stating that they had no comments on the plan. The IF&W did not provide any comments.

Upon approval from the Commission, Great Northern will initiate the attached study plan for repairing/modifying the upstream fishway at North Twin Dam.

Sincerely,

Jeffrey M. Martin

Jeffrey M. Martin
Manager of Utilities

KRB/JMM/blw
Attachment

cc: Mr. Dana Murch, DEP
Mr. Matthew Scott, IF&W
Mr. Michael Smith, IF&W
Mr. Edward Sullivan, DEP
Mr. Steven Timpano, IF&W

North Twin Upstream Fishway Repair/Modification Plan

Penobscot Mills Project, Article 406 Compliance, Great Northern Paper

Article 406 of the Penobscot Mills Project license requires Great Northern Paper (Great Northern) to file a plan for repairing and/or modifying the North Twin fishway prepared in consultation with the Maine Department of Inland Fisheries and Wildlife (IF&W). This plan has been prepared to satisfy this license requirement.

Background

Landlocked salmon (salmon) are the principal species of fisheries management concern at the North Twin Dam. The North Twin upstream fishway is primarily in place to allow salmon that have passed downstream over the dam to move back upstream into the North Twin impoundment. This fishway, which is a pool and weir design, was incorporated into the dam in 1934 and was repaired in 1984. The fishway was trapped in 1979 and 1986 by Great Northern and a total of 67 (42 legal, >14 inch and 25 sub-legal) and 38 (four legal, 34 sub-legal) salmon were trapped or observed in these respective years.

The IF&W believes that the fishway should be repaired since (1) there is inadequate over-summer habitat to support salmon below the North Twin Dam, (2) salmon do not successfully migrate downstream and would be trapped between North Twin and the Millinocket Development, and (3) salmon would have a better opportunity to grow to legal size in the North Twin impoundment. Because of IF&W's concerns, Great Northern agreed to repair the existing fishway at North Twin, and FERC included the fishway repairs and/or modifications as a Penobscot Mills license condition stating in the Final Environmental Impact statement that "the North Twin fishway does not significantly contribute to sustaining existing fish stocks; however, because the facility already exists and is used by some salmon, there is no reason not to continue maintaining and monitoring the facility."

Great Northern conducted a study of the configuration and hydraulics of the fishway which showed that the fishway exit was dewatered at low North Twin impoundment elevations, that there was excessive turbulence within the pools, and that attraction water volume is quite low. Based on this study, Great Northern is proposing modifications and repairs to the fishway as detailed below.

Existing Fishway and Site Characteristics

Attached sheets 1-3 illustrate the original design (and proposed modifications) of the North Twin fishway. The existing fishway is a pool, weir (slot) and orifice (7" x 8") design. The original slots were 1'-6" wide, but they have since been opened up to 1'-9" wide. The calculated flow for this configuration using a head of 1 foot is about 7 cubic feet per second (cfs). About 2 cfs of the flow is through the orifices and the remaining 5 cfs is over the weir (Rajaratnam, 1989).

The existing fishway is operational at elevations between 484.5 and 492 feet. The present fishway configuration and 7 cfs attraction/transport flow are known to attract and pass salmon. The fishway is favorably located in that its discharge is adjacent to, yet distinctive from, the turbine flow.

Proposed Modifications, Repairs and Operations

The rule of thumb for fishway pool sizing to have a reasonable turbulence is 125 cubic feet of pool per horsepower (Bell, 1991). To meet this criteria, the flow should be reduced to about 3.5 cfs within the existing 50 cubic feet of pool. The simplest way to accomplish this within the existing structure is to seal the orifices down to a 2-inch drain size and change the slots to 1-foot wide Cipoletti weirs (Decker, 1967). The Cipoletti weir has been found to produce a standing wave, stimulate jumping and reduce turbulence (Stuart, 1964). The resulting weir type fishway would be easier to maintain since the existing orifices are not visible underwater. The proposed weir configuration is illustrated on sheet 2.

Although the Cipoletti weirs have some head tolerance, manual adjustable weirs are needed in the upper weirs to correct day to day headwater changes (see sheet 1). Using the weirs, the pool depth throughout the fishway would be maintained to maximize fish jumping potential.

To provide a 3.5 cfs supplemental attraction flow, an 8-inch gravity line would run from the area of the spillway or log sluice. The attraction water intake would have a slide gate control with an upstream removable basket type trashrack. The pipe would have a "Y" configuration at its discharge (see sheet 1) to attract fish to both fishway entrances. Each leg of the "Y" would have a control valve and discharge at the surface in line with the present entrance flows. The resulting high energy jet surface water discharge will provide additional attraction flow and create acoustic attraction.

Under the new Penobscot Mills Project license and Water Use Plan, the North Twin impoundment must be maintained at a relatively stable water level from May 1 to August 22 for recreation. Therefore, fishway adjustments for water level fluctuation should not be needed during this period. After August 22, the North Twin impoundment level will be dropped sharply in preparation for lake trout spawning in October resulting in more frequent fishway gate adjustments. Since the fishway is only operational between elevation 484.5 feet and full pond (492 feet), during some years it will dry up in September as the impoundment is lowered for lake trout spawning. Fortunately, this is after the traditional salmon spring and summer upstream movement period, and consequently, salmon which desire to move upstream should be minimally impacted.

Schedule

Great Northern proposes to modify the North Twin fishway as indicated by this plan within 2 years of Commission approval of the plan.

Literature Cited

Bell, M.C. 1991. Fisheries handbook of engineering requirements and biological criteria. Corps of Engineers. Portland, Oregon.

Decker, L.F. 1967. Fishways in Maine. Maine Department of Inland Fisheries and Game. Augusta, Maine.

Rajaratnam, N., C. Katopodis and A. Mainali. 1989. Pool-orifice and pool-orifice-weir fishways. Can. J. Civ. Eng. 16, 774-777 (1989).

Stuart, T.A. 1962. The leaping behavior of salmon and trout at falls and obstructions. Edinburgh: Her Majesty's Stationery Office, Scotland.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S. KING, JR
GOVERNOR

EDWARD O. SULLIVAN
COMMISSIONER

October 15, 1997

Kevin Bernier, Fisheries Biologist
Great Northern Paper
One Katahdin Avenue
Millinocket, ME 04462-1398

RE: Comments on Compliance Plans
Penobscot Mills Hydro Project
FERC No. 2458

Dear Kevin:

The Department has reviewed your several recent letters and the attached plans for complying with various Articles of the new FERC license for the Penobscot Mills Hydro Project, FERC No. 2458.

Our comments are as follows.

North Twin Upstream Fishway Repair/Modification Plan. We have no comments on your plan at this time. Great Northern must consult with and respond to the comments of the Department of Inland Fisheries and Wildlife regarding this plan. The final plan as filed with FERC must also be filed with DEP for our review and approval in compliance with Condition #5 of the Water Quality Certification (#L-17166-33-A-N) for the Penobscot Mills Project generating facilities.

Study Plan for Evaluating the Reproductive Success of Lake Trout in the North Twin Impoundment. We have no comments on your plan at this time. Great Northern must consult with and respond to the comments of the Department of Inland Fisheries and Wildlife regarding this plan. The final plan as filed with FERC must also be filed with DEP for our review and approval in compliance with Condition #6 of the Water Quality Certification (#L-17166-33-A-N) for the Penobscot Mills Project generating facilities.

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688
RAY BLDG., HOSPITAL ST.

ESQUE ISLE
15 CENTRAL DRIVE, SKYWAY PARK
ESQUE ISLE, MAINE 04769-2094
(7) 764-0477 FAX: (207) 764-1507

Wetland Enhancement Plan for the Ripogenus and Penobscot Mills Projects. We have no comments on your plan at this time. Great Northern must consult with and respond to the comments of the Department of Inland Fisheries and Wildlife regarding this plan. The final plan as filed with FERC must also be filed with DEP for our review and approval in compliance with Condition #4 of the Water Quality Certification (#L-17166-32-A-N) for the Millinocket Lake Storage Project and Condition #7 of the Water Quality Certification (#L-17166-33-A-N) for the Penobscot Mills Project generating facilities.

I note that the Land Use Regulation Commission is responsible for compliance actions on the Ripogenus Project.

Each compliance plan must be filed with a separate Application for Condition Compliance and a $100 filing fee. An application form is enclosed for your use.

Thank you for this opportunity to comment. If you have any questions, please call me at 287-3901.

Sincerely,

Dana Paul Murch

Dana Paul Murch
Dams & Hydro Supervisor

c\gnp7

cc: Steve Timpano, IF&W
Cindy Bertocci, LURC

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Millinocket, ME 04462-1398
(207) 723-5131
Subsidiary of Bowater Incorporated

BOWATER

File No. 1-8603/1

August 29, 1997

RE: Penobscot Mills Project (FERC No. 2458), Article 406
(North Twin Fishway Repairs/Modifications)

Dear Consulting Agency:

Attached please find Great Northern Paper's plan for repairing/modifying the upstream fishway at the North Twin Dam as required by Article 406 of the Penobscot Mills license. The Maine Department of Inland Fisheries and Wildlife believes that an upstream fishway at North Twin is necessary, and therefore, Great Northern has agreed to repair the existing fishway at North Twin. The Federal Energy Regulatory Commission included the fishway repairs as a Penobscot Mills license condition stating in the Final Environmental Impact Statement that "the North Twin fishway does not significantly contribute to sustaining existing fish stocks; however, because the facility already exists and is used by some salmon, there is no reason not to continue maintaining and monitoring the facility."

Please feel free to call me at (207) 723-2751 or our consulting fishway engineer (Jon Truebe at Lakeside Engineering) at (603) 569-1930 should you have any questions or comments on the attached fishway repair/modification plan. Great Northern is requesting comments on this plan by October 1; this will ensure that all comments are incorporated into the final plan which will be sent to FERC later in October.

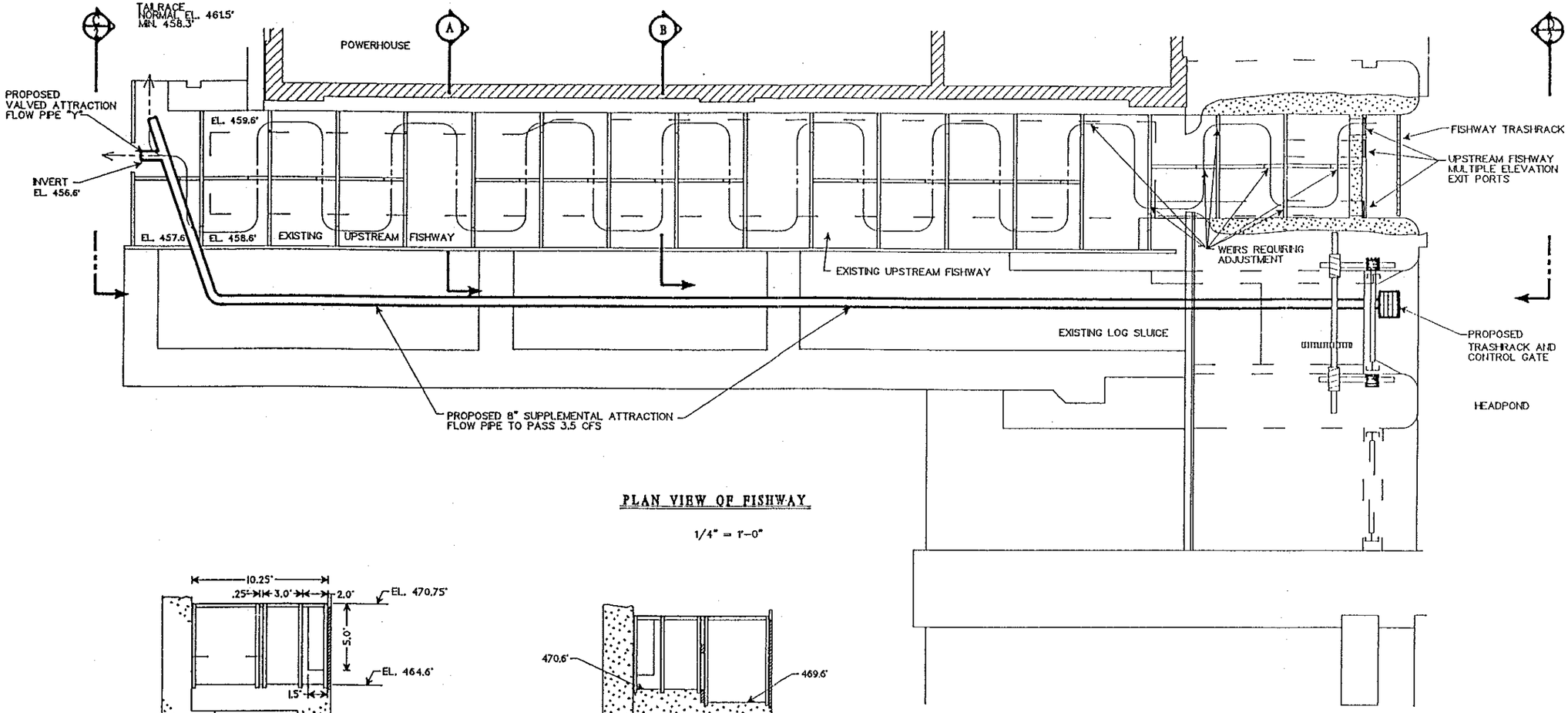
Sincerely,

Kevin Bernier

Kevin R. Bernier
Fisheries Biologist
TEL: (207) 723-2751
FAX: (207) 723-2660

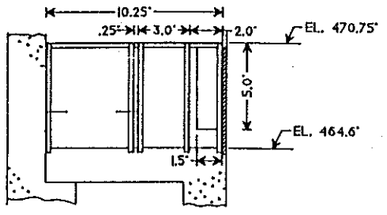
KRB:blw
Attachment

Distribution:
Mr. Raymond Owen, IF&W
Mr. Michael Smith, IF&W
Mr. Steven Timpano, IF&W
Mr. Edward Sullivan, DEP
Mr. Dana Murch, DEP



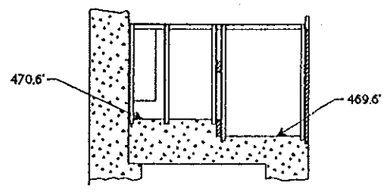
PLAN VIEW OF FISHWAY

1/4" = 1'-0"



SECTION AT REST POOL (A)

1/4" = 1'-0"



SECTION THROUGH FISHWAY (B)

1/4" = 1'-0"

REV.	DATE	REVISION

PRELIMINARY
FOR COMMENTS ONLY
PLOT DATE: AUGUST 22, 1997

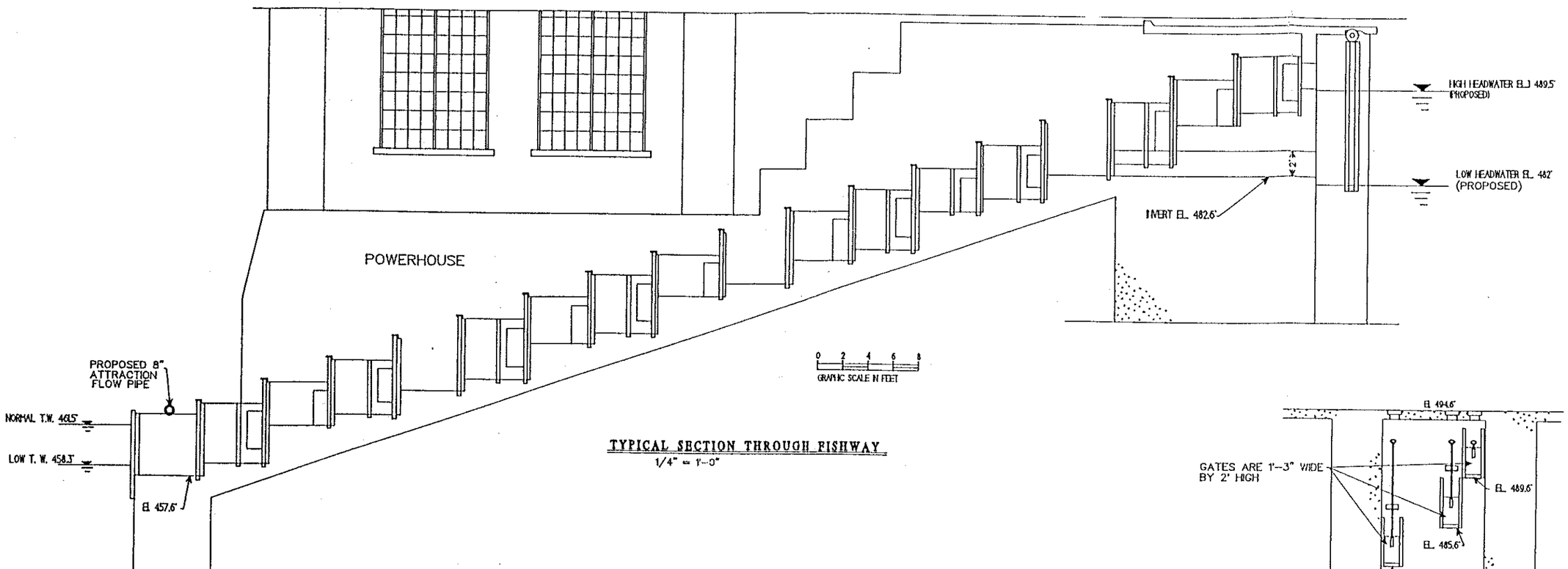
GREAT NORTHERN PAPER CO.

NORTH TWIN PROJECT-FERC # 2458

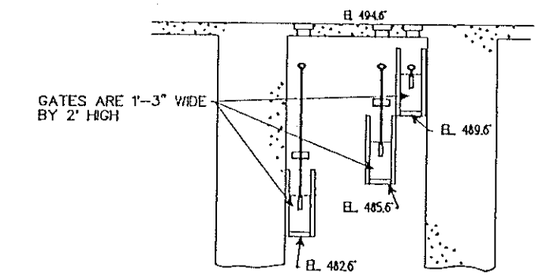
FISHWAY PLAN VIEW

LAKESIDE ENGINEERING, INC.
MIRROR LAKE, NH 03853

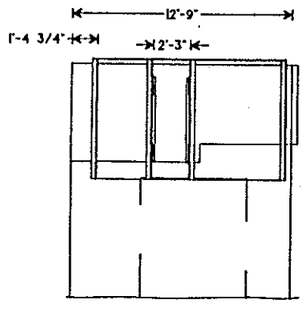
SHEET 1 OF 3	SIZE	DRAWN BY:
CADD # GNNT971A	D	CHECKED BY:



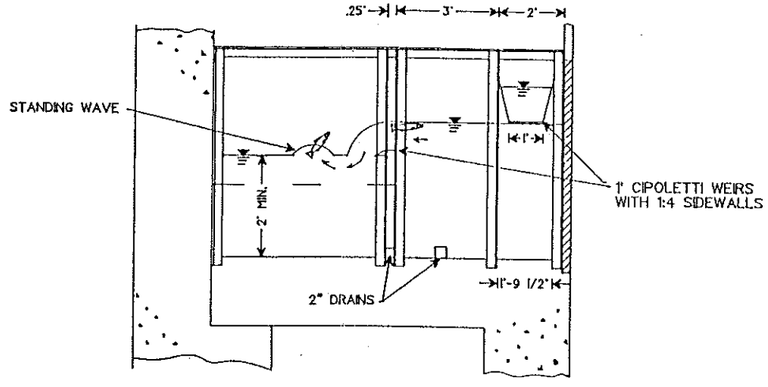
TYPICAL SECTION THROUGH FISHWAY
1/4" = 1'-0"



FISHWAY EXIT ELEVATION (D)
1/4" = 1'-0"



FISHWAY ENTRANCE ELEVATION (C)
1/4" = 1'-0"



EXPANDED ELEVATION OF ALTERNATE FISHWAY BAFFLE PROPOSED TO REDUCE TRANSPORT FLOW
1/2" = 1'-0"

REV.	DATE	REVISION

PRELIMINARY
FOR COMMENTS ONLY
PLOT DATE: AUGUST 22, 1997

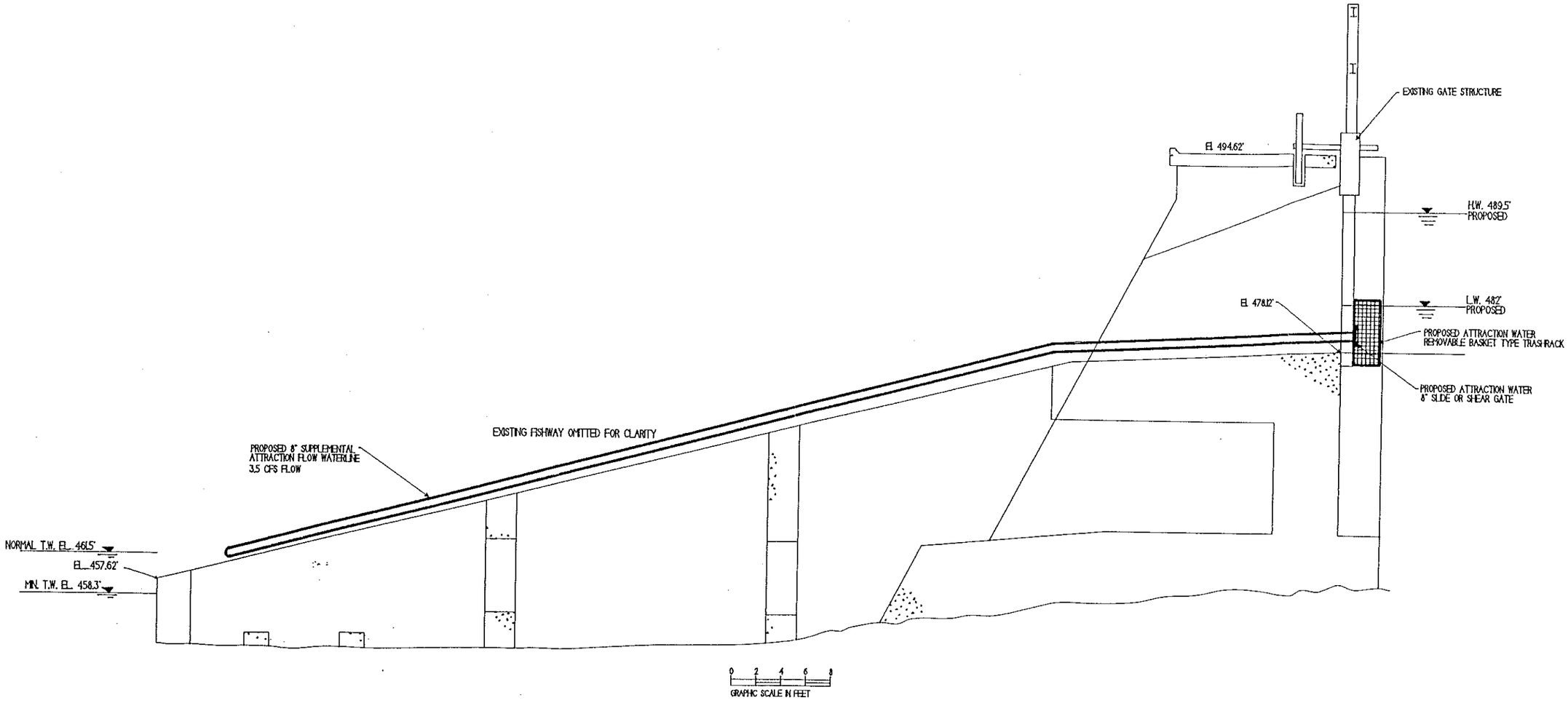
GREAT NORTHERN PAPER CO.

NORTH TWIN PROJECT - FERC # 2458

FISHWAY SECTION VIEW

LAKESIDE ENGINEERING, INC.
MIRROR LAKE, NH 03853

SHEET 2 OF 3	SIZE	DRAWN BY:
CADD # GNT972A	D	CHECKED BY:



SECTION THROUGH LOG SLUICE

1/4" = 1'-0"

REV.	DATE	REVISION

PRELIMINARY
FOR COMMENTS ONLY
PLOT DATE: AUGUST 22, 1997

GREAT NORTHERN PAPER CO.

NORTH TWIN PROJECT - FERC 2458

FISHWAY - LOG SLUICE

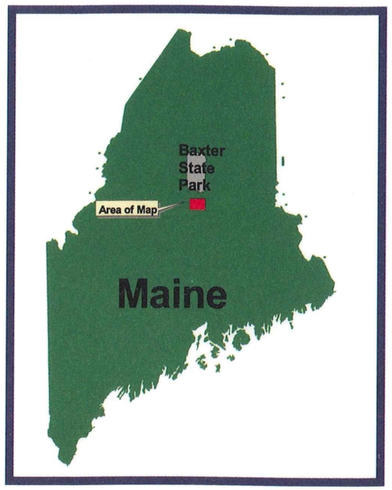
LAKESIDE ENGINEERING, INC.
MIRROR LAKE, NH 03853

SHEET 3 OF	SIZE	DRAWN BY:
CADD # GNNT973A	D	CHECKED BY:

Brookfield

Recreational Boating and Depth Map
North Twin Impoundment
North & South Twin Lakes

This chart only shows hazards which are above USGS elevation 485 feet (7 feet below full pond); hazards below elevation 485 feet are not shown.



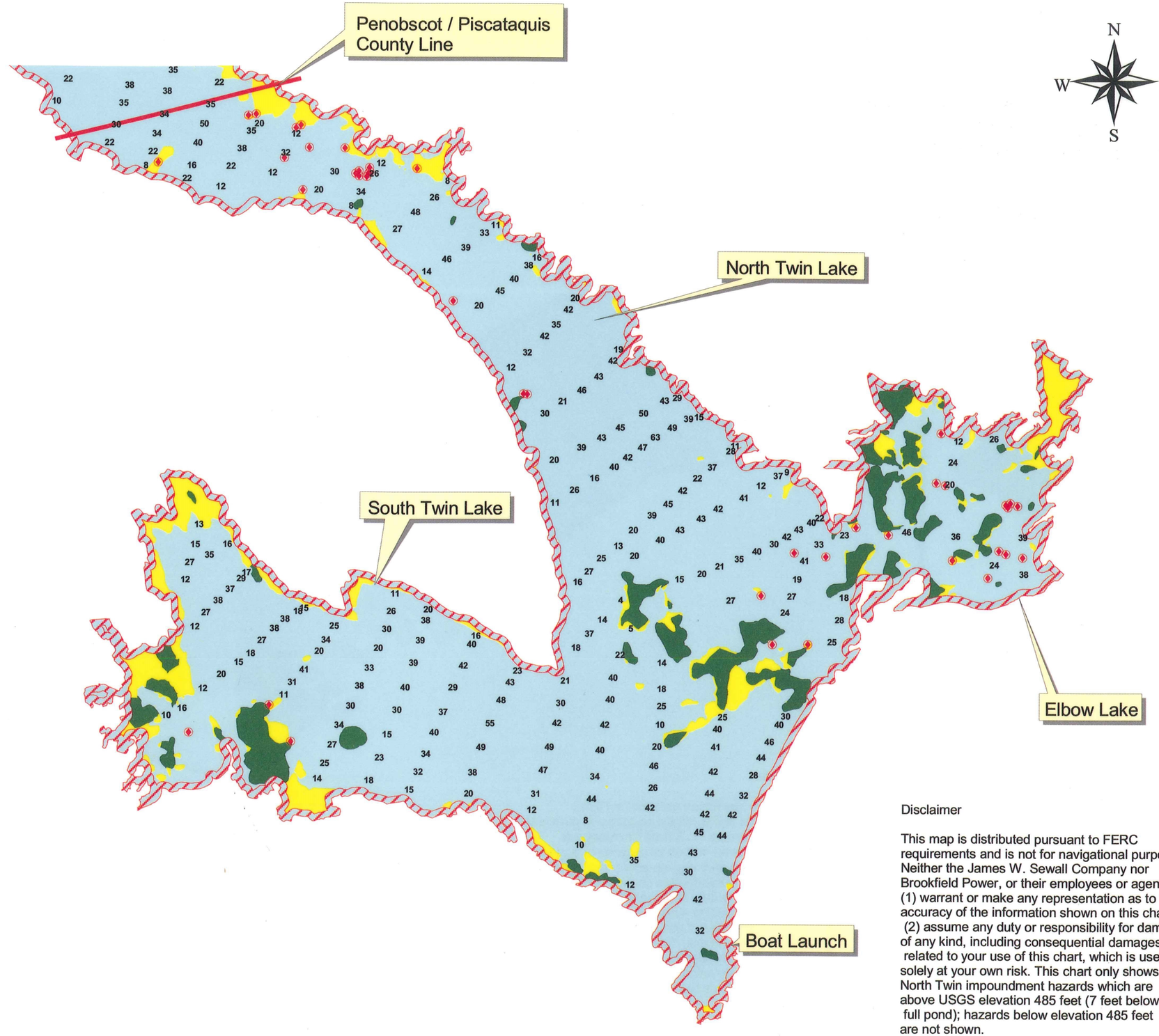
Any inquiries regarding data on this map should be directed to:

Brookfield Renewable
1024 Central Street
Millinocket, ME 04462
(866) 714-6110
maine.inquiries@brookfieldrenewable.com

Legend

- 200 Ft Water Safety Zone
- Rock & Submerged Hazards Above elev. 485 ft USGS
- Islands
- North Twin Impoundment
- Rock (Above elevation 485 ft USGS)

Depth Readings in Feet



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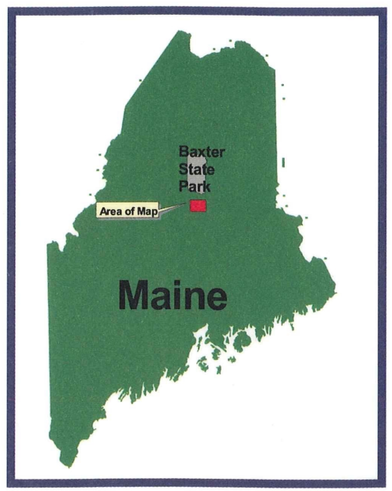
Data compiled from orthorectified 1" = 1000' black and white scanned images taken December 3, 1998. Depth data were acquired from the Waterways Office, Bureau of Parks and Lands, State of Maine.

Brookfield

Recreational Boating and Depth Map
North Twin Impoundment
Ambajejus & Pemadumcook Lakes

This chart only shows hazards which are above USGS elevation 485 feet (7 feet below full pond); hazards below elevation 485 feet are not shown.



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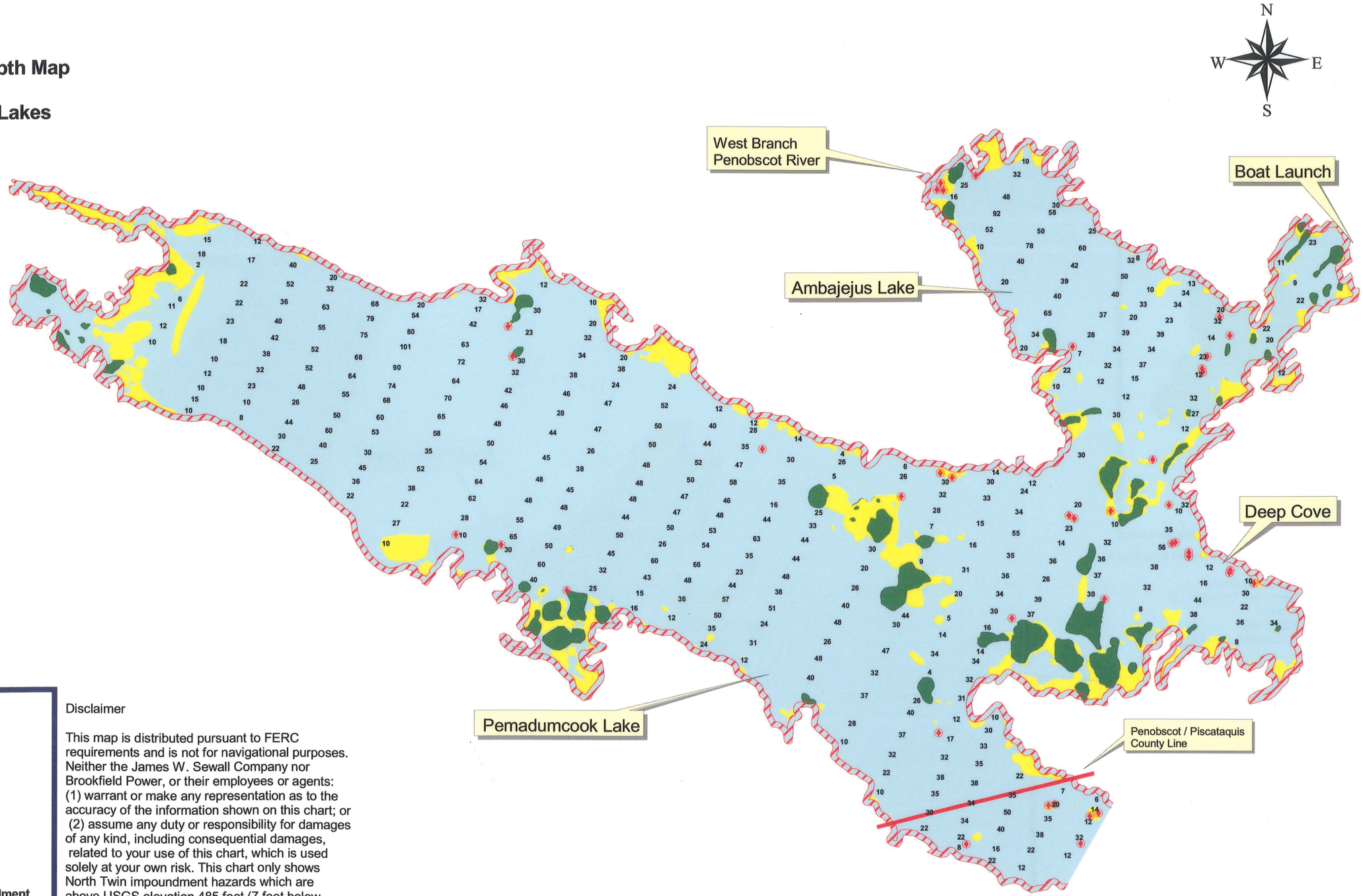
1024 Central Street
Millinocket, ME 04462
(866) 714-6110
maine.inquiries@brookfieldrenewable.com



Legend

- 200 Ft Water Safety Zone
- Rocks & Submerged Hazards Above elev. 485 ft USGS
- Islands
- Ambajejus & Pemadumcook Impoundment
- Rocks (Above elevation 485 ft USGS)

Depth Readings in Feet

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Data compiled from orthorectified 1" = 1000' black and white scanned images taken December 3, 1998. Depth data were acquired from the Waterways Office, Bureau of Parks and Lands, State of Maine.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

In Reply Refer To: December 15, 2020
Consultation Code: 05E1ME00-2021-SLI-0345
Event Code: 05E1ME00-2021-E-01012
Project Name: North Twin LIHI

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: http://www.fws.gov/mainefieldoffice/Project%20review4.html

Additionally, wind energy projects should follow the wind energy guidelines: http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm and at: http://www.towerkill.com; and at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Consultation Code: 05E1ME00-2021-SLI-0345

Event Code: 05E1ME00-2021-E-01012

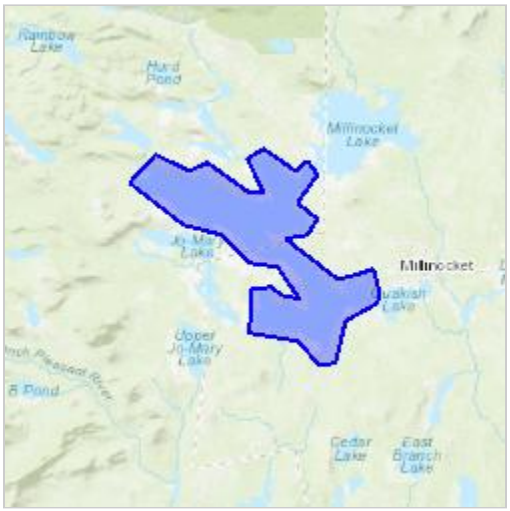
Project Name: North Twin LIHI

Project Type: DAM

Project Description: North Twin LIHI

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/45.66702984738556N68.87791781094424W



Counties: Penobscot, ME | Piscataquis, ME

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Fishes

NAME	STATUS
Atlantic Salmon *Salmo salar* Population: Gulf of Maine DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2097	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Canada Lynx *Lynx canadensis* https://ecos.fws.gov/ecp/species/3652#crithab	Final

From:	Perry, John
To:	Bernier, Kevin
Cc:	Settele, Rebecca
Subject:	RE: Request for state-listed species
Date:	Wednesday, February 03, 2021 3:19:27 PM
Attachments:	image002.png

Hi Kevin,

Sorry for the delay. The following State-listed Endangered, Threatened, and Special Concern species have been documented in the general vicinity of the North Twin Development on the West Branch of the Penobscot River near Millinocket:

- Tidewater mucket (State Threatened)
- Yellow lampmussel (State Threatened)
- Bigmouth Pondsnail (Special Concern)
- Wood Turtle (Special Concern)
- Bald Eagle--until recently, bald eagles were listed as a Species of Special Concern in Maine. However, eagles continue to be protected under the federal Bald Eagle and Golden Eagle Protection Act as well as other federal laws.

In addition, while a comprehensive statewide inventory for bats has not been completed it is likely that several of species of bats occur within the Project area during migration and/or the breeding season.

- Little brown bat (State Endangered)
- Northern long-eared bat (State Endangered)
- Eastern small-footed bat (State Threatened)
- Big brown bat (Special Concern)
- Red bat (Special Concern)
- Hoary bat (Special Concern)
- Silver-haired bat (Special Concern)
- Tri-colored bat (Special Concern)

MDIFW databases do not indicate the presence of other State-listed Endangered, Threatened, or Special Concern Species in Project area; however, to our knowledge no, or limited, formal surveys have been conducted. It is possible that other rare species may be resident or transient in the Project area based on location, habitats present, and life history requirements, including one or more rare species of migratory birds during spring and fall migrations. Therefore, the list above should not be considered all-inclusive.

In addition to the species above, several areas are mapped as Inland Waterfowl and Wading Bird Habitat, a Significant Wildlife Habitat under Maine's Natural Resources Protection Act. These habitats provide important breeding, feeding, migration, staging, and wintering habitat for waterfowl and wading bird species.

It is not known what effects, if any, the operations of the Project may have on any of the species or

habitats listed above.

Please let us know if you need additional information.

John

John Perry
Environmental Review Coordinator
Maine Department of Inland Fisheries and Wildlife
284 State Street, 41 SHS
Augusta, Maine 04333-0041
Tel (207) 287-5254; Cell (207) 446-5145
Fax (207) 287-6395
www.mefishwildlife.com

From: Bernier, Kevin <Kevin.Bernier@brookfieldrenewable.com>
Sent: Friday, January 29, 2021 9:02 AM
To: Settele, Rebecca <Rebecca.Settele@maine.gov>
Cc: Perry, John <John.Perry@maine.gov>
Subject: RE: Request for state-listed species

Becca – just checking on the status of this.

Thanks, Kevin

From: Bernier, Kevin
Sent: Sunday, December 20, 2020 11:36 PM
To: Settele, Rebecca <Rebecca.Settele@maine.gov>
Cc: Perry, John <John.Perry@maine.gov>; Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com>
Subject: RE: Request for state-listed species

Becca – thank you for recently providing the state-listed species documented in the vicinity of the Medway, Stillwater, and Orono Projects. Brookfield Renewable is now seeking information on state-listed fauna at the North Twin Development on the West Branch of the Penobscot River near Millinocket. This Development encompasses the North Twin, South Twin, Elbow, Ambajejus, and Pemadumcook Lakes, plus the West Branch of the Penobscot River immediately downstream of North Twin Dam. The purpose of collecting this information is for the certification of this Development through the Low Impact Hydropower Institute. Attached are maps showing the project areas. Please let me know if there are any fees regarding this request, or if you need any additional information.

Thank you.

Kevin Bernier
Senior Compliance Specialist

Brookfield Renewable
1024 Central Street, Millinocket, ME 04462
C 207 951 5006
kevin.bernier@brookfieldrenewable.com
www.brookfieldrenewable.com

From: Settele, Rebecca <Rebecca.Settele@maine.gov>
Sent: Tuesday, November 10, 2020 8:58 AM
To: Bernier, Kevin <Kevin.Bernier@brookfieldrenewable.com>
Cc: Perry, John <John.Perry@maine.gov>
Subject: RE: Request for state-listed species

Hi Kevin,

The following Endangered, Threatened, and Special Concern species have been documented in the general vicinity of the Stillwater Hydroelectric Project on the Stillwater River.

Yellow Lampmussel (State Threatened)
Tidewater Mucket (State Threatened)
Brook Floater (State Threatened)

Little brown bat (State Endangered)
Northern long-eared bat (State Endangered)
Eastern small-footed bat (State Threatened)
Big brown bat (Special Concern)

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

January 20, 2021

Kevin Bernier
Brookfield Renewable
1024 Central Street
Millinocket, ME 04462

Via email: kevin.bernier@brookfieldrenewable.com

Re: Rare and exemplary botanical features in proximity to: #P-2458, North Twin Dam Low Impact Hydropower Institute Certification, T3 Indian Purchase Twp, T4 Indian Purchase Twp, T1 R9 WELS, T1 R10 WELS, Maine

Dear Mr. Bernier:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 20, 2020 (and shapefiles received January 13, 2021) for information on the presence of rare or unique botanical features documented from the vicinity of the project in T3 Indian Purchase Twp, T4 Indian Purchase Twp, T1 R9 WELS, and T1 R10 WELS, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Rare and Exemplary Botanical Features within 4 miles of

Project: North Twin Dam Low Impact Hydropower Institute Certification, T 4 Indian Purchase Twp, T3 Indian Purchase Twp, T1 R9 WELS, T1 R10 WELS, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Black Spruce Bog						
	<null>	S4	G3G5	2009	10	Coastal non-tidal wetland (non-forested, wetland),Forested wetland
Domed Bog						
	<null>	S3	GNR	2004-04-09	15	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Dwarf Shrub Bog						
	<null>	S5	G5	2009	10	Open wetland, not coastal nor rivershore (non-forested, wetland),Coastal non-tidal wetland (non-forested, wetland)
	<null>	S5	G5	2009	32	Open wetland, not coastal nor rivershore (non-forested, wetland),Coastal non-tidal wetland (non-forested, wetland)
Early Successional Forest						
	<null>	S5	G5	2011-07-26	2	Hardwood to mixed forest (forest, upland)
Eccentric Bog Ecosystem						
	<null>	S3	GNR	2009	1	Open wetland, not coastal nor rivershore (non-forested, wetland),Forested wetland
Fragrant Wood Fern						
	SC	S3	G5	2003-06-12	13	Rocky summits and outcrops (non-forested, upland),Alpine or subalpine (non-forested, upland)
Jack Pine Woodland						
	<null>	S3	G3G5	2011	11	Conifer forest (forest, upland),Dry barrens (partly forested, upland)
Moor Rush						
	SC	S2	G5T5	2003-08-20	14	Open wetland, not coastal nor rivershore (non-forested, wetland)
Orono Sedge						
	T	S3	G3	1988-06-28	45	Old field/roadside (non-forested, wetland or upland)
Patterned Fen Ecosystem						
	<null>	S3	GNR	2009	9	Open wetland, not coastal nor rivershore (non-forested, wetland),Forested wetland

Rare and Exemplary Botanical Features within 4 miles of

Project: North Twin Dam Low Impact Hydropower Institute Certification, T 4 Indian Purchase Twp, T3 Indian Purchase Twp, T1 R9 WELS, T1 R10 WELS, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Red and White Pine Forest						
	<null>	S3	G3G4	1982-06-16	10	Conifer forest (forest, upland)
	<null>	S3	G3G4	2013-10-17	16	Conifer forest (forest, upland)
	<null>	S3	G3G4	2007	15	Conifer forest (forest, upland)
	<null>	S3	G3G4	2010-06-29	24	Conifer forest (forest, upland)
	<null>	S3	G3G4	2011	23	Conifer forest (forest, upland)
Red Pine Woodland						
	<null>	S3	G3G5	1982-06-16	8	Dry barrens (partly forested, upland)
	<null>	S3	G3G5	2003-08-19	11	Dry barrens (partly forested, upland)
Spruce - Fir - Northern Hardwoods Ecosystem						
	<null>	S5	GNR	2003-08-20	20	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
	<null>	S5	GNR	2003-08-21	19	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Spruce - Pine Woodland						
	<null>	S4	G3G5	2007	6	Dry barrens (partly forested, upland),Rocky summits and outcrops (non-forested, upland)
Sweetgale Fen						
	<null>	S4	G4G5	1985-08-31	5	Open wetland, not coastal nor rivershore (non-forested, wetland),Coastal non-tidal wetland (non-forested, wetland)
Unpatterned Fen Ecosystem						
	<null>	S5	GNR	2015	39	Open wetland, not coastal nor rivershore (non-forested, wetland),Forested wetland
	<null>	S5	GNR	2009	37	Open wetland, not coastal nor rivershore (non-forested, wetland),Forested wetland

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 Rare in Maine (20-100 occurrences).

S4 Apparently secure in Maine.

S5 Demonstrably secure in Maine.

SU Under consideration for assigning rarity status; more information needed on threats or distribution.

SNR Not yet ranked.

SNA Rank not applicable.

S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.

G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

G3 Globally rare (20-100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.

T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JANET T. MILLS
GOVERNOR

GERALD D. REID
COMMISSIONER

February 10, 2021

Kevin Bernier
Brookfield Renewable
150 Main Street
Lewiston, Maine 04240

Subject: FERC No 2458 North Twin Dam - Penobscot Mills Project - Comments to Water Quality Certification Terms and Conditions – LIHI Recertification

Dear Kevin Bernier:

In response to a written request by Great Lakes Hydro America (Applicant, GLHA), a subsidiary of Brookfield Renewable, related to the recertification of the North Twin Dam facilities by the Low Impact Hydro Institute (LIHI), the Maine Department of Environmental Protection (Department or MDEP) reviewed the Terms and Conditions of the Water Quality Certifications (WQC), #L-17166-33-A-N, for the North Twin Dam, which is part of the Penobscot Mills Project. The North Twin Dam is located on the West Branch of the Penobscot River, in Penobscot County, Maine. The Penobscot Mills WQC was issued by the Department on April 22, 1993. On July 13, 2012, modifications to the existing WQC Conditions 6 were made through Department Order #L-17166-33-K-M, to remove Lake Trout Monitoring and water management requirements for Lake trout reproduction in the North Twin impoundment. Pertinent Conditions to LIHI Recertification and how the Applicant has addressed these Conditions are as follows:

1. WATER LEVELS, FLOWS & LAKE TROUT MANAGEMENT

Condition 2(A) and Condition 6 of the 1993 WQC have stipulations related to impoundment water levels as well as Lake trout monitoring in the North Twin impoundment. Condition 2 directs the water level of the impoundment to be maintained at or above the lake trout spawning/incubation level for the period on or about October 15 through May 1 annually. Relatively stable water levels shall be maintained from May 1 through mid-August annually, unless the minimum flow of 2,000 cfs cannot be maintained at the Millinocket Dam. Condition 6 was devised in consultation with the Maine Department of Inland Fisheries and Wildlife (MDIFW) and directs the Applicant to monitor togue reproductive success in the impoundment and document spawning success and correlating water level management. In the studies undertaken by the Applicant, which included approximately a decade of stocking of adult Lake trout and monitoring for spawning juveniles, no wild lake trout population was established or documented. In the 2012 modification, MDEP found future monitoring of lake trout spawning success in the North Twin impoundment was no longer necessary and could be discontinued. MDEP modified the WQC so that Condition 6 was removed entirely.

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

website: www.maine.gov/dep

Since the 2012 modification, a FERC approved water management proposal from the Applicant included, a gradual drawdown of the North Twin impoundment during the period August 22 – October 15 with a targeted maximum drawdown of 3.5 feet. A minimum flow of 3,000 cfs is established at the North Twin Dam for the August 22 – October 15 period, subject to the 3.5-foot drawdown target (i.e., if the impoundment level drops 3.5 feet, the minimum flow is reduced to 2,000 cfs, which matches the current minimum flow requirement at Millinocket). These changes eliminated the need to rapidly draw down the impoundment in the late summer and early fall for lake trout spawning and allowed for extended higher water levels in the impoundment in the late summer to benefit camp owners, boaters, and other recreation. All Terms and Conditions for water levels and minimum flows are currently upheld by the applicant.

2. FISH PASSAGE

Condition 5 of the original WQC, #L-17166-33-A-N, stipulates that appropriate repairs and modifications will be undertaken to the existing North Twin Dam fishway and that the Applicant shall, on a schedule established by FERC, submit a plan for repairing and/or modifying the fishway. On August 22, 1997, the previous holder of the WQC, Great Northern Paper Inc. (GNP), submitted a plan to MDEP to repair and modify the fishway beginning on May 27, 1998. MDEP issued a Condition Compliance application, #L-17166-33-F-C, on January 6, 1998, to conduct the fishway modifications and repairs. On June 2, 2000, GNP completed repairs to the existing fishway which included modifications to reduce flow and turbulence, including the installation of adjustable weirs to correct flow and changes in head pond elevation. A new attraction water pipe was installed for supplemental attraction water flow, and a concrete facing in the forebay was installed for structural support.

By completing modifications and repairs to the fish passage facilities at the dam, and conducting studies on Lake trout reproductive success, the Department finds that the Applicant has acknowledged impacts that the Project has on fisheries resources and has made provisions to mitigate the impacts of the Twin Falls Dam to the fisheries of the West Branch of the Penobscot River. Provided that the Applicant continues to consult with the resource agencies, including MDIFW, on passage enhancements and maintenance, the Department finds that the Applicant continues to abide by the Terms and Conditions of the WQC.

Summary

Collectively, the Department finds that GLHA has made provisions to monitor and mitigate the impacts of the North Twin Dam on the waters of the West Branch of the Penobscot River. Over several years, GLHA and previous license holders of these Projects, have consulted and collaborated with the resource agencies to develop fish passage facilities and mitigate the impacts of this Project. The Department finds that GLHA operates the North Twin Dam under the Terms and Conditions set forth by the project's WQC, as well as the modifications to the WQC, and has taken steps to fulfill the Conditions. Therefore, the Department supports LIHI recertification for the North Twin Dam.

Thank you for the opportunity to comment on the LIHI Recertification. If you have any questions, please contact me by phone at (207) 446-1619 or by email at Christopher.Sferra@maine.gov.

Sincerely,

Christopher O. Sferra
Hydropower Program, Project Manager
Maine Department of Environmental Protection