Brookfield
Renewable

January 5, 2022 **Mattaceunk Project (FERC No. 2520)**

Ms. Shannon Ames, Executive Director
Low Impact Hydropower Institute
329 Massachusetts Avenue, Suite 2
Lexington, MA 02420

Subject: Low Impact Hydropower Institute Application for the Mattaceunk Project (FERC No. 2520)

Dear Ms. Ames:

On behalf of Great Lakes Hydro America, LLC (GLHA), owner and licensee for the Mattaceunk Project (FERC No. 2520) located on the Mainstem of the Penobscot River in Maine and an affiliate of Brookfield Renewable (Brookfield), please find attached an application requesting certification of this facility.

The current application includes the following required submittals:

- Introduction
- Project Description and LIHI Table B-1
- 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 and supplemental documentation for pertinent FERC and regulatory documents for the Project

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, A. Frechette, K. Bernier, E. DeLuca

GLHA File: HSSE 4b/6/Penobscot

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LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

MATTACEUNK PROJECT (FERC NO. 2520)

January 2022

Brookfield

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Table of Contents

Index of Tables

Index of Figures

LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

MATTACEUNK PROJECT (FERC NO. 2520)

1.0 PROJECT DESCRIPTION

1.1 PROJECT FACILITIES

The Mattaceunk Project (or "Project") is located on the Mainstem of the Penobscot River in the towns of Medway, Woodville, Mattawamkeag, and the unorganized township of Molunkus in Aroostook and Penobscot Counties, Maine. The Mainstem is approximately 75 miles (mi) long from the confluence of the West and East Branches of the Penobscot River (to form the mainstem of the Penobscot River) downstream to the head of tide in Bangor, Maine. The Mattaceunk Project consists of a dam and integral powerhouse located on the mainstem approximately 7 miles downstream from the confluence of the West and East Branches of the Penobscot River.

Great Lakes Hydro America, LLC's (GLHA's) Mattaceunk Hydroelectric Project is a run-of-river hydroelectric generating facility. The Project consists of a 1,060-foot-long dam topped with a variable crest elevation, creating a 1,664-acre impoundment with a normal full pond elevation of 240 feet USGS. The Project has a powerhouse containing four generating units with a total installed capacity of 19.2 MW and a maximum hydraulic capacity of 7,438 cfs. The Project also includes an approximate 9-mile-long transmission line and appurtenant facilities. Project lands and waters are available for recreation opportunities. The Project is operated in run-of-river mode for the enhancement of downstream fisheries, including Atlantic salmon. The Project has upstream and downstream fish passage measures (see Figure 2). The Mattaceunk Project commenced initial commercial operations in 1942.

The Mattaceunk Project became the third Project on the mainstem Penobscot River following dam removals undertaken as part of the Lower Penobscot River Multiparty Settlement Agreement (Settlement Agreement), the goal of which was to restore self-sustaining populations of 11 native species of sea-run fish along the Penobscot River in Maine. The Settlement Agreement involved the purchase and removal of the lower-most dams on the Penobscot River, Veazie Dam (FERC No. 2403) and Great Works Dam (FERC No. 2312), and the decommissioning of the Howland Dam (FERC No. 2721) on the Piscataquis River, a tributary of the Penobscot River. A new license for the Mattaceunk Project was issued by the FERC on February 26, 2021.

The Mattaceunk Project generates clean, renewable electricity while providing recreational opportunities (portage trail and boat launch), fish passage measures, consistent water levels that enhance habitats for waterfowl, etc., and substantial support of the local community through stable property tax payments, reliable voltage support of the electrical distribution system, etc.

FIGURE 1. PROJECT FACILITIES – MATTACEUNK PROJECT (AERIAL)

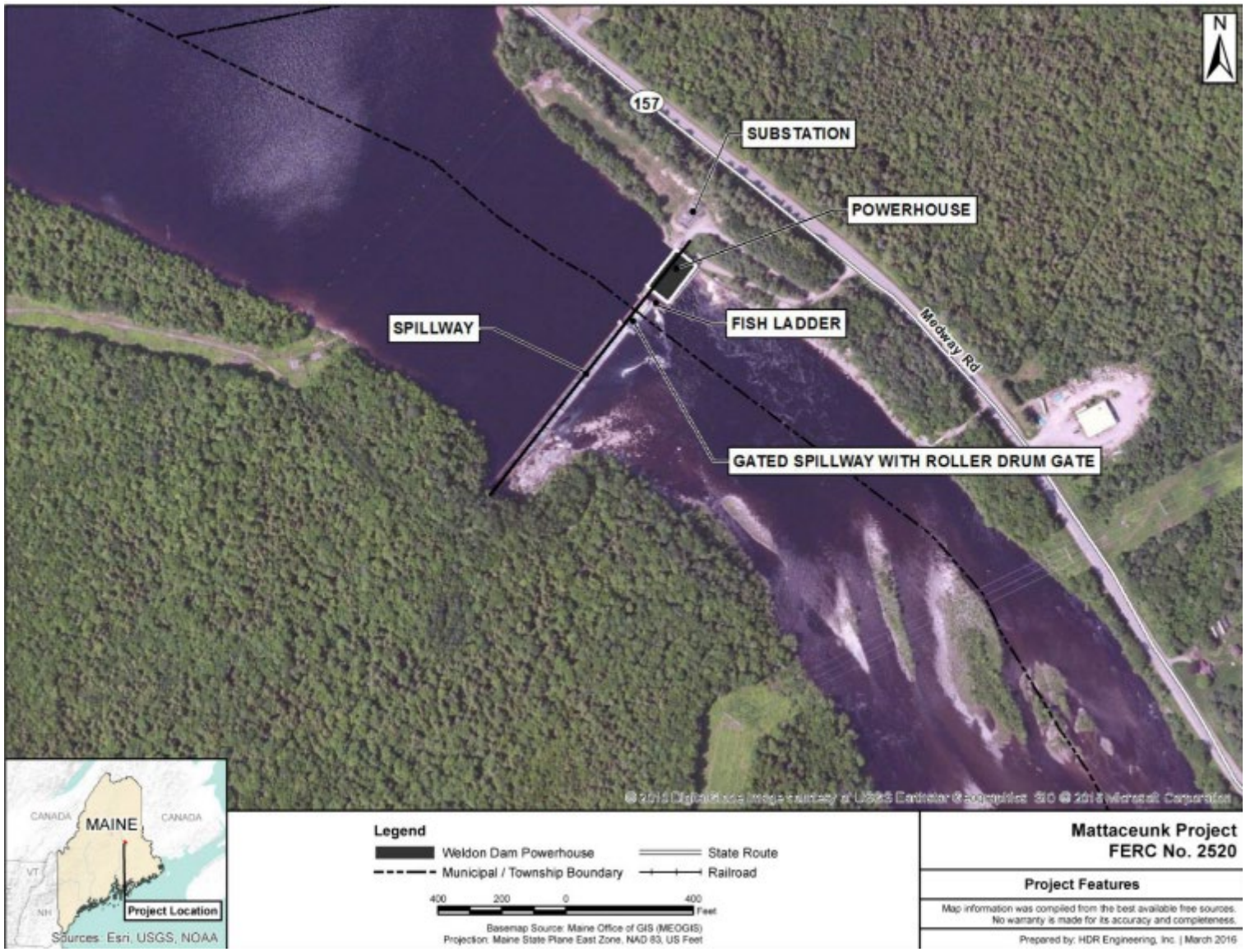


FIGURE 2. MATTACEUNK PROJECT FACILITIES (SPILLWAY, FISHWAY AND POWERHOUSE)

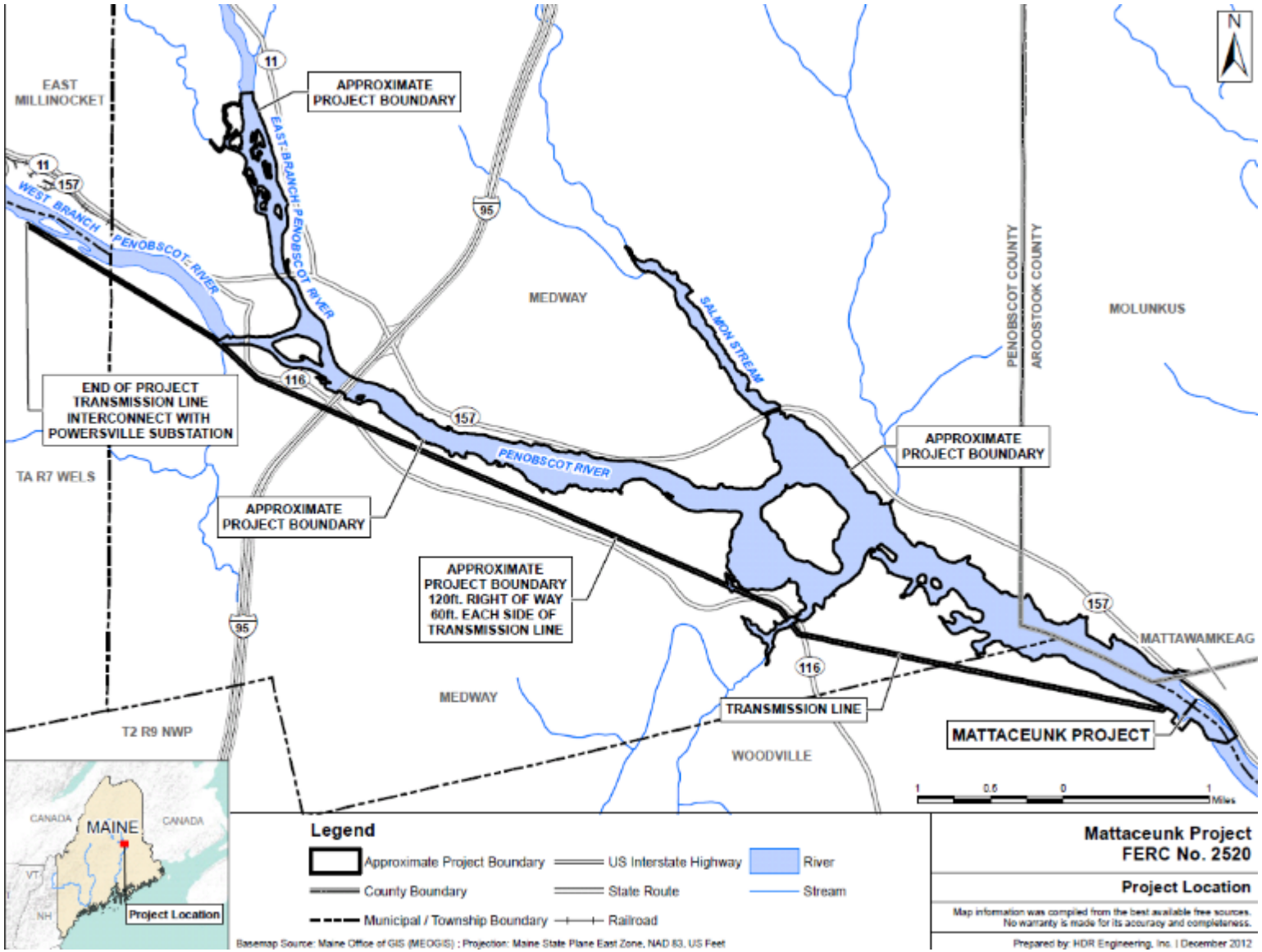
FIGURE 3. MATTACEUNK PROJECT FACILITIES AND PROJECT AREAS (POWERHOUSE, SPILLWAY AND TAILRACE)

FIGURE 4. MATTACEUNK PROJECT FACILITIES AND PROJECT AREAS (SPILLWAY AND BYPASS REACH)

FIGURE 5. MATTACEUNK PROJECT FACILITIES (POWERHOUSE)

FIGURE 6. MATTACEUNK PROJECT FACILITIES (UPSTREAM FISH PASSAGE FACILITY)

FIGURE 7. PROJECT BOUNDARY – MATTACEUNK PROJECT



1.2 PROJECT OPERATIONS

GLHA operates the Project in run-of-river mode. Because the powerhouse is integral with the dam, there is no true bypass reach. The Project provides a year-round continuous minimum flow of 1,674 cfs, or inflow, whichever is less, downstream from the Project, and a daily average minimum flow of 2,392 cfs from July 1 through September 30 and 2,000 cfs from October 1 through June 30, or average inflow, whichever is less, to protect aquatic resources downstream from the Project, as described below.

The existing impoundment is approximately 8.5 miles long, with a surface area of about 1,664 acres at a full pond headwater surface elevation of 240 ft USGS. The Project has a gross storage capacity of an estimated 20,981 ac-ft, and the usable storage capacity is negligible, being a run-of-river project. A headwater surface elevation close to full pond is normally maintained when river flows are at or below the hydraulic capacity of the turbines.

Project operations, water levels and flows are dictated by the February 26, 2021 Order Issuing License. Article 403 of the Project license codifies the impoundment elevation and minimum flow requirements of the Section 401 Water Quality Certification and specifies run-of-river operations as follows:

> *Article 403. In addition to implementing the impoundment level requirements of Maine Department of Environmental Protection's (Maine DEP) condition A (Appendix A) and minimum flow requirements of Maine DEP's condition B (Appendix A), the licensee must operate the Mattaceunk Project in a run-of-river mode with year round use of the 4-foot-high flashboards such that average daily outflow approximates average daily inflow.*
>
> *The run-of-river, impoundment level, and minimum flow requirements may be temporarily modified as follows:*
>
> *<u>Planned Deviations</u>*
>
> *Run-of-river operation, impoundment level, and minimum flow requirements may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the U.S. Fish and Wildlife Service, National Marine Fisheries Service, Maine DEP, and Maine Department of Marine Resources (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 calendar days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified, (2) the duration and magnitude of the deviation, (3) any observed or reported environmental effects and how potential effects were evaluated, and (4) documentation of consultation with the resource agencies. For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary variance from operational requirements, and receive Commission approval prior to implementation.*
>
> *<u>Unplanned Deviations</u>*
>
> *Run-of-river operation, impoundment level, and minimum flow requirements may be temporarily modified if required by operating emergencies beyond the control of*

*the licensee (i.e., unplanned deviations). For any unplanned deviation that lasts longer than 3 hours **or** results in visible environmental effects such as a fish kill, turbidity plume, bank erosion, or downstream flooding, the licensee must file a report as soon as possible, but no later than 14 days after each such incident. The report must include: (1) the cause of the deviation, (2) the duration and magnitude of the deviation, (3) any pertinent operational and/or monitoring data, (4) a timeline of the incident and the licensee's response, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies, (6) documentation of any observed or reported environmental effects, and (7) a description of measures implemented to prevent similar deviations in the future.*

For unplanned deviations lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation, (2) the duration and magnitude of the deviation, (3) any pertinent operational and/or monitoring data, (4) a timeline of the incident and the licensee's response to each deviation, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies, and (6) a description of measures implemented to prevent similar deviations in the future.

The Maine Department of Environmental Protection's Section 401 Water Quality Certification (WQC) Order #L-10124-33-K-M, dated June 25, 2020, also requires run-of-river operation through the maintenance of stable headpond elevations pursuant to Condition A.1, as follows:

CONDITION A WATER LEVELS

1. Except as temporarily modified by: 1) approved maintenance activities, 2) extreme hydrologic conditions,[1] 3) emergency electrical system conditions,[2] or 4) agreement between the Applicant, the Department, and appropriate state and/or federal agencies as appropriate, the daily Project impoundment water level in the Mattaceunk impoundment water level fluctuations shall be maintained no lower than 2.0 feet below (238.0 feet) the crest of the 4-foot-high flashboards (240.0 feet) when the flashboards are fully installed or no lower 1.0 feet below (235.0 feet limit) the sill elevation (236.0 feet) of the Mattaceunk dam when the flashboards are not fully installed.

[1] For the purposes of this certification, "extreme hydrologic conditions" means the occurrence of events beyond the Applicant's control, such as, but not limited to, abnormal precipitation, extreme runoff, flood condition, ice condition or other hydrologic conditions such that the operational restrictions and requirements contained herein are impossible to achieve or are inconsistent with the safe operation of the Project.

[2] For the purposes of this certification, "emergency electrical system conditions" means operating emergencies beyond the Applicant's control which require changes in flow regimes to eliminate such emergencies which may in some circumstances include, but are not limited to, equipment failure or other temporary abnormal operating

conditions, generating unit operation or third-party mandated interruptions under power supply emergencies, and orders from local, state, or federal law enforcement or public safety authority.

Condition B.1 of the Project's June 25, 2020 WQC requires the Project minimum flows and states:

CONDITION B. MINIMUM FLOWS

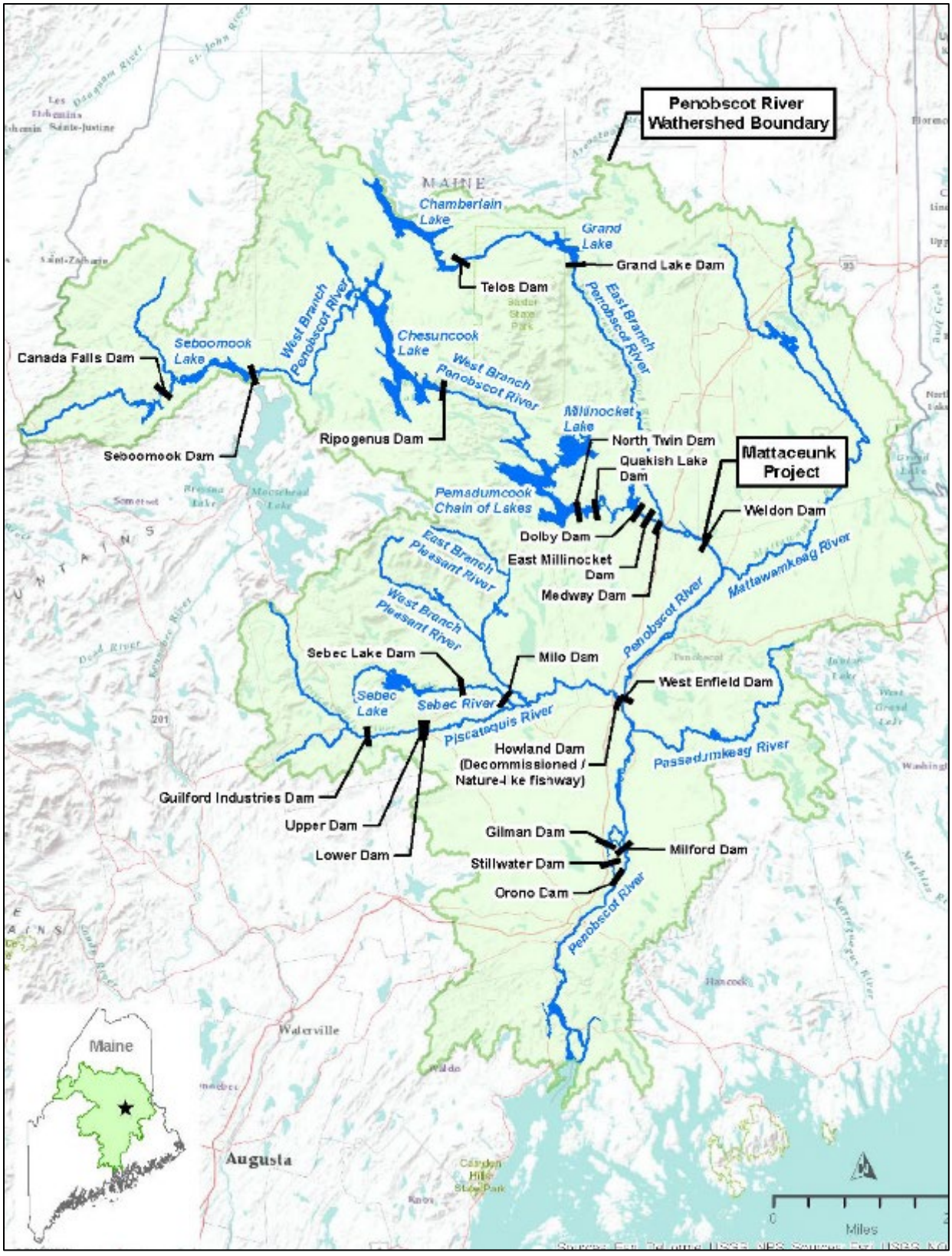
1. Except as temporarily modified by: 1) approved maintenance activities, 2) extreme hydrologic conditions (see previous footnote) 3) emergency electrical system conditions (see previous footnote), or 4) agreement between the Applicant, the Department, and state and/or federal agencies as appropriate, a total minimum flow of 1,674 cfs or inflow, whichever is less, and a daily average minimum flow of 2,393 cfs from July 1 through September 30 or 2,000 cfs from October 1 through June 30, shall be released from the Project to protect downstream fish and aquatic resources, unless inflow is less than the stated daily average minimum flows, in which case outflow from the Project would equal the inflow to the Project.

1.3 PROJECT LOCATION

The Mattaceunk Project is located on the Mainstem of the Penobscot River just below the confluence of the West Branch with the East Branch of the Penobscot River, which together form the mainstem of the Penobscot River approximately 7 miles above the Project. The next upstream dam from the Project is the Medway Project (FERC No. 2666), located approximately 8.5 miles upstream on the West Branch of the Penobscot River, which is also home to several facilities associated with GLHA's Penobscot Mills Project (FERC No. 2458), Ripogenus Project (FERC No. 2572), and Storage Project (FERC No. 2634). The next upstream dam on the East Branch of the Penobscot River is Grand Lake Dam, which impounds Grand Lake Matagamon, approximately 48 river miles upstream of the confluence of the West and East Branches of the Penobscot River. The West Enfield Project (FERC No. 2600) is located approximately 29 miles downstream of the Mattaceunk Project on the mainstem of the Penobscot River followed by the Milford Project (FERC No. 2534), located approximately 54 miles downstream.

FIGURE 8 PROJECT LOCATION – MATTACEUNK PROJECT

FIGURE 9 OVERVIEW MAP OF THE PENOBSCOT WATERSHED



1.4 REGULATORY AND OTHER REQUIREMENTS AND COMPLIANCE STATUS

1.4.1 FERC LICENSE AND WATER QUALITY CERTIFICATION REQUIREMENTS AND COMPLIANCE STATUS

The Mattaceunk Project received a new license from the FERC on February 26, 2021 that included Standard Form L-3 Articles and U.S. Fish and Wildlife Service (USFWS) May 23, 2017 Section 18 Fishway Prescriptions and National Marine Fisheries Service (NMFS) June 28, 2018 Section 18 Fishway Prescriptions (as modified). A WQC was issued for the Project, associated with the new license, on June 25, 2020.

Operational Requirements

As discussed above, the Mattaceunk Project is operated in a run-of-river mode pursuant to Article 403 of the new Project license and various conditions of the Project WQCs (see Section 1.1). Article 402 also required the filing of a plan to monitor flows and reservoir water levels for the Project, as did Conditions A.2 and B.2 of the Project's 2020 WQC. Article 402 of the February 26, 2021 Order Issuing License for the Project reads as follows:

> *Article 402. Within 90 days of license issuance, the licensee must file, with the Commission for approval, a revised Operations Monitoring Plan as required by Maine Department of Environmental Protection's (Maine DEP) conditions A and B (Appendix A) that is based on, and includes the provisions of the Operations Monitoring Plan, filed on September 14, 2018, with the following additions:*
>
> *1) methods for estimating outflows from the fishways;*
> *2) procedures for maintaining and calibrating the water level sensor;*
> *3) clarification on the turbine units to be used when conducting tests to verify the accuracy of the existing curves used to monitor flows that pass through the turbines;*
> *4) file the existing water-to-wire efficiency testing reports for turbine units 2 and 3 with the Commission;*
> *5) a provision to identify a schedule for conducting the first verification testing event, to occur no more than 2 years after installation of the full-depth trash racks with 1-inch clear bar spacing;*
> *6) methods and schedule for verifying the accuracy of outflow estimates through the log sluice, roller gate, spillway, and fish passages;*
> *7) methods and schedule for verifying the accuracy of outflow estimates using in-stream field measurements during the first verification testing event;*
> *8) methods and schedule for recalibrating the existing curves if the verification testing indicates the existing curves are inaccurate; and*
> *9) the head at which all verification testing will be conducted.*
>
> *The revised Operations Monitoring Plan must be developed after consultation with Maine DEP, Maine Department of Marine Resources, Maine*

Department of Inland Fisheries and Wildlife, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and U.S. Geological Survey. The licensee must include with the plan documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the agencies above, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission for approval. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Conditions A.2 and B.2 of the June 25, 2020 WQC state:

CONDITION A.2: WATER LEVELS

2. The Applicant shall, within six months of issuance of a New License for the Project by FERC or upon such other schedule as established by FERC, update its Final Operations Monitoring Plan, describing how the Project impoundment water levels required by Part A of this condition are provided and monitored.

CONDITION B.2: WATER LEVELS

The Applicant shall, within six months of issuance of a new license for the Project by FERC or upon such other schedule as established by FERC, update its Final Operations Monitoring Plan, describing how the minimum flow releases required by Part A of this condition are provided and monitored.

An Operations Monitoring Plan was filed on May 27, 2021 for the Project and was approved by FERC on October 12, 2021 (see Section 6.0).

Modifications to run-of-river and minimum flows that have occurred at the Mattaceunk Project over the past 5 years have been permitted by the FERC license, i.e., they were either operating emergencies beyond the control of GLHA, or they were planned in consultation with resource agencies (see Section 6.0). The following excursions have occurred at the Project in the last 5 years.

- July 8, 2018 – while responding to an ISO-NE dispatch on July 8, 2018 to lower generation, Weldon Dam outflows briefly dropped below the Mattaceunk Project's minimum flow requirement while adjusting station output. In order to reduce generation as requested by ISO-NE, Unit 4 at Weldon Station was taken offline prior to verifying adequate flow through units 1 & 2. Although Unit 2 generation was quickly increased to restore minimum flow, the event resulted in a 3-minute period when Mattaceunk

Project outflows dropped below the 1,674 cfs continuous minimum flow requirement (to a low of 1,015 cfs). On October 23, 2018, FERC determined that this excursion was not a license violation, "*Given your compliance history, the brevity of the minimum flow deviation, and your quick actions to restore the minimum flows".*

- July 21, 2019 – river flows at the Mattaceunk Project were interrupted on July 21, 2019 as the result of a hydro station outage at the Project due to a lightning strike on the Project's transmission line. River flows dropped below the Project's 1,674 cfs minimum flow (to a low of 530 cfs) for about 57 minutes. On September 6, 2019, FERC determined that this excursion was not a license violation, stating that GLHA "*promptly sent personnel to the site to address a natural event that was beyond your control, and to ensure that the deviation was short in duration by restoring normal operations as quickly as possible".*

- January 30, 2020 – Weldon Station tripped offline on January 30, 2020, causing an interruption of river flows. After a public safety check was made downstream, the roll gate was opened at Weldon Dam to restore river flow. As a result of this trip, river flows dropped below the Project's 1,674 cfs minimum flow for about 14 minutes, during which leakage through and over the flashboards provided the only flow. The station trip and flow interruption were caused by a blown insulator at the East Millinocket Development substation. On July 6, 2020, FERC determined that this event was not a license violation, stating that the minimum flow deviation "*resulted from a station trip due to equipment failure*."

- March 16, 2020 - Weldon Station (with Units 1, 2, and 3 operating) tripped offline on March 16, 2020, causing an interruption of river flows. As a result, Unit 4 was brought online, but it too tripped offline 13 minutes later. After a public safety check was made downstream, the roll gate was opened at Weldon Dam to restore river flow. As the result of this station trip, river flows dropped below the Project's 1,674 cfs minimum flow (to a low of about 167 cfs) for 20 minutes. The flow interruption resulted when Weldon Station tripped offline due to a failure at a transmission line structure's termination point caused by conductor fatigue. On April 28, 2020, FERC determined that the flow interruption was not a license violation, stating "*the deviation was caused by a station trip. Your timely response ensured that the deviation was short in duration, and your proposed inspections are expected to prevent similar events from recurring.*"

- November 1, 2020 – Unit #3 tripped offline at Weldon Station on November 1, 2020, causing flows to drop below the 1,674 cfs minimum flow (to a low of about 1,462 cfs) for approximately 6 minutes. The unit trip was caused by a high temperature sensor conductor termination failure on Unit #3's lower guide bearing, which resulted in a trip alarm relay being activated. In addition, the unit trip protection 86M relay (which is separate from the high

temperature alarm) was also activated, resulting in the trip of Unit #3 and the excursion. FERC did not respond to this flow deviation event.

- November 23, 2020 - Weldon Station tripped offline on November 23, 2020 causing an interruption of river flows. After a public safety check was made downstream, the roll gate was opened at Weldon Dam to restore river flow. As a result, river flows dropped below the Project's 1,674 cfs minimum flow for a total of about 27 minutes, a portion of which time the 140 cfs flow through the downstream fishway and leakage through and over the flashboards provided the only flow to the river. The station trip and flow interruption were caused by a severe thunderstorm passing through the area. FERC did not respond to this flow deviation event.

- March 2, 2021 - Weldon Station tripped offline on March 2, 2021 causing outflows from Weldon Station to drop below the 1,674 cfs licensed minimum flow for approximately 26 minutes, with only leakage flows being passed for a portion of that time. The station trip was caused by a windstorm passing through the area. Per the new Mattaceunk Project license (issued February 26, 2021), this flow deviation will be provided to FERC in an annual report due March 1, 2022.

- April 29 – May 18, 2021 – the 3-week period for log sluice flows at the Project was initiated on April 29, 2021 through agency consultation by opening the log sluice gate 1.9 feet. On May 14, 2021, the log sluice gate was fully opened in response to increased river flow from localized rain events. On May 15, 2021, the gate was fully closed after river flows dropped; however, rather than being closed, the gate should have been reset to maintain the required flow for downstream-migrating Atlantic salmon smolts through noon on May 20th. This error resulted in no flow through the log sluice for approximately 18 hours and 48 minutes. In addition, on May 18, 2021, it was discovered that the 1.9-foot gate setting for the log sluice flow was resulting in about 88 cfs of flow through the log sluice for much of the April 29 – May 18, 2021 time period, rather than the intended minimum 225 cfs of flow.

  The May 15th gate closure was caused by a miscommunication, as the System Operator assumed that the log sluice could be closed after the increased river flow event, which would have been consistent with protocols in place since 2013, prior to the new FERC license. The incorrect gate setting was based on calculations used for providing the log sluice flow that were mistakenly based on a bottom opening gate, and not the top opening gate configuration currently in place.

  On October 19, 2021, FERC determined that these deviations in passing flow through the log sluice would be considered a violation of the new Mattaceunk Project FERC license. Although FERC made this violation part of GLHA's compliance history for the Project, they also elected to take no further action at the time due to GLHA's appropriate follow-up actions and

other factors (no agency comments/concerns received; no observed adverse impacts).

- September 16, 2021 – on the morning of September 16, 2021, all of Brookfield's hydro stations on the Upper Penobscot (including Weldon Station) tripped offline due to a Versant Power line disturbance. The Weldon Station trip resulted in an approximate 42-minute deviation from the Project's 1,674 cfs minimum flow condition. Per the new Mattaceunk Project license (issued February 26, 2021), this flow deviation will be provided to FERC in an annual report due March 1, 2022.

All deviations are reported to the agencies, generally within 24 hours, and to the FERC within 14 days or in the required annual report in compliance with the provisions of Article 402. Reports submitted to the FERC for the above-referenced deviations are provided in Section 6.0, which include copies of all agency consultation and correspondence.

Water Quality

As discussed elsewhere, the Mattaceunk Project operates under the terms of a FERC license and WQC. The Mainstem of the Penobscot River, from the confluence of the West and the East Branches of the Penobscot River to the confluence of the Mattawamkeag River, including the Mattaceunk Project waters, was upgraded to Class B by the Maine Department of Environmental Protection (MDEP) in 2019 (38 MRSA Section 467).

Class B waters must be of such quality that they are "suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as habitat for fish and other aquatic life. The habitat must be characterized as unimpaired." 38 MRSA Title 465. Also, 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 (Colony Forming Units) 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." 38 MRSA Title 465.

Water quality monitoring data collected by the Penobscot Indian Nation (PIN) in support of the 2019 reclassification show that Class B criteria are attained in these reaches, including waters discharged by the Project, and that closure of two upstream paper mills has significantly improved the water quality of these segments. Water quality monitoring data collected during the relicensing efforts also demonstrate that

Project waters meet Class B numeric standards.

Fish Passage

There are anadromous fish species in the lower mainstem of the Penobscot River, and fish passage facilities for migratory species are required and have been installed at the four lower Projects on the mainstem and the Stillwater Branch of the Penobscot River, as dictated by a 2004 Settlement Agreement. The Mattaceunk Project has upstream fish passage facilities that generally target Atlantic salmon, a plan for the installation of upstream fish passage facilities for river herring (alewife and blueback herring), American shad, and American eel, and downstream fish passage facilities for diadromous fish species. Articles 401, 404, 405, 406, 407, 408 and 410 of the Project FERC license contain requirements regarding fish passage and are discussed below.

Article 401 outlines and codifies the requirements of the Section 18 fish passage prescriptions and Section 401 water quality certification conditions as they pertain to fish passage requirements, including the following:

- Upstream American eel fishway design plan
- Downstream American eel fishway design plan (includes new full-depth trash rack with 1-inch clear bar spacing)
- Fishway operation and maintenance plan for upstream and downstream American eel passage
- Upstream alosine fish passage design plan
- Downstream anadromous fish passage design plan (includes new full-depth trash rack with 1-inch clear bar spacing)
- Shakedown plan for newly constructed fish ways for American eel and Alosines
- Upstream diadromous fishway effectiveness study plan(s) for: Atlantic salmon, American eels, and alosines
- Downstream diadromous fishway effectiveness study plan(s) for: Atlantic salmon, American eels, and alosines
- Atlantic salmon smolt mortality in the impoundment plan

Several of the requirements had confusing or inconsistent deadlines. As such, a request for clarification of the timing of fish passage plans and measures was filed with the Commission on August 17, 2021. To that end, GLHA requested the following clarifications:

- The operational date of the upstream passage for American eels is the third fish passage season following license issuance, or June 1, 2023, and that requirements for a season of shakedown and follow up effectiveness testing would be based on this operational date.

- The operational date of the downstream passage measures for American eels is August 1, 2023, the third fish passage season following license

issuance, and shakedown and effectiveness testing will be based on this date.

- The operational date of the downstream one-inch trashrack will be the third fish passage season following license issuance, or April 1, 2023, with requirements for a season of shakedown and effectiveness testing based on this date.

In addition, the August 17, 2021 letter requested an extension of time for certain provisions:

- The Upstream and Downstream American Eel Fishway Design Plans were both due within 6 months of license issuance. However, because these passage measures are not due until 2023, the requirement does not allow sufficient time to finalize design and operational plans for eel passage. GHLA requested an extension of time to February 26, 2022.

- The Downstream Anadromous Fish Passage Design Plans were also due within 6 months of license issuance. However, because these passage measures are not due until 2023, the requirement does not allow sufficient time to finalize the plans. GHLA requested an extension of time to February 26, 2022.

- Fish Passage Operations and Maintenance Plans and Shakedown Plans were required to be filed within 6 months of license issuance for American eel. GLHA requested that these plans be required 60 days following Commission approval of the design plans.

- A Downstream Fishway Effectiveness Study Plan for Atlantic salmon was required to be filed within 2 years of license issuance and also, contradictorily, within 6 months of license issuance. Consistent with Section 10.3.1 of the NMFS Biological Opinion, GLHA requested that the Plan is required to be submitted within 2 years of license issuance.

Article 404 and 405 outlines American eel downstream passage measures, as follows:

> *Article 404. American Eel Downstream Passage Measures. The licensee must file a downstream passage plan for American eels in accordance with U.S. Department of Interior's prescriptions 12.1 and 12.4 (Appendix B) and Article 401(a) of the license. In addition to turbine shut-downs and installing a full-depth trash rack with 1-inch clear bar spacing, the downstream eel passage measures included in the plan must also include opening the project's roller gate during the downstream eel migratory season.*

These measures are consistent with the requirements of Article 401 requiring a downstream American Eel fishway design plan and a Fishway Operation and Maintenance Plan for upstream and downstream American eel passage. As such,

GLHA's August 17, 2021 letter requests clarification of the due dates for this requirement, as discussed above.

> *Article 405. American Eel Upstream and Downstream Passage Monitoring Plans. In accordance with U.S. Department of Interior's prescription 12.6 (Appendix B), the licensee must develop fish passage effectiveness monitoring plans for upstream American eel passage (prescription 12.6.1) and downstream American eel passage (prescription 12.6.2). In addition to the provisions included in prescription 12.6, the plans must include:*
>
> *(1) goals and objectives of the monitoring;*
> *(2) performance criteria for determining the success of the eel passage measures;*
> *(3) methodology used to monitor the effectiveness and efficiency of the upstream and downstream passage measures, as applicable; and*
> *(4) provisions for reporting the results of the monitoring and consultation with the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NMFS), the Maine Department of Marine Resources (Maine DMR), and the Maine Department of Environmental Protection (Maine DEP) regarding the results (to include an annual meeting) and allowing the agencies 30 days to review the results and provide any recommendations for (a) additional monitoring studies, or (b) operational and structural modifications and/or habitat enhancement measures to improve eel passage.*

Upstream and Downstream Fishway Effectiveness Plans for American eel were due within 6 months of license issuance, while the fish passage measures are not due until 2 years following license issuance. As such, GLHA requested an extension of time to 60 days following Commission approval of the design plans by letter dated August 17, 2021.

Article 406 requires an update to the *Fish Passage Operations and Maintenance Plan* that includes provisions for trashrack and downstream surface bypass pipe cleaning; downstream bypass flow monitoring; routine maintenance and start-up and shut-down; emergency operations; and annual reports and reviews. All additions to the Fish Passage Operations and Maintenance Plan must be developed after consultation with NMFS, USFWS, MDEP, Maine Department of Marine Resources (MDMR), and the Penobscot Indian Nation (PIN), and any changes must be approved by the Commission.

The Fish Passage Operations and Maintenance Plan was required to be filed within 1 year of license issuance. GLHA requested, by letter dated August 17, 2021, that these plans be required 60 days following Commission approval of the design plans.

Articles 407 and 408 pertain to Atlantic salmon protection and passage measures. Article 407 requires revision of the Atlantic Salmon Species Protection Plan filed for the Project and was amended by order issued September 23, 2021. As amended, Article 407 states:

Atlantic Salmon Species Protection Plan. Within 90 days of license issuance, the licensee must file, with the Commission for approval, a revised Atlantic Salmon Species Protection Plan. The plan must be based on, and include the provisions of, the final Atlantic Salmon Species Protection Plan, filed on August 31, 2016, as Attachment A of Volume V of the Final License Application, with the following revisions:

(1) identify when to begin implementation of phased spill measures for downstream passage of smolts, with the restriction that phased spill measures would be implemented after a minimum of 1 year and a maximum of 3 years of conducting downstream passage effectiveness studies for smolts, and non-spill passage measures;

(2) identify the 3-week period during which any log sluice or phased spill measures would occur for downstream passage of smolts; and

(3) remove the provision requiring stocking uniquely marked smolts upstream of Mattaceunk Dam in the first 3 years after license issuance to serve as a source imprinted adult salmon used for studying upstream passage of adults and downstream passage of kelts.

The revised Atlantic Salmon Species Protection Plan must be developed after consultation with the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), Maine Department of Marine Resources (Maine DMR), and Penobscot Indian Nation. The licensee must include with the plan, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the agencies above, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including changes required by the Commission.

The revised Mattaceunk Species Protection Plan was filed with the agencies for 30 day review and comment on November 15, 2021.

Article 408 requires incidental take monitoring and reporting and states:

Atlantic Salmon Incidental Take Monitoring and Reporting. Within six months of license issuance, the licensee must file with the Commission for approval, a plan that describes how it will monitor and report all project-related observations of dead or injured Atlantic salmon to the National Marine Fisheries Service (NMFS) and the Commission as required by reasonable and prudent

measures 2 and 4 of NMFS's biological opinion incidental take statement (Appendix D).

The licensee must prepare the plan after consultation with NMFS. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to NMFS, and specific descriptions of how NMFS's comments are accommodated by the plan. The licensee must allow a minimum of 30 days for NMFS to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 408 required that the Incidental Take Monitoring and Reporting Plan be filed with the Commission for approval within six months of license issuance. GLHA's August 17, 2021 letter clarified that the requirements of this article would be addressed through the revised SPP, which was filed with the agencies for 30 day review and comment on November 15, 2021.

Article 410 describes the Commission's authority to require fishways prescribed by the NMFS or USFWS pursuant to Section 18 of the Federal Power Act.

Land Management

Lands within the Mattaceunk FERC project boundary are generally limited to those necessary for operation and maintenance of the Project and for other Project purposes. The Project does not have an abundance of shoreline lands, with the project boundary generally following the full pond elevation of the impoundment, plus lands encompassing the project structures and immediate adjacent lands. The Project does not have a requirement for a Shoreline Management Plan (SMP), but the FERC license does contain a Standard Land Use Article (Article 412) that provides direction for conveying new land uses within the project boundary.

Recreational Resources

Article 401 of the Mattaceunk Project license requires the licensee to implement improvements to Project recreation facilities within 3 years of license issuance and to file as-built documentation within 90 days of completion of the improvements.

The only Project recreational facilities at the Mattaceunk Project are (1) the canoe portage impoundment take out, trail, and tailrace put-in, and (2) the downstream recreation site that provides a picnic and parking area and angler access stairs to the

tailrace. The specific recreation improvements referenced in Article 401 are outlined in the Section 401 WQC Condition E and include: (1) a pulley system to assist boaters with moving car-top boats and other small watercraft up and down the existing stairs at the downstream recreation site; and (2) a ramp adjacent to the existing downstream recreation site pavilion to provide wheelchair access to the pavilion and its associated picnic table.

There are no specific recreation monitoring requirements at the Mattaceunk Project, as the Form 80 recreation reports are no longer required, and site-specific monitoring was not required in the new Project license.

Cultural Resources

Article 411 requires the Licensee to implement the Programmatic Agreement (PA) and file the Historic Properties Management Plan (HPMP) within one year of license issuance. Specifically, Article 411 states:

Programmatic Agreement and Historic Properties Management Plan. The licensee must implement the "Programmatic Agreement between the Federal Energy Regulatory Commission and the Maine State Historic Preservation Officer for Managing Historic Properties that may be affected by Issuing a License to Great Lakes Hydro America, LLC for the Operation of the Mattaceunk Hydroelectric Project in Aroostook and Penobscot Counties, Maine," executed on October 10, 2018 by the Maine State Historic Preservation Officer (SHPO), and including but not limited to the Historic Properties Management Plan (HPMP) for the project. Pursuant to the requirements of this Programmatic Agreement, the licensee must file, for Commission approval, a HPMP within one year of issuance of this order. When filing the HPMP for Commission approval, the licensee must include documentation of consultation with the Maine SHPO and the Penobscot Indian Nation Tribal Historic Preservation Officer (THPO) during the development of the HPMP.

The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the HPMP, the licensee must obtain approval from the Commission, the Maine SHPO, and the Penobscot Indian Nation THPO before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Several archaeological sites (Site 122.30, ME 275001, 275002, 275003, 275004, and 275005), either listed or eligible for listing on the National Register of Historic Places (NRHP), are located in the Project's area of potential effect (APE). The Mattaceunk Project dam (Weldon Dam) and powerhouse (Weldon Station) were determined to be eligible for the NRHP.

1.4.2 LIHI Certification Requirements and Compliance Status

The Mattaceunk Project is not currently LIHI-certified; this is an initial application for certification.

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)	Mattaceunk Project (FERC No. 2520)
Reason for applying for LIHI certification	1. To participate in state RPS program (specify the state and the total MW/MWh associated with that participation (value and % of facility total MW/MWh) 2. To participate in voluntary REC market (e.g., Green-e) 3. To satisfy a direct energy buyer's purchasing requirement 4. To satisfy the facility's own corporate sustainability goals 5. For the facility's corporate marketing purposes 6.Other (describe) River name (USGS proper name)	1. Yes. MA Class II RPS program. 5.5% of the Mattaceunk Project generation output is qualified, estimated to be 91,137 MWh in 2020. 2. Possibly as a secondary channel for participating in REC markets. 3. Possibly, but participating in the MA RPS program is the primary driver. 4. Possibly, but participating in the MA RPS program is the primary driver. 5. Yes, but participating in the MA RPS program is currently the primary reason.
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	5.5% of Mattaceunk's generation (estimated at 91,137 MWh in 2020) is qualified for the MA Class II RPS program
Location	River name (USGS proper name)	Mainstem 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 - Upper Penobscot River
	Nearest town(s), county(ies), and state(s) to dam	Medway, Woodville, Mattawamkeag, and the unorganized township of Molunkus in Aroostook and Penobscot Counties, Maine
	River mile of dam above mouth	RM 67 (*as measured from the tidal portion of the Penobscot River downstream of the Project)*
	Geographic latitude of dam	45° 34.245'N
	Geographic longitude of dam	68° 24.505'W
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Kelly Maloney, Compliance Manager, Northeast Region

Item	*Information Requested*	*Response (include references to further details)*
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Great Lakes Hydro America, LLC Kelly Maloney, Compliance Manager, Northeast Region; This is a new certification
	FERC licensee company name (if different from owner)	
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	Mattaceunk Project FERC No. 2520 Issued February 26, 2021 Expires January 31, 2061
	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. Include links or copies.	# L-10124-33-K-M – June 25, 2020; Maine Department of Environmental Protection
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	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.
Powerhouse	Date of initial operation (past or future for pre-operational applications)	Mattaceunk: 1942
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	19.2 MW
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	123,332 MWh (Period of Record: 2007 to 2015)
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	Run-of-river

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td></td><td>Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit</td><td>4 Turbine-Generators – 2 Kaplan and 2 Fixed Blade
<table>
<tr><th>Unit</th><th>Max Hydraulic Capacity (cfs)</th><th>Unit Authorized Installed Capacity (MW)</th></tr>
<tr><td>1</td><td>1,883</td><td>4,800</td></tr>
<tr><td>2</td><td>1,883</td><td>4,800</td></tr>
<tr><td>3</td><td>1,836</td><td>4,800</td></tr>
<tr><td>4</td><td>1,836</td><td>4,800</td></tr>
<tr><td>TOTAL</td><td>7,438</td><td>19.2</td></tr>
</table></td></tr>
<tr><td></td><td>Trashrack clear spacing (inches), for each trashrack</td><td>Currently, 1 inch clear space for the top 16 ft of depth; 2 5/8 inch at greater depths. Required to be 1 inch clear space for full depth within 2 years of license issuance.</td></tr>
<tr><td></td><td>Dates and types of major equipment upgrades
For recertifications: Indicate only those since last certification</td><td>2004 to 2006 – The Project’s turbines were refurbished, and the Project’s generators were rewound and converted from 40 to 60 Hz.</td></tr>
<tr><td></td><td>Dates, purpose, and type of any recent operational changes
For recertifications: Indicate only those since last certification</td><td>No operational changes from run-of-river operations has occurred.</td></tr>
<tr><td></td><td>Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments</td><td>No facility upgrades or license amendments are planned or anticipated for the recertification period, outside of current regulatory compliance requirements.</td></tr>
<tr><td>Dam or Diversion</td><td>Date of original construction and description and dates of subsequent dam or diversion structure modifications</td><td>The Mattaceunk Project Dam and powerhouse were originally constructed in 1937 - 1942 by the Great Northern Paper Company.

The following modifications have been made:
1962 – The power station was placed on remote control with operation being handled from the control board at the Millinocket boiler house.
1973 – Repairs of the roller gate and gated spillway concrete were performed.</td></tr>
</table>

Item	*Information Requested*	*Response (include references to further details)*
		1976 – The crest of the entire spillway was refaced, and new flashboard pin sockets were installed. 1977 – The downstream faces of 13 spillway monoliths (blocks 4, 5, 6, 8, 10, 12, and 14 through 20) were refaced with concrete, and repairs of the spillway piers, wingwalls, fish ladder, powerhouse walls, tailrace deck, and retaining walls were performed. 1983 – Modifications were made to the Project's existing upstream fishway. 1984 – A new roller gate seal was installed. 1992 – The Project's existing downstream fishway was installed. 1998 – A back-up propane generator for emergency operation of the roller gate was installed. Operator mechanism and limit switches were repaired, and additional security fencing was added after vandals gained entry to the plant and raised the roller gate, which was damaged when the drive chain bound up after the gate passed the normal full-up position. 1999 – Concrete repairs of the gated spillway deck were performed. 2013 – Repairs of the roller gate and gated spillway concrete were completed. Refurbishments to the upstream and downstream fishways were performed.
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	The main, or spillway portion of this dam, is approximately 1,060 feet long and has a head of approximately 41 feet. The dam, which is fitted with 4-foot high flashboards (creating a full pond elevation of 240 feet USGS), is of earthen embankment and concrete gravity design and has a crest elevation of 236 feet USGS. The roller gate spillway portion of this dam is also of concrete gravity design and is approximately 114 feet long.

Item	*Information Requested*	*Response (include references to further details)*
	Spillway elevation and hydraulic capacity	The spillway is 657.5 ft long, topped with 4.0 ft flashboards. The spillway has a discharge capacity of approximately 16,605 cfs at an elevation of 240 feet USGS. The roller gate spillway is 114 ft long with a single steel roller gate with a discharge capacity of 25,637 cfs at the full pond elevation of 240 feet USGS.
	Tailwater elevation (provide normal range if available)	Tailwater elevation of 199.0 ft at maximum powerhouse hydraulic capacity of 7,438 cfs
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	The powerhouse intake is integral to the dam.
	Dates and types of major infrastructure changes	See "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
	Source water	Mainstem of the Penobscot River
	Receiving water and location of discharge	Mainstem below the confluence of the West Branch and the East Branch of the Penobscot River
Conduit	Date of conduit construction and primary purpose of conduit	N/A
Impoundment and Watershed	Authorized maximum and minimum impoundment water surface elevations **For recertifications: Indicate if these values have changed since last certification**	The Project impoundment water level shall be maintained no lower than 2.0 feet below (238.0 feet) the crest of the 4-foot-high flashboards (240.0 feet) when the flashboards are fully installed, or no lower than 1.0 feet below (235.0 feet limit) the sill elevation (236.0 feet) when the flashboards are not fully installed.
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	See above.

Item	*Information Requested*	*Response (include references to further details)*
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	Gross Storage Volume: Estimated 20,891 acre-ft. Surface Area: 1,664 acres at full pond
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	Negligible; run-of-river
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g. fluctuation limits, seasonality) up/down ramping and refill rate restrictions.	Operated in a run-of-river mode where inflow equals outflow. Flows in excess of station hydraulic capacity are spilled through the log sluice, roll gate, or over the spillway. No ramping or refill rate restrictions.
	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.	Medway Dam (FERC No. 2666), owned and operated by Black Bear Hydro Partners, LLC (BBHP), is located approximately 7 miles upstream on the West Branch of the Penobscot River. The Medway Project has downstream fish passage, in the form of a bell mouth weir opening in an abandoned gate, for American eels. East Millinocket and Dolby Developments, both part of the Penobscot Mills Project (FERC No. 2458), respectively located upstream at miles 2.3 and 4.2 as measured from the confluence of the West and East Branches of the Penobscot River; both are owned and licensed to Great Lakes Hydro America, LLC (GLHA); these Developments do not have anadromous fish present and do not have downstream fish passage.

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td></td><td>Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage</td><td>West Enfield Project, FERC No. 2600 – owned and licensed by Bangor-Pacific Hydro Associates; river mile 38 (as measured to head-of-tide in Bangor, Maine)

Milford Project, FERC No. 2534 – owned and licensed by BBHP; river mile 12 (as measured to head-of-tide in Bangor, Maine)

Each of these projects has upstream fish and eel passage facilities.</td></tr>
<tr><td></td><td>Operating agreements with upstream or downstream facilities that affect water availability and facility operation</td><td>Brookfield operates all facilities in the Mainstem of the Penobscot River downstream of the Mattaceunk Project and on the West Branch of the Penobscot River upstream of the Project. Mainstem flows are dictated by GLHA's Storage, Ripogenus, and Penobscot Mills Project FERC licenses; operations of the Penobscot River mainstem facilities downstream of the Mattaceunk Project are dictated by the project FERC licenses and a 2004 Settlement Agreement (which determine flows to the mainstem and Stillwater Branch of the Penobscot River).</td></tr>
<tr><td></td><td>Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.</td><td>Water: 1,664 acres
Land: approximately 20 acres</td></tr>
<tr><td>Hydrologic Setting</td><td>Average annual flow at the dam, and period of record used</td><td><u>Mattaceunk</u>
Period of Record 2010-2015
<table><tr><th>Year</th><th>Average Flow (cfs)</th></tr><tr><td>2010</td><td>7,712</td></tr><tr><td>2011</td><td>7,879</td></tr><tr><td>2012</td><td>5,431</td></tr><tr><td>2013</td><td>5,858</td></tr><tr><td>2014</td><td>6,095</td></tr><tr><td>2015</td><td>5,614</td></tr><tr><td>Average</td><td>6,432</td></tr></table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td></td><td>Average monthly flows and period of record used</td><td><u>Mattaceunk</u>
Period of Record 1995-2015
<table><tr><th>Month</th><th>Average Flow (cfs)</th></tr><tr><td>January</td><td>5,437</td></tr><tr><td>February</td><td>5,216</td></tr><tr><td>March</td><td>5,800</td></tr><tr><td>April</td><td>9,715</td></tr><tr><td>May</td><td>9,280</td></tr><tr><td>June</td><td>6,269</td></tr><tr><td>July</td><td>5,071</td></tr><tr><td>August</td><td>4,427</td></tr><tr><td>September</td><td>5,106</td></tr><tr><td>October</td><td>6,152</td></tr><tr><td>November</td><td>5,738</td></tr><tr><td>December</td><td>6,215</td></tr></table></td></tr>
<tr><td></td><td>Location and name of closest stream gauging stations above and below the facility</td><td>Upstream: USGS 01027200, North Branch of the Penobscot River near Pittston Farm; USGS 01027240, South Branch of the Penobscot River near Canada Falls Lake; USGS 01029500, East Branch of the Penobscot River at Grindstone

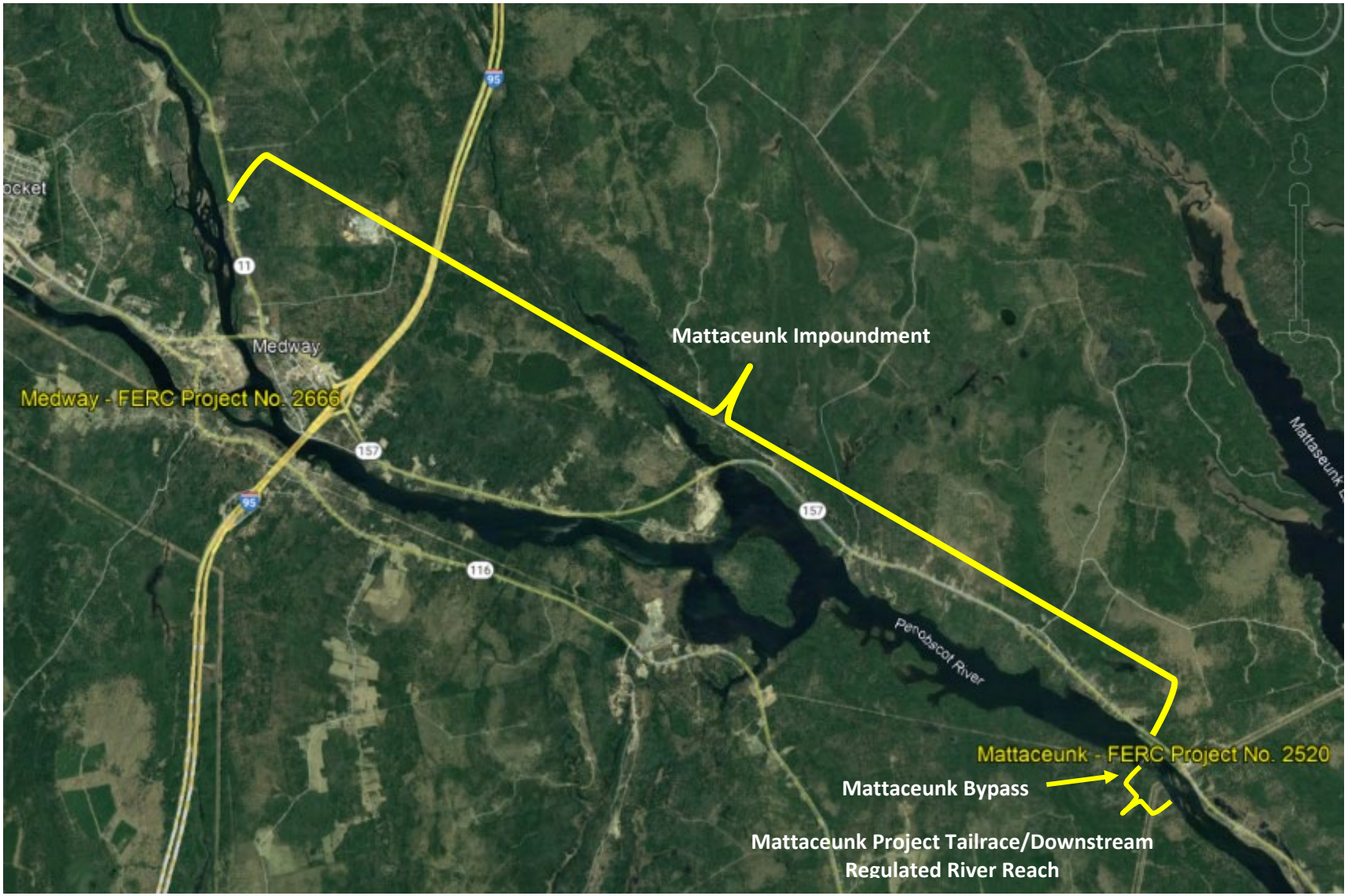
Downstream: USGS 01034500, Penobscot River at West Enfield, Maine</td></tr>
<tr><td></td><td>Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.</td><td><u>Mattaceunk</u>
3,348 sq. miles (not prorated)</td></tr>
<tr><td>Designated Zones of Effect</td><td>Number of zones of effect</td><td>3</td></tr>
<tr><td></td><td>Upstream and downstream locations by river miles</td><td>Zone 1: Mattaceunk Impoundment; RM 67 to 74
Zone 2: Mattaceunk Bypass Reach; RM 66.95 to 67
Zone 3: Mattaceunk Project Tailrace/Downstream Regulated River Reach; RM 66.7 to 67</td></tr>
</table>

Pre-Operational Facilities		
Expected operational date	Date generation is expected to begin	N/A
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 Mattaceunk Project Impoundment Zone of Effect backwaters from the Mattaceunk Project Dam (Weldon Dam) upstream to the Medway Dam (FERC No. 2666). The Mattaceunk Project also includes a short 300 ft long Bypass Zone of Effect. The bypass reach discharges into the Mainstem of the Penobscot River merging with the Project's turbine discharge flows. The short reach of the Mainstem of the Penobscot River from the Project tailrace downstream to the terminus of the Project boundary constitute the Tailrace/Downstream Regulated River Reach. The Mattawamkeag River converges with the mainstem of the Penobscot River, serving as an additional hydrologic input, approximately 4 miles downstream.

FIGURE 5. ZONES OF EFFECT – MATTACEUNK PROJECT



2.1 ZONE 1 – MATTACEUNK IMPOUNDMENT

Weldon Dam backwaters the West Branch of the Penobscot River to the base of the Medway Dam and the East Branch of the Penobscot River approximately 1.5 miles upstream of the East and West Branch confluence. The Zone of Effect for this reach extends from RM 67 (the location of the dam) to RM 74 (the confluence of the West and East Branches of the Penobscot River), but also includes the approximately 1.5 miles of the East Branch and the approximately 0.25 miles of the West Branch that are backwatered.

FIGURE 10. ZONE 1 – MATTACEUNK IMPOUNDMENT

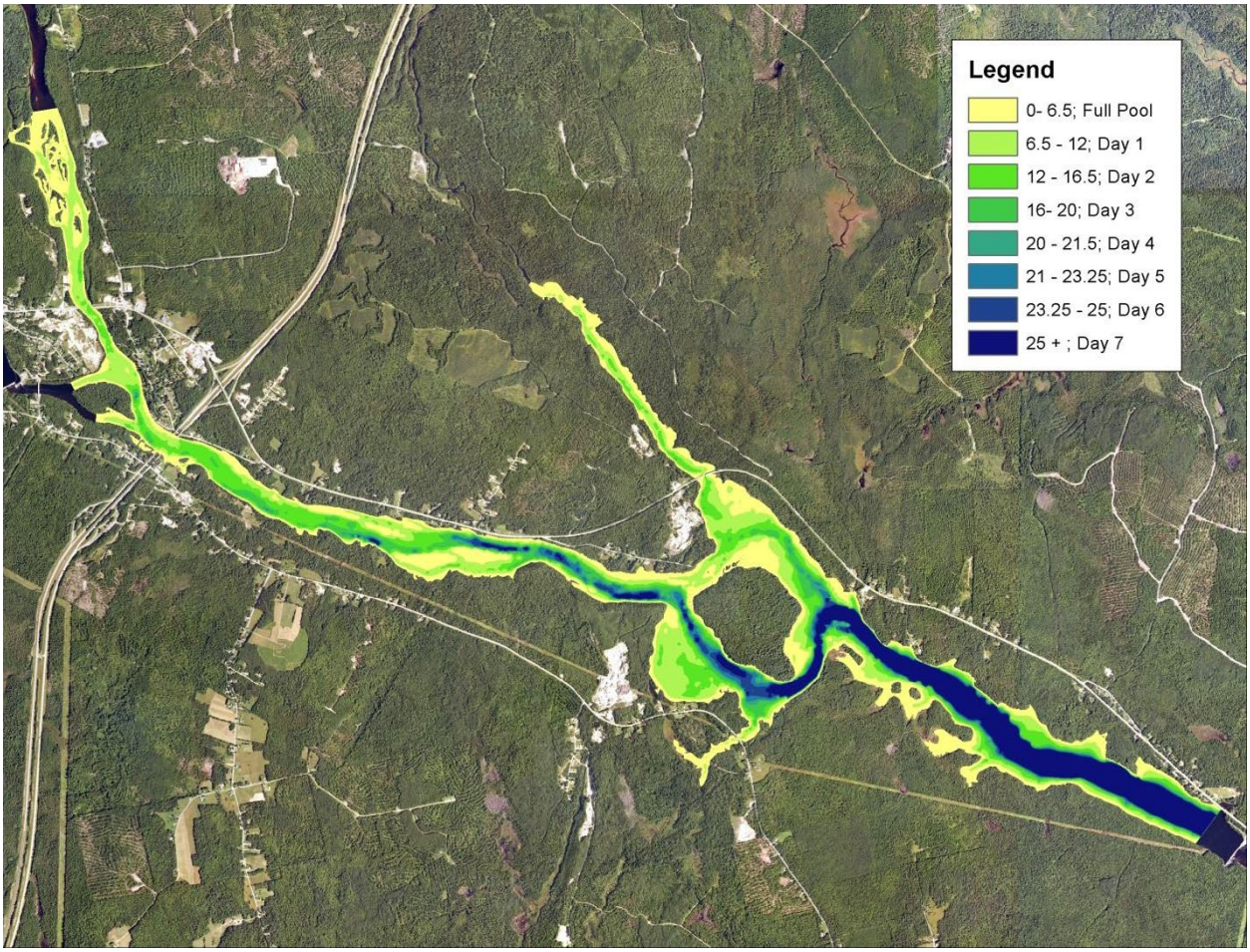


TABLE 2. ZONE 1 – MATTACEUNK IMPOUNDMENT MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Mattaceunk Project **Zone of Effect: 1– 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*	*X*		
G	**Cultural and Historic Resources Protection**		*X*			
H	**Recreational Resources**		*X*			

As discussed above, the reach of the Mainstem of the Penobscot River upstream of the Mattaceunk Project receives run-of-river flows from the Medway Project and the East Millinocket and Dolby Developments, both part of the Penobscot Mills Project. The Mattaceunk impoundment is backwatered by Weldon Dam to the base of the Medway Dam on the West Branch of the Penobscot, and the backwater effect extends approximately 1.5 miles up the East Branch of the Penobscot River. The Mattaceunk Project is operated in a run-of-river mode with minimum impoundment fluctuations (no more than 2 feet below full pond when the flashboards are in, and no more than 1 foot below the crest elevation of the dam when the flashboards have failed). This operational flexibility is necessary to accommodate unregulated inflows from the East Branch. However, the Project is maintained within 6 inches of the top of the flashboards the vast majority of the time. Occasional drawdowns for maintenance, inspections, or to replace the flashboards have been undertaken, as discussed above. This reach is designated as Class B, and water quality monitoring indicates that this reach meets water quality standards.

There are anadromous fish species in this section of the Mainstem of the Penobscot River, and the Mainstem is managed for resident fish species such as landlocked salmon, brook trout, and smallmouth bass; in addition, the Mainstem of the Penobscot River is designated as critical habitat for endangered Atlantic salmon, which utilize designated critical habitat in the Mainstem and East Branch of the Penobscot River. As a result, there are upstream and downstream fish passage facilities at Weldon Dam for anadromous fish, primarily targeting Atlantic salmon; upstream and downstream passage measures for catadromous American eels are scheduled to become operational in 2023. The Project operates under a Species Protection Plan (SPP) and NMFS Biological Opinion that provide protection measures for Atlantic salmon (the restoration focus of which is on the Mainstem of the Penobscot River and its tributaries, including the unimpeded East Branch of the Penobscot River).

Other than the dam parcel, impoundment shoreline lands are not located within the project boundary. The shoreline lands at the Mattaceunk Project are unaffected by Project operations, as the Project is managed for a stable headpond, and only Project structures and recreation facilities occupy lands within the project boundary.

As with the other Zones of Effect, three species are listed as federally Endangered/Threatened in the Project area, Canada lynx, Atlantic salmon, and Northern Long-Eared Bat (NLEB). Threatened, endangered, and state-listed special concern bats, including NLEB, which are also listed as state-endangered, are not affected by routine Project operations, as there are minimal lands within the project boundary and limited vegetation management activities conducted by GLHA. Atlantic salmon are present in the Mattaceunk impoundment, as upstream passage is provided for anadromous fish at Weldon Dam. Brook floater, tidewater mucket, and yellow lampmussel are listed as state-threatened and documented in this zone of effect, but run-of-river operations ensure limited effects.

There are several archaeological sites at the Project, which are at little risk due to stable headpond management operations, and there is an HPMP for the Project. Recreation facilities in this Zone of Effect include the canoe portage trail take-out.

2.2 ZONE 2 – MATTACEUNK BYPASS REACH

Weldon Dam consists of a concrete structure with an integral powerhouse. The ungated dam spillway is approximately 657.5 feet long, and the roller gate spillway is approximately 114 feet long. The bypass reach of the Project extends approximately 300 feet below the spillway section of the dam from RM 66.95 to RM 67 of the Mainstem of the Penobscot River. The Project is operated in a run-of-river mode. Flows in excess of the station's hydraulic capacity are discharged through the log sluice, roll gate, or over the spillway.

FIGURE 11. ZONE 2 – MATTACEUNK BYPASS REACH

TABLE 3. ZONE 2 – MATTACEUNK BYPASS REACH

Facility Name: Mattaceunk Project **Zone of Effect: 2– Mattaceunk 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*	*X*		
G	Cultural and Historic Resources Protection		*X*			
H	Recreational Resources		*X*			

As discussed above, the Mattaceunk Project is operated as a run-of-river facility with stable headpond management and inflows passed as outflows via the powerhouse, log sluice, roll gate, and the spillway (spillage flows are discharged to the bypass reach). The water quality of this reach is classified as Class B. There are anadromous fish species in this section of the Mainstem of the Penobscot River downstream of Weldon Dam, as there are both upstream and downstream fish passage facilities for migratory species at the Project, along with other hydro projects further downstream on the Mainstem of the Penobscot River. The Mainstem of the Penobscot River in the vicinity of the Project is also managed for resident fish species, such as landlocked salmon, brook trout, and smallmouth bass. The Mainstem, including this Zone of Effect, is designated as critical habitat for Atlantic salmon. Weldon Dam is also required to have upstream and downstream eel passage facilities in place and operational in 2023.

There are no shoreline lands within this Zone of Effect. Weldon Dam operates to pass inflows in a run-of-river fashion, so lands adjacent to this Zone of Effect are generally unaffected by Project operations.

Three species are listed as federally Endangered/Threatened in the Project area, Canada lynx, Atlantic salmon, and NLEB, which is also state-listed as endangered along with several bat species of Special Concern. None are affected by routine Project operations, as there are no lands within this Zone of Effect, and the Project operates under a SPP and NMFS Biological Opinion that provide protection measures for Atlantic salmon. The three state listed mussel species identified in the Project impoundment would not be expected in the high velocity area of the bypass reach. There are no archaeological sites at the Project, nor in this Zone of Effect, though the dam and powerhouse themselves are eligible for listing under the NRHP. The only recreation site within this Zone of Effect is the canoe portage trail and put-in.

2.3 ZONE 3 - MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER REACH

Weldon Dam is comprised of a single powerhouse integral with the dam. The tailrace begins at RM 67 and extends downstream to RM 66.5 of the Mainstem of the Penobscot River (as measured from the powerhouse to the downstream extent of the project boundary). The regulated river reach continues 4 miles downstream to the confluence with the Mattawamkeag River, a significant hydrologic contributor to flows in the Mainstem of the Penobscot River.

FIGURE 12. ZONE 3 - MATTACEUNK PROJECT TAILRACE

FIGURE 13. ZONE 3 - MATTACEUNK PROJECT REGULATED RIVER REACH

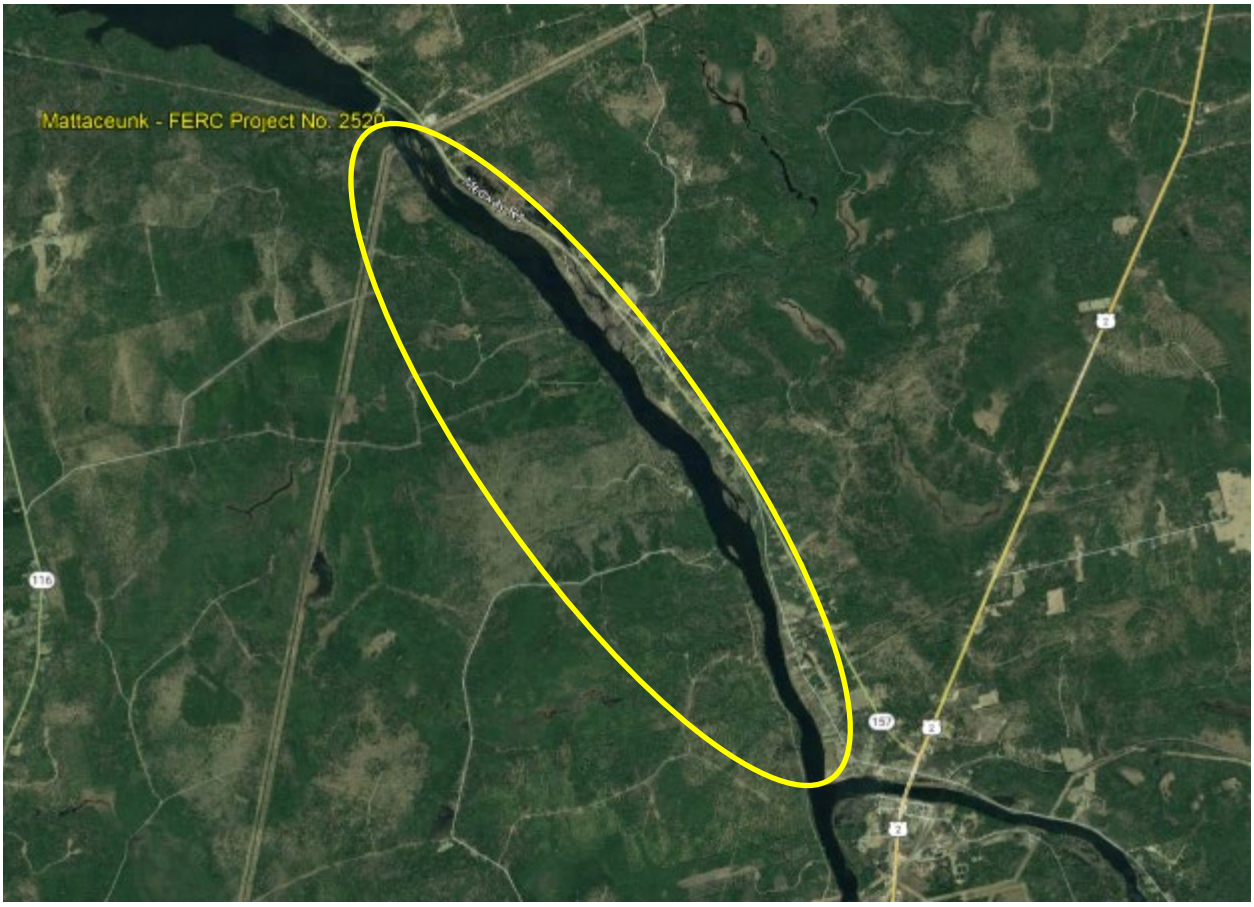


TABLE 4. ZONE 3 - MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER REACH MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Mattaceunk Project **Zone of Effect: 3– Mattaceunk Project Tailrace**

	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*	*X*		
G	Cultural and Historic Resources Protection		*X*			
H	Recreational Resources		*X*			

The Mattaceunk Project Tailrace/Downstream Regulated River Reach receives water from the powerhouse, which converges with flow from the bypass reach and flows a short distance down the Mainstem of the Penobscot River to its confluence with the Mattawamkeag River.

The portions of the Mainstem of the Penobscot River in this reach are Class B. There are anadromous fish species in this reach, as there are upstream and downstream fish passage facilities for migratory species at the Mattaceunk Project and at the mainstem projects downstream (West Enfield and Milford Projects). In addition, GLHA is required to install upstream and downstream passage measures for catadromous American eels that are scheduled to become operational at the Project in 2023. The entire Mainstem of the Penobscot River (including upstream of Weldon Dam to the confluence of the East and West Branches) is designated as critical habitat for the endangered Atlantic salmon. The Project operates under an SPP and NMFS Biological Opinion that provide protection measures for this species. In addition to Atlantic salmon, Canada lynx and several species of bat are listed under the federal and/or state ESA, but they are unaffected by Project operations. Three species of state-listed mussels, identified in the Project impoundment, would not be expected in the high velocity reach of the Project tailrace, but they may be present in portions of the regulated river reach downstream.

There are few lands within the project boundary in this Zone of Effect, save for small areas of shoreline adjacent to the powerhouse and those for the canoe portage trail and downstream recreation site. There are no known archaeological sites in this Zone of Effect, though the Project dam and hydro station structures are eligible for listing under the NRHP.

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.

The Project is operated in run-of-river mode, targeting generally stable headpond elevations, while allowing some accommodation for inflows from the unregulated East Branch of the Penobscot River. The Project bypass reach receives water from spill flows and is backwatered by the tailrace. The Project also has a minimum flow requirement, taking all powerhouse and spill flows into account.

3.1.1 ZONE 1 - MATTACEUNK IMPOUNDMENT

Criterion	Standard	Supporting Information
A	**1** The facility operates in a true run-of-river operational mode and there are no bypassed reaches or water diversions associated with the facility	Not Applicable / De Minimis Effect: • For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. • For impoundment zones only, explain water management (e.g., fluctuations, ramping, refill rates) and how fish and wildlife habitat within the zone is evaluated and managed.

The Mattaceunk impoundment is operated in accordance with the FERC license and Section 401 WQC to target a stable headpond by passing inflows equivalent to outflows and by limiting impoundment drawdowns to 2 feet from the full pond elevation when the flashboards are in place and functional.

As detailed in FERC's Environmental Assessment (EA), based on analysis conducted as part of relicensing efforts for impoundment fluctuation curves from 2008 to 2015, water levels rarely deviated by more than 0.5 foot from the full pond elevation of 240.0 feet when the flashboards were in place. The only exceptions were for flashboard replacement and downstream fishway repairs, which occurred 8 times over 9 years, including several other scheduled maintenance activities. In addition, GLHA conducted numerous studies for the purpose of relicensing that considered the effects of impoundment fluctuation on aquatic resources, soil and geology, terrestrial, and cultural resources, all of which indicated that the minimal impoundment fluctuations of the Project resulted in stable impoundment and downstream habitats. These studies are discussed by resource below.

Brookfield's National System Control Center (NSCC) continuously monitors Mattaceunk Project operations, including impoundment elevations and flows through Weldon Station and as

discharged via the log sluice, roll gate, and spillway, in order to maintain compliance with requirements for run-of-river operations and headpond elevations. Maintenance of stable headpond elevations assures compliance with run-of-river obligations. To maintain a stable headpond, inflows into the Mattaceunk Project to be passed downstream into the Mainstem of the Penobscot River are monitored by the NSCC.

The Project operates under a FERC-approved Operation Compliance Monitoring Plan, required under Article 402, and in run-of-river mode pursuant to Article 403. Any deviations from run-of-river operations, headpond elevations, or minimum flow requirements at the Mattaceunk Project are reported to FERC as described above in Section 1.2. Because this Zone of Effect is operated in run-of-river mode with stable headpond elevations and inflows equal to outflows, Standard 1 applies.

3.1.2 ZONE 2 - MATTACEUNK BYPASS REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with science-based resource 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 formal 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). • Explain how flows are monitored for compliance.

There is no prescribed minimum flow into the bypass reach at the Project because the powerhouse is integral with the dam, the bypass is very short, and it is backwatered by the tailrace. As such, all flows at the Project are passed such that inflows approximate outflows and a stable headpond is maintained, as discussed above and as required by the Project license. The Project operates under an Operations Compliance Monitoring Plan, as required by License Article 402. As a result, Standard 2 applies for the Project's Bypass Reach Zone of Effect.

3.1.3 ZONE 3 - MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with science-based resource 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 formal 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). • Explain how flows are monitored for compliance.

As discussed above, flows are discharged from Weldon Station to the Mainstem of the Penobscot River. Flows are conveyed downstream of the Mattaceunk Project via the log sluice, roll gate, spillway, fishways, or the Project's powerhouse. In accordance with Condition B.1 of the Project Section 401 water quality certification, a total minimum flow of 1,674 cfs or inflow, whichever is less, and a daily average minimum flow of 2,393 cfs from July 1 through September 30 or 2,000 cfs from October 1 through June 30, is required to be released from the Project to protect downstream fish and aquatic resources, unless inflow is less than the stated daily average minimum flows, in which case outflow from the Project would equal the inflow to the Project.

According to the FERC EA, the existing and proposed continuous minimum flow of 1,674 cfs initially was based on providing a flow volume approximating the historical, unregulated, median August flow in the Penobscot River. The Minimum Flow Habitat Study, conducted for relicensing, demonstrated that aquatic habitat and a zone of passage for fish migration remain suitable during minimum flow conditions. Based on the habitat mapping and transect profile data, which show extensive connectivity of deep-water along both shorelines, the deep-water habitats extend well into the channel. The 1,674 cfs minimum flow was almost always exceeded at Weldon Dam during months when eel and Atlantic salmon migrations typically occur (May to November). The rare occurrences when flows dropped below 1,674 cfs typically represented drought conditions within the watershed that were out of the GLHA's control. No alternative

minimum flow recommendations were made by the agencies. and Condition B.1. of the Section 401 water quality certification requires the above referenced minimum flows.

The NSCC monitors all discharges from Weldon Station and via spill at Weldon Dam, pursuant to the FERC and agency-approved Operation Compliance Monitoring Plan. Any deviations from run-of-river operations at the Mattaceunk Project are reported to FERC as described above in Section 1.2. Due to these operations, Standard 2 applies for Zone 3.

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.

The Mainstem of the Penobscot River inclusive of Mattaceunk Project waters is Class B. According to Maine statute, Class B waters must be suitable for the following designated uses: 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 habitat for fish and other aquatic life.

The water quality standards for Class B waters require that dissolved oxygen (DO) be maintained at not less than 7 parts per million (ppm) or 75 percent saturation, whichever is higher, except that for the period from October 1 to May 14, when the 7-day mean DO concentration must not be less than 9.5 ppm and the 1-day minimum DO concentration must not be less than 8.0 ppm in identified spawning areas in order to ensure spawning and egg incubation of indigenous fish species. MDEP historically conducted ambient water quality sampling in the Mainstem with all DO readings in attainment. Water quality monitoring conducted by the PIN as part of the 2019 water quality classification upgrade indicated that Project waters are in compliance.

Class B water quality standards also include numeric criteria for Escherichia coli. The standard requires that waters "maintain the level of Escherichia coli bacteria of human and domestic animal origin below a geometric mean of 64 CFU per 100 milliliters or an instantaneous level of 236 CFU per 100 milliliters."

According to MDEP's 2016 Integrated Water Quality and Assessment Report (305(b) report) and 303(d) list to the U.S. Environmental Protection Agency, the Mainstem of the Penobscot River above the confluence of the Mattawamkeag River, including the Mattaceunk Project waters, is classified by MDEP as a Category 4B water— Rivers and Streams Impaired by Pollutants - Pollution Control Requirements Reasonably Expected to Result in Attainment—as a result of Nutrient/Eutrophication Biological Indicators and DO, which are not influenced or caused by Project operations. Both impairments are attributed to discharges from the former paper mills in Millinocket and East Millinocket. The closure of the mills has resulted in attainment of Class B water quality standards, resulting in an upgrade in this river reach in 2019.

The June 25, 2020 Section 401 water quality certification is provided in Section 7.0.

3.2.1 ZONE 1 - MATTACEUNK 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: • 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.

Water quality studies conducted as part of Project relicensing and subsequent water quality reclassification activities indicate that the water quality in the Mattaceunk impoundment meets Class B criteria. All designated uses, which are consistent between Class B and Class C, were deemed to have been met as outlined in the 2020 Section 401 WQC. Specific to aquatic habitat, this designated use was deemed to be met though run-of-river operations (stable impoundment elevations).

This section of the Mainstem of the Penobscot River is not likely impaired, as pollution control requirements likely result in attainment according to MDEP's 2016 305(b) report and 303(d) list.

Any deviations from run-of-river operations and headpond elevations at the Project are reported to FERC as described above in Section 1.2.

3.2.2 ZONE 2 - MATTACEUNK BYPASS 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: • 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.

As discussed in Section 3.1.3, any excess flows are passed into the bypass reach downstream of Weldon Dam, and this channel is backwatered by the tailrace. DO monitoring as part of the relicensing, and the 2019 water quality reclassification upgrade shows attainment of water quality standards (see Section 6.0).

This section of the Mainstem of the Penobscot River is not likely impaired as a result of pollution controls according to MDEP's 2016 305(b) report and 303(d) list.

3.2.3 ZONE 3 - MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER 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: • 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.

As discussed above, the reach of the Mainstem of the Penobscot River below Weldon Dam is designated as Class B as the result of water quality reclassification efforts in 2019. All designated uses were deemed to have been met as outlined in the 2020 Section 401 WQC (Class B and Class C have the same designated uses). Impairments were identified for this reach of the Mainstem of the Penobscot River in the 2016 303(b) Report, as discussed above, but were related to E. coli and DO issues unrelated to Project operations that are now assumed to be resolved.

Any deviations from run-of-river operations and minimum flows at the Project are reported to FERC as described above in Section 1.2.

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."

The Mainstem of the Penobscot River is critical habitat for Atlantic salmon through Project waters upstream to the confluence of East and West Branches of the Penobscot River, along with the East Branch of the Penobscot River upstream to Matagamon Dam (see NMFS' 2020 Biological Opinion for the Mattaceunk Project). There is an upstream fish passage facility currently available at the Mattaceunk Project, and diadromous fish, including American shad, river herring, American eel, and Atlantic salmon can reach Weldon Dam after passing downriver projects.

The current upstream fishway consists of a pool and weir design that has 36 pools with a drop of approximately 14 inches between pools. Fish are able to ascend the fishway by way of either submerged orifices or weir notches. Flows through the fishway consist of 6- to 8-cfs transport flow with an additional attraction water flow of 7 cfs for a total flow of 13 to 15 cfs. The impoundment is maintained with minimal fluctuation in elevation when the flashboards are in place, thereby maintaining relatively stable fishway inflows. The fishway is typically operated from May 1 through November 10. Under the infrequent conditions of high flows causing flashboard failure and the need for replacement or repair, the impoundment is temporarily drawn down (typically no more than 1 to 3 days) up to 1 foot below the permanent crest of the dam. Under these conditions, the upstream fishway is not operational.

Article 401 requires the installation of a new fishway in Year 15 of the Project license specifically targeted for alosines, in compliance with the Section 18 fish passage prescriptions and Section 401 water quality certification.

The Mainstem of the river is also managed by the State of Maine for resident fish species, such as landlocked salmon, brook trout, and smallmouth bass.

There are also designated upstream eel passage facilities at the lower Penobscot River Projects, but not currently at the Mattaceunk Project, although eels are known to pass through the current upstream pool and weir fishway at Weldon Dam. Article 401 requires upstream eel

passage measures within 2 years of license issuance, in compliance with the Section 18 fish passage prescriptions and Section 401 water quality certification.

3.3.1 ZONE 1 – MATTACEUNK IMPOUNDMENT

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. If migratory fish were present historically, the facility did not contribute to the extirpation of such species	Not Applicable / De Minimis Effect: • 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 not or was not the cause of the extirpation.

The Mainstem of the Penobscot River, including Project waters, is within historical habitat for Atlantic salmon and is designated as critical habitat, including upstream of Weldon Dam within this impoundment Zone of Effect. Approximately 15 percent of the available shad habitat is located above Weldon Dam. Less than 1 percent of the lake spawning habitat in the Penobscot basin for alewives is located upstream of the Mattaceunk Project. Blueback herring is not defined in the Penobscot River Management Plan and has not been estimated but is assumed to be low in comparison with available habitat in the rest of the watershed.

The Project operates under the terms and conditions of NMFS 2020 Biological Opinion for Atlantic salmon. Requirements for upstream fish passage facilities, studies, and fish protection provisions are included in the Project's Biological Opinion and FERC License (see Section 6.0).

Currently, the only anadromous species present in the Mainstem of the Penobscot River above Weldon Dam is Atlantic salmon, based on fish passage studies at the Project. There are no other anadromous fish species upstream of Weldon Dam nor in the Mattaceunk impoundment, as river herring and shad have not been observed successfully passing the existing upstream fishway at the Mattaceunk Project. A new upstream fish passage facility to better accommodate alosines is required to be installed at the Project in year 15 of the project license.

The Project does not currently have a dedicated upstream eel passage facility, although upstream migratory connectivity for American eels is known to occur through the existing upstream fishway. Eels are also known to utilize the upstream eel passage facility at the upstream Medway Project, indicating that they have successfully passed Weldon Dam (in spite

of a lack of dedicated passage facilities) and traversed the Mattaceunk impoundment to reaches upstream. The Project is required to install a dedicated upstream eel passage facility within 2 years of license issuance.

The Mattaceunk impoundment does not present an impediment to passage upstream of the dam and is a direct link to the extensive reach of the predominantly unimpounded East Branch of the Penobscot River.

3.3.2 ZONE 2 – MATTACEUNK BYPASS REACH

Criterion	Standard	Supporting Information
C	**2** The facility is in compliance with science-based fish passage recommendations issued by appropriate resource agency(ies) for the facility and which may include provisions for appropriate monitoring and effectiveness determinations.	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. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g. meets season, coordination with agencies)

Currently, diadromous species are present in the Mainstem of the Penobscot River below Weldon Dam, including Atlantic salmon, river herring and American shad, based on fish passage observations and studies conducted at the downstream West Enfield Project. As outlined in the NMFS 2020 Biological Opinion, the Mainstem of the Penobscot River is within historical habitat for Atlantic salmon and is designated as critical habitat, including within this Zone of Effect.

While Weldon Dam currently presents a barrier to alosines, as existing fish passage facilities are used almost exclusively by Atlantic salmon, eels, and resident species, fish passage facilities, studies, and fish protection provisions are included in the Project's Biological Opinion and FERC License, including the Section 18 fish passage prescriptions and Section 401 water quality certification (see Section 6.0). These requirements include a second upstream fish passage facility at the Project to be installed in year 15 of the Project license and an upstream eel passage facility that is required within 2 years of license issuance.

American eel are present in the bypass reach of the Project, as they were documented in this area during relicensing studies. As outlined in the FERC EA, the eels observed during the night-time surveys ranged from an estimated 4 to 24 inches in length. Approximately 366 were 5 to 8 inches in length, which were the most abundant sizes observed. Approximately 55 eel were 4 to 5 inches in length; 34 eel were 10 to 18 inches in length; and 1 eel was about 24 inches in length. The majority of the eel were observed staging or in the process of migrating up the face of Weldon Dam, along the right descending bank (looking downstream from the dam), in leakage flow at the upper portion of the toe of the dam, or within the two upper pools of the bedrock habitat. Eel were also observed within crevices along the lower portion of the toe, either climbing directly up the spillway or toward the upper portion of the toe.

FIGURE 14. UPSTREAM EEL MIGRATION ROUTES IN THE MATTACEUNK DAM BYPASS REACH

Based on the upstream eel passage study, GLHA developed a conceptual design for seasonal upstream passage for eel at the Project. The design would consist of a seasonal,

upstream eel ladder, which would be located adjacent to the right descending bank, along the west abutment of the spillway. This type of eel passage is similar to typical upstream eel ramps installed at other hydropower facilities in Maine. The facility would include: (1) a siphon or pump system installed in the headpond (to provide attraction and conveyance flow); (2) a sloped aluminum or wooden eel ramp with Enkamat attached as the climbing substrate; (3) a temporary trapping component (*e.g.*, holding tank); and (4) a small-diameter flexible conduit extension leading directly into the headpond (for future volitional passage). As discussed above, the eel passage facility will be installed within 2 years of license issuance to be operational in 2023.

While numbers of Atlantic salmon in the Mainstem Penobscot River have precluded effectiveness testing at the Project, 3,859 adult Atlantic salmon were tallied passing the upstream fishway at the Mattaceunk Project from 1983 to 2016. Since the 1980s, a few upstream Atlantic salmon passage efficiency studies have been conducted at the Mattaceunk Project. A radio telemetry study conducted in 1986, following a series of fishway modifications that were made in support of relicensing, indicated that 71 percent of radio-tagged salmon, and 89 percent of control salmon (externally tagged without a radio), successfully passed upstream of the project using the upstream fishway.

3.3.3 ZONE 3 – MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER REACH

Criterion	Standard	Supporting Information
C	**2** The facility is in compliance with science-based fish passage recommendations issued by appropriate resource agency(ies) for the facility and which may include provisions for appropriate monitoring and effectiveness determinations.	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. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g. meets season, coordination with agencies)

As with the Zone of Effect 2, diadromous species currently present in the Mainstem of the Penobscot River below Weldon Dam include Atlantic salmon, alosines, and American eel. The Mainstem of the Penobscot River, including the tailrace and the regulated river reach downstream of Weldon Dam to the confluence with the Mattawamkeag River, is within

historical habitat for Atlantic salmon and is designated as critical habitat, including within this Zone of Effect.

Upstream fish passage is provided at the Mattaceunk Project but is predominantly utilized by Atlantic salmon, eels, and resident species. Fish passage facilities, studies, and fish protection provisions are included in the Project's Biological Opinion and FERC License (see Section 6.0). A new upstream fish passage facility is required by Year 15 of the new license (2036), while the upstream eel passage facility will be installed and operational in 2023.

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. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility."

As discussed elsewhere, the Mainstem of the Penobscot River in the vicinity of Weldon Dam is critical habitat for Atlantic salmon, but they are generally the only anadromous species currently present in the Mainstem of the Penobscot River above Weldon Dam (based on fish passage observations at the Project). Catadromous eel are present upstream of Weldon Dam based on observations conducted at the Project and observations of eel passing the upstream Medway Project.

There is a downstream fish passage facility at the Mattaceunk Project that was installed in 1992. The downstream fishway (i.e., surface bypass) consists of single surface inlets integral with the trash racks in two of the four turbine forebays (intakes 3 and 4), and a buried 42-inch-diameter stainless steel pipe for passing fish to the tailrace area at a maximum flow capability of 140 cfs. In addition, a trapping and monitoring facility is present at the outlet of the bypass pipe. This monitoring facility includes an entrance chamber, an inclined dewatering system, and a holding chamber. Water flows passing through the downstream passage system empty into the monitoring facility's entrance chamber from the underground passage pipe inlets. The existing downstream fish passage facility—surface bypasses integral with turbine units 3 and 4—is currently operated from April 1 to June 15 and from October 17 to December 1 for salmon smolt and kelt passage. The intake is equipped with trash racks with 1-inch clear bar spacing covering the top 16 feet (at full pond) of the water column. At depths greater than 16 feet, the trash racks have 2.63-inch clear bar spacing.

3.4.1 ZONE 1 – MATTACEUNK IMPOUNDMENT

Criterion	Standard	Supporting Information
D	**2** The facility is in compliance with science-based resource agency recommendation for downstream fish passage or fish protection, which may include provisions for appropriate monitoring and effectiveness determinations.	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. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g. meets season, coordination with agencies)

There are currently Atlantic salmon and catadromous American eel upstream of Weldon Dam that traverse the Mattaceunk impoundment during downstream migrations. Upstream fish passage facilities exist at the Mattaceunk Project for anadromous species, but alosine species (American shad, blueback herring, and alewife) are not known to utilize the fishway, and therefore are likely not traversing the Mattaceunk impoundment during downstream migration. This reach of the Mainstem of the Penobscot River is within historical and critical habitat for Atlantic salmon, and protection measures are guided by the Project's Biological Opinion.

The existing downstream fish passage facility—surface bypasses integral with turbine units 3 and 4—is currently operated from April 1 to June 15 and from October 17 to December 1 for salmon smolt and kelt passage. Once upstream alosine passage is in place, GLHA will expand the operating season for downstream passage measures to include downstream-migrating river herring and shad.

Several studies of smolt whole station survival have been conducted, as discussed in the FERC EA. Stich *et al.*, (2015b) estimated survival past the Project dam from 2010 to 2014 for wild and hatchery smolts. Mean survival was estimated to be 84 percent and 91 percent for wild and hatchery smolts, respectively. Total survival past the dam (i.e., combined survival through all passage routes) was also estimated by GLHA in 2014 and 2015. In 2014, GLHA used a paired-release study design, which allowed GLHA to include a control group released downstream from the dam for estimating background mortality. In 2014, the total survival past the dam was estimated to be 95.8 percent (point estimate) with a 95 percent confidence interval between 83 and 100 percent. In an effort to increase the number of smolts released upstream of the Project for estimating impoundment mortality, GLHA did not use a paired-release design in 2015, but

instead released all smolts upstream of the Project. In 2015, total survival past the dam was estimated to be 95.9 percent (point estimate) with a 95 percent confidence interval between 89.3 and 100 percent.

With low adult returns, contemporary salmon kelt studies have not been conducted at the Project. However, studies conducted in the early 1990s indicate passage survival was between 75% (based on a study conducted with only 8 radio-tagged kelts) and 96.3% (based on a study conducted with 71 kelts and under spill flow conditions).

As part of relicensing, GLHA included an analysis of whole station survival of smolts and kelts past the dam in its desktop entrainment and impingement study. The results of the desktop study estimated that 97.4 percent, 96.6 percent, and 96.6 percent of smolts would survive passage past the dam at 25 percent, 50 percent, and 75 percent exceedance flows, respectively. The results of the desktop study estimated that 96.6 percent, 94.2 percent, and 93.9 percent of kelts would survive passage past the dam at 25 percent, 50 percent, and 75 percent exceedance flows, respectively. As discussed in the FERC EA, because the Project operates in run-of-river mode, flows upstream and downstream of the Project are similar, and thus outflow generally mimics inflow. Average flows during the peak upstream migration of adults and peak downstream migration of smolts is 5,366 cfs and 9,664 cfs, respectively. Flows at the Project rarely fall below 2,943 cfs and 3,409 cfs during the peak upstream migration of adults and peak downstream migration of smolts, respectively (i.e., 90 percent exceedance).

Even with the installation of 1 inch clear trashracks, most out-migrating juvenile alosines would likely be entrained through the Project turbines during their downstream migration, following the installation of upstream passage in Year 15 of the Project license. Nevertheless, entrainment survival is expected to be high for juvenile alosines. As discussed in the FERC EA, for the sizes of out-migrating juvenile alosines expected at the Project (1.5-5.0 inches across species), the USFWS blade strike model indicates that at least 95 percent of juveniles would survive passage through the turbines. In addition, studies conducted in the 1990s found that 97 to 98 percent of juvenile American shad survived passage through Kaplan units with characteristics similar to those at the Mattaceunk Project. Therefore, even if juvenile alosines are found to predominantly pass through the turbines instead of the presumably safer downstream routes (surface bypasses, log sluice, or occasional spill), whole-station survival at the Mattaceunk Project should be high (greater than 95 percent) for out-migrating juvenile alosines, and adequate for the protection of the population.

Given their larger body sizes and greater swimming abilities, the entrainment potential of adult alosines is lower than that of juveniles. FERC's EA indicates that GLHA's proposal to install full-depth trash racks with 1-inch clear spacing to the bottom of the intakes would reduce entrainment of alosines at the Project, because trash racks with this spacing would physically exclude all post-spawning American shad, plus blueback herring and alewives larger than 11.4 and 11.6 inches, respectively. The proposed full-depth 1-inch trashracks would also not result in impingement of adult alosines, because their burst swimming speeds (4 to 21 fps) greatly exceed the existing approach velocities at the Mattaceunk Project (1.7 fps). Therefore, adults would be able to avoid impingement based on their swimming abilities.

As part of the 2014 entrainment and impingement study conducted for relicensing, GLHA also estimated whole-station survival for eel, using parameters that included operations, hydrology, downstream migration periodicity, turbine blade strike survival rates, empirical spillway survival, bypass survival, and bypass effectiveness data. The whole station survival was determined for each month of the eel's out-migration season, then combined for an overall whole-station out-migration survival estimate for the species. Varying inflows representing dry, wet, and normal years were applied to this evaluation, which translated into developing individual estimates for the 75, 50, and 25 percent monthly exceedance flows. The estimated whole-station survival for adult eel (24-30 inches in length, and during flow out-migration months of July-November) was 80.2, 80.6, and 80.3 percent for the 75, 50, and 25 percent exceedance flows, respectively. Within 2 years of license issuance, GLHA is required to implement protection measures for downstream-migrating eels, including night-time turbine shut-downs and roller gate openings, together with installation of full depth 1-inch clear-spaced trashracks.

As part of a 2014 fish entrainment and impingement study, GLHA qualitatively evaluated the entrainment risk for two resident species at the Mattaceunk Project; white sucker and smallmouth bass. Results of the study indicated that many smallmouth bass and white suckers were of sufficient size to be impinged; however, they had a low impingement risk, because these species have swim speeds greater than the approach velocity (1.7 fps) in front of the trash racks, which would allow them to avoid contact with the trash racks once installed.

Fish passage facilities, studies, and fish passage provisions are included in the Project's Settlement Agreement, Biological Opinion, and FERC License (see Section 6.0). Extensive fish passage information, plans and studies are likewise provided in Section 6.0.

3.4.2 ZONE 2 – MATTACEUNK BYPASS REACH

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 riverine fish populations or to their access to habitat necessary for the completion of their life cycles .	Not Applicable / De Minimis Effect: • 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 species populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of fish species requiring passage in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

Fish passage conditions in the Project bypass reach are generally the same as in the tailrace/regulated river reach, discussed in greater detail below. This reach is very limited and only American eel and Atlantic salmon smolts and kelts that may pass on spill during high flows would be present in this reach and then, only for a very short time. This reach is unimpeded to its confluence with the tailrace/regulated river reach downstream. Fish passage facilities, studies, and adaptive management provisions are included in the Project's Biological Opinion, and FERC License (see Section 6.0). Fish passage information, plans and studies are likewise provided in Section 6.0.

3.4.3 ZONE 3 – MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER REACH

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 riverine fish populations or to their access to habitat necessary for the completion of their life cycles .	Not Applicable / De Minimis Effect: • 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 species populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of fish species requiring passage in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

Currently, Atlantic salmon, American shad, river herring and eel are present in varying numbers in the Mainstem of the Penobscot River below Weldon Dam. Upstream fish passage facilities targeted for American shad, blueback herring, and alewife are not currently installed at the Mattaceunk Project, so these species do not migrate upstream of Weldon Dam for subsequent downstream migration, nor do they move downstream from upstream reaches. These species may spawn in the reach of the Mainstem below Weldon Dam, within this Zone of Effect. This Zone of Effect is unimpeded to its confluence with the Mattawamkeag River and to a distance downstream to the next downstream Project, West Enfield. Fish passage facilities, studies, and adaptive management provisions are included in the Project's Biological Opinion, and FERC License (see Section 6.0). Fish passage information, plans and studies are likewise provided in Section 6.0.

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."

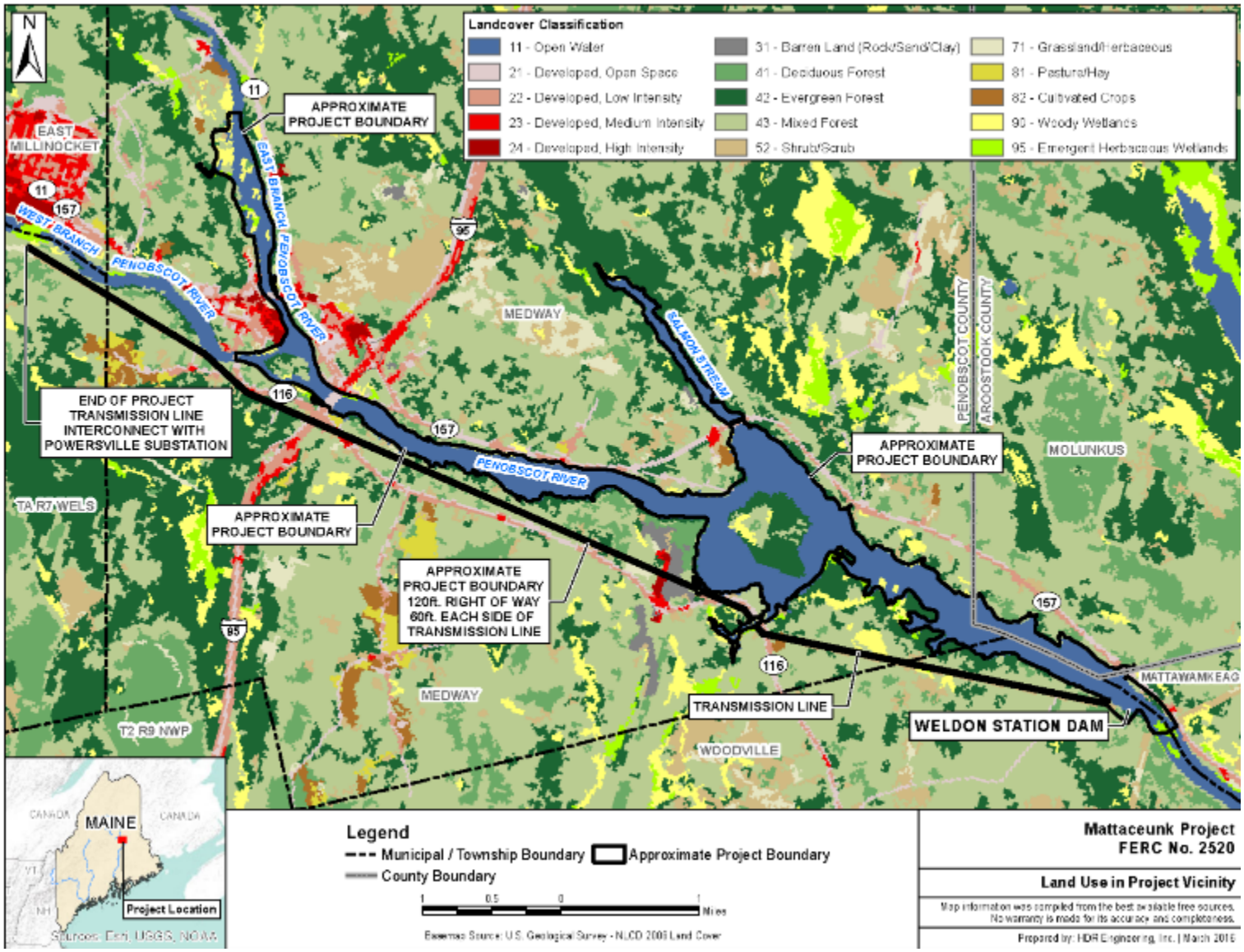
Criterion	Standard	Supporting Information
E	**1** There are no lands associated with the facility under the direct or indirect ownership or control of the facility owner that have been identified as having significant ecological value for protecting water quality, aesthetics, or low-impact recreation, and the facility is not subject to any Shoreline Management Plan (SMP) or similar protection plan.	Not Applicable/De Minimis Effect • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary, and absence of critical habitat for protected species). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility

The current project boundary encloses the dam and powerhouse and follows the reservoir up to the 240 ft USGS (full pond) elevation (see Exhibit G in Figure 7 and Section 6.0). There are no shoreline lands along the impoundment, save for a small parcel adjacent to the spillway that includes the egress of the canoe portage trail, the trail itself, and the ingress downstream of the dam providing access to the bypass reach. Immediately adjacent to the powerhouse, the Downstream Recreation Site is also located on lands within the project boundary.

Because GLHA's ownership is limited to those lands within the project boundary which generally house the Project structures and two small recreation sites, GLHA only has the ability to manage the limited shoreline and submerged lands below the corresponding full pond elevation for the Project. Current practices used by GLHA for vegetation maintenance around Project facilities, recreation sites and the transmission line right of way include using mostly mechanical vegetation removal techniques (e.g., mowing). GLHA operations staff periodically inspect Project facilities for hazardous trees, which are trimmed or cleared periodically as necessary. Stable headpond elevations and run-of-river operations minimize erosion, protect wetlands and avoid Project-related sedimentation.

Several state laws and local regulations are designed to manage land development in the vicinity of the Project area in accordance with certain objectives. Any development or ground disturbance on private lands adjacent to the Project requires the appropriate permits and must adhere to the design and development standards of the appropriate town zoning regulations. The Project is not required to have a Shoreline Management Plan, pursuant to its FERC license (see Section 6.0). As shown below in Figure 15, lands to the north of the project boundary are largely the developed areas of adjacent municipalities, road networks, and industrial sites, such as the municipal wastewater treatment plant. Some forested areas exist to the south of the project boundary, but they are actively managed for timber harvesting and are bifurcated by roads and transmission lines. As discussed above, critical habitat for Atlantic salmon is designated in the Mainstem of the Penobscot River.

FIGURE 15 LAND COVER TYPES OF ADJACENT LANDS



3.6 THREATENED AND ENDANGERED SPECIES

The 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".

An Information for Planning and Consultation (IPaC) report and USFWS Official Species List were developed for the Project as part of relicensing. The following federally-listed Endangered or Threatened species may be present in the Project vicinity:

- Canada Lynx (Threatened) - not affected by the Project, as there are no habitats or significant lands within the project boundary and the Project is not located within critical habitat of the species
- Northern Long- Eared Bat (NLEB) (Threatened) – may be affected by vegetation management activities, but for which a Final Section 4(d) rule has been published for activities that may affect the species for streamlined consultation
- Atlantic salmon (Endangered) - documented as historically occupying the Mainstem of the Penobscot River and for which critical habitat has been designated in the Project vicinity extending upstream and downstream of the dam. In 2020, NMFS issued a Biological Opinion for the Atlantic salmon at the Mattaceunk Project (see Section 6.5.4).

In accordance with information received from the MDIFW, the following state-listed species potentially occur or have been documented within the project boundary.

TABLE 5. STATE LISTED RARE, THREATENED AND ENDANGERED SPECIES

Common Name	Scientific Name	State Status[1]	Occurrence
Birds			
Least Bittern	*Ixobrychus exilis*	E	No documented occurrences in the Project vicinity. These were target species in the rare marsh-nesting bird survey requested by MDIFW. No observations occurred during the field survey.
Black tern	*Chlidonias niger*	E	
Sedge wren	*Cistothorus platensis*	E	
Common gallinule	*Gallinula galeata*	T	
Mussels			
Brook floater	*Alasmidonta varicosa*	T	Brook floater have been documented by MDIFW as occurring upstream of the Project in the East Branch outside of the Project Boundary. Brook floaters were documented in the upper reach of the Mattaceunk impoundment in the West Branch in GLHA's 2014 mussel relocation effort (Normandeau 2014).
Tidewater mucket	*Leptodea ochracea*	T	Tidewater mucket was documented in the Mattaceunk impoundment (Normandeau 2012, 2014).
Yellow lampmussel	*Lampsilis cariosa*	T	Yellow lampmussel was documented in the Mattaceunk impoundment (Normandeau 2012, 2014).
Insects			
Boreal snaketail	*Ophiogomphus colubrinus*	T	Boreal snaketail have been documented by MDIFW as occurring downstream of the Project, outside of the Project Boundary.

During the relicensing effort, the Maine Natural Areas Program (MNAP) Project Review identified one rare botanical feature within the Project area: Orono sedge

The discussion of the effects of the Project on listed species, and the applicable standards, vary by each species, but they are generally consistent within the Zones of Effect. As such, this Criterion is discussed by species collectively for all Zones of Effect.

3.6.1 TERRESTRIAL SPECIES

Criterion	Standard	Supporting Information
F	**2** There are or may be listed species in the facility 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 facility's affected area or is not impacted by facility operations.	Finding of No Negative Effects: • Identify all federal and state listed species that are or may be in the immediate 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.

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's streamlined consultation process. In addition, Article 409 requires seasonal restrictions on non-hazardous tree removal to November 1 to March 31, outside of pupping and rearing season. These activities would also be extremely limited, given how little land is located within the project boundary. As such, no negative effects are anticipated by this periodic activity.

A rare marsh bird nesting survey was conducted within the Mattaceunk impoundment in 2014, including surveys of shoreline, wetland and riparian areas. None of the above listed birds were detected. Regardless, stable headpond elevations ensure marsh bird nests are protected from inundation.

According to the FERC EA, Orono sedge is considered an early successional species, and GLHA's current maintenance activities in the transmission line permanently keep the successional stage in this early state. This management is likely conducive to the existing and continued success of the Orono sedge in the right of way.

3.6.2 AQUATIC SPECIES

Criterion	Standard	Supporting Information
F	**3** The facility is in compliance with relevant conditions in a species recovery plan, with relevant conditions in an incidental take permit or statement, biological opinion, habitat conservation plan, or similar government document and the incidental take document and/or biological opinion issued relevant to the facility was designed to be a long-term solution for protection of the listed species.	Recovery Planning and Action: • If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents. • Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the area.

On June 19, 2009, the USFWS and NMFS issued their final rule designating both naturally-spawned and conservation hatchery populations of anadromous Atlantic salmon as endangered in the state of Maine. A final rule issued by NMFS on August 10, 2009 designates critical habitat for the DPS (Distinct Population Segment) of Atlantic salmon inhabiting portions of the Penobscot River watershed, including the Mainstem of the Penobscot River upstream to and including the East Branch of the Penobscot River, which includes Project waters.

The Lower Penobscot River Multi-party Settlement Agreement (Settlement Agreement or MPA) was filed with the FERC on June 25, 2004 as part of the Penobscot River Restoration Project (Restoration Project). The wide-ranging Settlement Agreement was intended to restore native sea-run fish and their habitat, while also providing the opportunity to maintain comparable hydropower production from the river. The purpose of the Restoration Project was to provide improved access for all species of migratory fish that are present now or may have historically occurred in the Penobscot River, including Atlantic salmon, American shad, alewife, blueback herring, striped bass, Atlantic sturgeon, shortnose sturgeon, rainbow smelt, sea lamprey, Atlantic tomcod, and American eel. While the Mattaceunk Project was not part of the Settlement Agreement, upstream and downstream projects were, and the Project is otherwise affected by the passage and restoration activities undertaken as a result of the Settlement Agreement. For the protection of Atlantic salmon, the Mattaceunk Project has an Atlantic salmon SPP and NMFS Biological Opinion (as discussed in Sections 3.3 and 3.4).

GLHA conducted a freshwater mussel survey in the Project impoundment in 2012 prior to a scheduled impoundment drawdown for maintenance. The survey documented the occurrence of two state-threatened species, the tidewater mucket (*Leptodea ochracea*) and yellow lampmussel (*Lampsilis ochracea*). A third state- threatened species – brook floater (*Alasmidonta varicosa*) - was also subsequently documented in the impoundment. The tidewater mucket was found at all transects, composed 0.8 percent of the mussels identified during the survey, and was the third most abundant species. It was found in all habitats and appears to have a stable population in the Mattaceunk impoundment, based on the number of specimens and the number of transects where it was found. Yellow lampmussels were found at

seven transects and composed 0.2 percent of the mussel community observed in the 2012 transect survey.

Run-of-river operations ensures stable headpond elevations for the support of mussel species, which would not be anticipated in the bypass reach or tailrace due to high velocities. These mussels may be present in reaches downstream as part of the regulated river reach Zone of Effect, which benefits from run-of-river operations which mimic the natural hydrologic regime.

GLHA conducted a macroinvertebrate survey in riffle habitat downstream of Weldon Dam in 2014 consistent with MDEP protocols as part of a water quality assessment study. No *Ophiogomphus* species, or other protected macroinvertebrate species, were observed as part of this study.

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."

Criterion	Standard	Supporting Information
G	**2** The facility is in compliance with approved state, federal, and recognized tribal plans for protection, enhancement, or mitigation of impacts to cultural or historic resources affected by the facility.	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.

One pre-contact period archaeological site (Site 122.3) and five post-contact archaeological sites (ME 275001 – 275005) were identified within the Project's area of potential effect, as defined by the Maine Historic Preservation Commission (MHPC) as lands within the project boundary and those outside of the project boundary where construction, operation or recreational development may cause changes in use. The pre-contact archaeological site and the Weldon Dam and Powerhouse were determined to be eligible for National Register of Historic Properties by the Maine State Historic Preservation Officer (SHPO). Some sites were not able to be investigated, as these are located within the Project impoundment.

Project-related effects on cultural resources within the APE can result from modifications to project facilities or project operations; project-related ground-disturbing activities; construction, modification, or maintenance of project recreation facilities and use of such facilities by visitors; project-induced shoreline erosion; and vandalism. Stable headpond elevations ensure limited shoreline erosion along the project impoundment. GLHA is required

to make some minor improvements to the Downstream Recreation Site and to install fish passage facilities at Weldon Dam, which have the potential to affect the eligible properties.

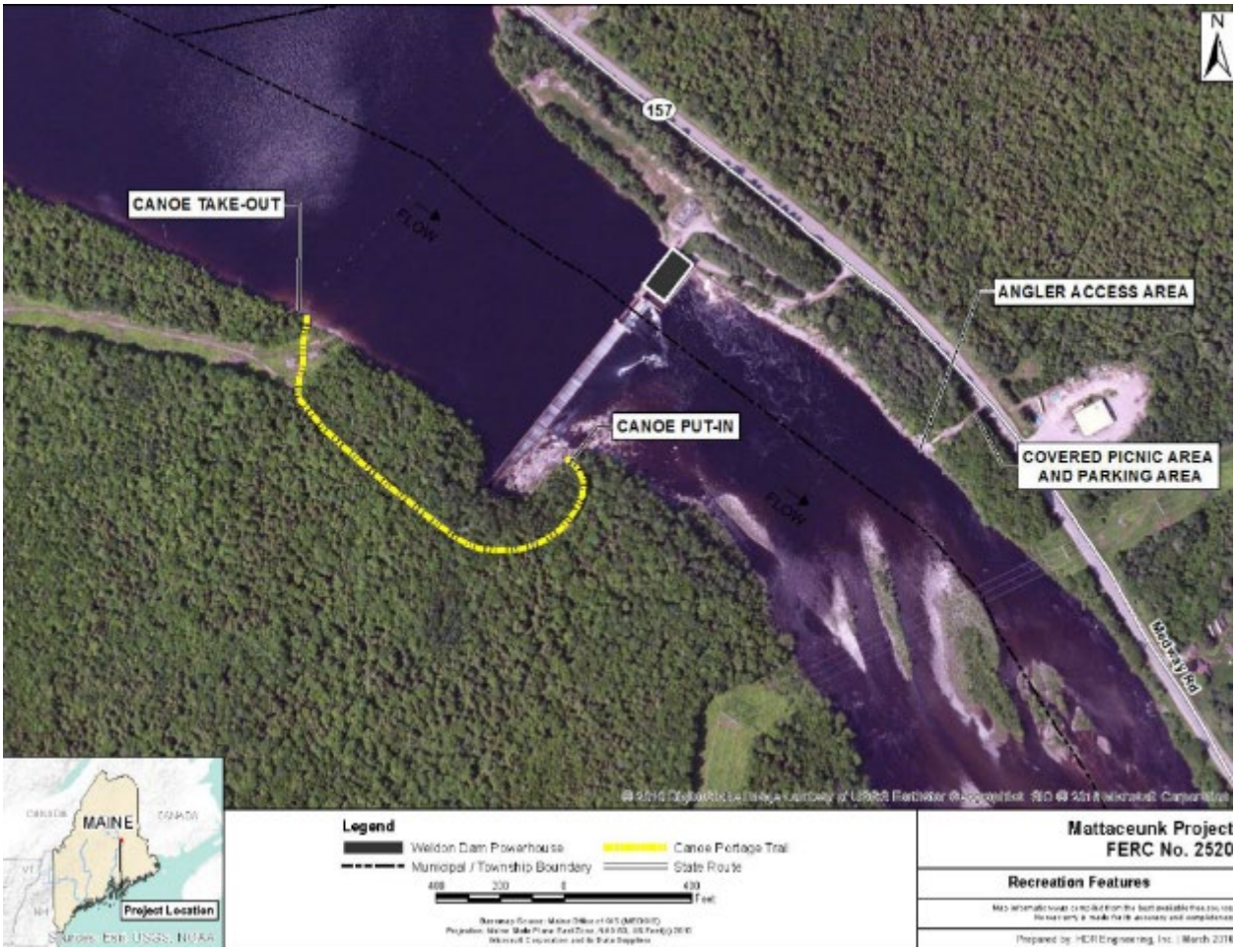
Under Article 411, GLHA is required to implement the Programmatic Agreement between FERC and the SHPO and to develop an HPMP within 1 year of license issuance that would address: (1) any additional measures necessary to assist in the identification or management of historic properties within the project's APE; (2) Phase IB archaeological investigations of the Medway Village Sawmill Complex when the impoundment is lowered 24 feet or more; (3) potential effects on historic properties resulting from the continued operation and maintenance of the project; (4) management and treatment measures for historic properties; (5) procedures for the review of proposed future ground-disturbing activities or other activities within the project's APE which would have the potential to adversely affect historic properties; (6) protection of historic properties threatened by direct or indirect project-related activities, including routine project maintenance; (7) resolution of unavoidable adverse effects on historic properties; (8) treatment and disposition of any human remains that may be discovered within the project's APE; (9) provisions for unanticipated discoveries of previously unidentified cultural resources within the project's APE; (10) a dispute resolution process; (11) a list of categorical exclusions from further review of effects; (12) project-specific measures and a schedule for implementing the HPMP; (13) roles and responsibilities for the licensee, Maine SHPO, Penobscot Indian Nation THPO, and other individuals and organizations in regards to implementation of the HPMP; and (14) coordination with the Maine SHPO, Penobscot Indian Nation THPO and other consulting parties during implementation of the HPMP. The development and implementation of the HPMP would ensure the Project would either not affect or minimize and mitigate unavoidable effects on eligible properties.

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."

The only Project recreational facilities at the Mattaceunk Project are the impoundment canoe portage egress and trail, the canoe portage ingress downstream of the dam spillway, and the Downstream Recreation Site, which provides an angler access trail and a picnic area downstream of the Project powerhouse.

FIGURE 16. FERC APPROVED PROJECT RECREATION SITES



Article 401 of the Mattaceunk Project license requires the licensee to implement its recreation improvements required by the Section 401 water quality certification. Condition E of the Section 401 water quality certification requires GLHA, within three years of license issuance, to install at the Downstream Recreation Site:

- a pulley system to assist boaters with moving car-top boats and other small watercraft up and down the existing stairs; and
- a ramp adjacent to the existing recreation pavilion to provide wheelchair access to the pavilion and its associated picnic table.

There are no specific recreation monitoring requirements at the Mattaceunk Project, and the FERC Form 80 process has been discontinued.

The Mattaceunk Project is also subject to the requirements of Part 8, including safety signage. Inspections of Part 8 signs are scheduled annually at the start of the recreation season, and signs are replaced, as necessary.

3.8.1 ZONE 1 - MATTACEUNK 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.

GLHA also maintains a portage trail around Weldon Dam with a take-out upstream of the dam (river right) and a put-in immediately downstream of the Weldon Dam spillway. The canoe portage trail is only accessible from the water. The canoe take-out is located on the western shore of the impoundment, approximately 650 feet upstream of the dam. The canoe portage trail follows a compacted gravel road that is approximately nine feet wide and used only occasionally by GLHA staff to access the west side of the dam.

Signage associated with the canoe portage trail includes signs indicating the put-in and take-out locations, as well as signs to guide users of the trail and information related to public safety. The signage is managed under GLHA's sign management program, which includes periodic inspection and maintenance and as part of the Project's Public Safety Plan. A boater barrier is deployed annually upstream of Weldon Dam for public safety purposes.

In addition to the Commission-approved recreation areas, the town of Medway owns and operates a recreation complex on the East Branch of the Penobscot River adjacent to the Project, which includes a trailered boat ramp for accessing the Mattaceunk impoundment. This complex includes one baseball field, two tennis courts, one basketball court, one playground, a swimming beach, bathrooms, grill for picnic use, an ADA-accessible boat ramp, eleven marked trailer spots (including one ADA designated spot), six marked car spots, and a large overflow parking lot.

3.8.2 ZONE 2 - MATTACEUNK BYPASS 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 canoe put-in is located on the western shore of the Project just downstream from the dam. Signage directs boaters following the canoe portage trail to the location of ingress.

3.8.3 ZONE 3 - MATTACEUNK PROJECT TAILRACE/DOWNSTREAM REGULATED RIVER 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 Downstream Recreation Site consists of angler access stairs, a parking area, and a picnic area. The angler access site consists of a set of wooden stairs that lead to the river. The access area is located on the eastern bank downstream of the immediate tailwater area of Weldon Dam. The access leads from the top of the bank down to the river's edge. The parking area consists of a compacted earth area located on top of the riverbank adjacent to the angler access stairs; it can handle approximately six to eight vehicles. A covered picnic area is located adjacent to the parking area and angler access area downstream of the dam. This area consists of a picnic table with shelter located on the south side of the parking area. Signage associated with the recreation area includes public safety signs that are managed under GLHA's sign management program, which includes periodic inspection and maintenance, and pursuant to the Project's Public Safety Plan.

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: 1/4/22

5.0 CONTACTS FORM

5.1 APPLICANT RELATED CONTACTS

Facility Owner: Great Lakes Hydro America, LLC	
Name and Title	Tom Uncher, Vice President
Company	Brookfield Renewable
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	Brookfield Renewable
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, Mattaceunk, 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
Agency Contact (Check areas of responsibility: Flows_x_, Water Quality __, Fish/Wildlife Resources _x_, Watersheds _x_, T/E Spp. _x_, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. Fish and Wildlife Service
Name and Title	Julianne Rosset, Migratory Fish/Hydropower Biologist
Phone	(603) 309-4842
Email address	Julianne_rosset@fws.gov
Mailing Address	306 Hatchery Road, East Orland, Maine 04431
Agency Contact (Check areas of responsibility: Flows_x_, Water Quality __, Fish/Wildlife Resources _x_, Watersheds _x_, T/E Spp. _x_, Cultural/Historic Resources X__, Recreation __):	
Agency Name	U.S. Bureau of Indian Affairs
Name and Title	Harold Peterson
Phone	(615) 564-6838
Email address	Harold.peterson@bia.gov
Mailing Address	Eastern Regional Office, 545 Marriott Dr, Suite 700, Nashville, TN 37214

5.3 CURRENT STAKEHOLDER CONTACTS THAT ARE ACTIVELY ENGAGED WITH THE FACILITY

Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. _X_, Cultural/Historic Resources _, Recreation __):	
Stakeholder Organization	Penobscot Indian Nation
Name and Title	Dan McCaw, Fisheries Biologist
Phone	207-817-7377
Email address	Dan.McCaw@penobscotnation.org
Mailing Address	12 Wabanaki Way, Indian Island, ME 04468
Stakeholder Contact (Check areas of responsibility: Flows_X_, Water Quality __, Fish/Wildlife Resources __, Watersheds _X_, T/E Spp. __, Cultural/Historic Resources __, Recreation _X_):	
Stakeholder Organization	Penobscot Indian Nation
Name and Title	Charlie Loring Jr., Director, Department of Natural Resources
Email address	Charlie.Loring.Jr@penobscotnation.org
Phone	207-817-7330
Mailing Address	12 Wabanaki Way, Indian Island, ME 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

Major license and compliance documents are provided in hyperlinks below. Compliance and resource relevant filings for the current certification period (2015 – 2020) are also hyperlinked below.

6.1 FERC LICENSE AND AMENDMENT ORDERS

- Order Issuing New License re Great Lakes Hydro America, LLC under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020BF764-66E2-5005-8110-C31FAFC91712
- Order Granting Clarification, Addressing Arguments Raised on Rehearing, and Setting Aside Prior Order, In Part re Great Lakes Hydro America, LLC under P-2520 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=16BC5C7D-7305-C8AA-8F2A-7C1328F00000

6.2 WATER QUALITY CERTIFICATION, AMENDMENTS, AND REPORTS

- WQC minor revision - Maine Department of Environmental Protection under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0208F043-66E2-5005-8110-C31FAFC91712

6.3 SETTLEMENT AND OTHER AGREEMENTS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10188480 - PPL Maine , LLC's et al submittal of the Lower Penobscot River Basin Comprehensive Settlement Accord with Explanatory Statement under P-2403 et al.

6.4 PERMITS

- None.

6.5 COMPLIANCE PLANS AND MONITORING REPORTS

- Great Lakes Hydro America, LLC submits approved Exhibit F and G Drawings for Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020C99CC-66E2-5005-8110-C31FAFC91712
- Great Lakes Hydro America, LLC submits the Operations Monitoring Plan for Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020D68E3-66E2-5005-8110-C31FAFC91712
- Order Approving Operations Monitoring Plan Pursuant to Article 402 re Great Lakes Hydro America, LLC under P-2520 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=AF31D1AF-8422-CCD4-96BC-7C74DCE00000
- Great Lakes Hydro America, LLC submits a request for clarification and amendment to the timeframes by which several fish passage related plans are to be filed and/or measures are to be implemented for the Mattaceunk Project under P-2520.

https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0A41B180-CCA8-C66F-8F60-7B55A0100000

- Letter requesting Great Lakes Hydro America, LLC to file additional information within 45 days re the request for clarification on various fish passage requirements etc. for the Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=FC71C2A2-899A-CC00-97C5-7C5605200000
- Other Plans and Reports are provided by resource below.

6.5.1 Ecological Flows and Water Quality

- https://www.maine.gov/dep/water/monitoring/classification/PIN-ReclassificationProposals-20171129.pdf - Penobscot Indian Nation Water Quality Monitoring Reports in support of the reclassification of the Penobscot River, 2017
- https://www.maine.gov/dep/water/monitoring/classification/DEP_2018_ReClassProposals.pdf - Maine Department of Environmental Protection 2018 Re-Classification Proposals
- https://www.maine.gov/dep/water/monitoring/classification/reclassification.html - Water Quality Re-classification Initiative (including water quality monitoring reports)
- 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
- Maine Department of Environmental Protection 2016 Integrated Water Quality Monitoring and Assessment Report https://www.maine.gov/dep/water/monitoring/305b/2016/28-Feb-2018_2016-ME-IntegratedREPORT.pdf
- 2016 Integrated Water Quality Monitoring and Assessment Report Appendices https://www.maine.gov/dep/water/monitoring/305b/2016/28-Feb-2018_2016-ME-IntegratedRptLIST.pdf
- Other documents related to Water Quality provided above and in Section 7.0.

6.5.2 Shoreline and Watershed Protection

- NA

6.5.3 Fish Passage

- See information pertaining to Atlantic salmon under Section 6.5.4 below.

6.5.4 Threatened and Endangered Species

- Brookfield Renewable Power submits supplemental additional information re the Annual Atlantic Salmon Interim Species Protection Plan Report for the Mattaceunk Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02074958-66E2-5005-8110-C31FAFC91712

- Biological Opinion of the National Marine Fisheries Service, Greater Atlantic Region for the issuance of a new license for the Mattaceunk Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02096DBF-66E2-5005-8110-C31FAFC91712
- Brookfield Renewable Power submits Atlantic Salmon Interim Species Protection Plan Final Report for the Mattaceunk Project under P-2520 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020C2E9F-66E2-5005-8110-C31FAFC91712
- Brookfield Renewable Power submits Atlantic Salmon Interim Species Protection Plan Final Report for the Mattaceunk Project under P-2520 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020C2E9F-66E2-5005-8110-C31FAFC91712
- Great Lakes Hydro America, LLC Request for extension of time to file Revised Atlantic Salmon Species Protection Plan for Mattaceunk Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020CD3B3-66E2-5005-8110-C31FAFC91712
- Great Lakes Hydro America, LLC submits final concurrences from the National Marine Fisheries Service et al in response to FERC's October 6, 2021 Additional Information Request re the Mattaceunk Hydro Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=BEA750DD-122B-C806-9F43-7D39E7D00000

6.5.5 CULTURAL AND HISTORIC RESOURCES

- Letter providing the Final Programmatic Agreement of the Penobscot Indian Nation under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01FA14FC-66E2-5005-8110-C31FAFC91712
- Great Lakes Hydro America, LLC files concurring signature in support of the Final Programmatic Agreement for the Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01FAE88E-66E2-5005-8110-C31FAFC91712
- Letter to Great Lakes Hydro America, LLC re a Transmittal of the Executed Programmatic Agreement for the Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01FC1E58-66E2-5005-8110-C31FAFC91712
- See Section 7.0 for License Application and FERC EA.

6.5.6 RECREATIONAL RESOURCES

- 2015 FERC Form 80 Recreation Report Monitoring-Filing of Methodology for Gulf Island-Deer Rips et under P-2283 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01D0CE24-66E2-5005-8110-C31FAFC91712
- 2014 Form 80 Report of Great Lakes Hydro America, LLC for Mattaceunk (Weldon) under P-2520 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01D03904-66E2-5005-8110-C31FAFC91712

- Brookfield Renewable Power submit FERC Form 80 recreation facility data report for 2008 under P-2458 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=013B6351-66E2-5005-8110-C31FAFC91712

6.6 LICENSE AND CERTIFICATION COMPLIANCE

- Letter informing Great Lakes Hydro America, LLC that the deviation in minimum flow requirements that occurred on July 25 and 28, 2016 will not be considered violations of License Article 410 re the Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01E331C6-66E2-5005-8110-C31FAFC91712
- 20180717 Mattaceunk Project, FERC 2520; July 8, 2018 Minimum Flow Excursion https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01F7A950-66E2-5005-8110-C31FAFC91712
- Letter informing Great Lakes Hydro America, LLC that the July 2018 deviation of a minimum flow - Article 410 that occurred on7/08/18 will not be considered a violation of the license for Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01FAB19E-66E2-5005-8110-C31FAFC91712
- 20190731 Mattaceunk Project 2520; July 21, 2019 Minimum Flow Excursion https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02027C35-66E2-5005-8110-C31FAFC91712
- Penobscot Mills Project; Mattaceunk Project 2520; Run of River and Minimum Flow Excursions under P-2458, et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02067CF7-66E2-5005-8110-C31FAFC91712
- 20200325 Mattaceunk Project; Minimum Flow Excursion under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020748C0-66E2-5005-8110-C31FAFC91712
- 20201111 Mattaceunk Project; Minimum Flow Excursion under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020A92A7-66E2-5005-8110-C31FAFC91712
- Minimum Flow Excursion of Brookfield Renewables under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020AD45C-66E2-5005-8110-C31FAFC91712
- Great Lakes Hydro America, LLC submits Log Sluice Flow Excursions for the Mattaceunk Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020D835D-66E2-5005-8110-C31FAFC91712
- Letter informing Great Lakes Hydro America, LLC that the minimum flow through log sluice deviations that occurred on 05/14/2021 et al will be considered violations of the Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9BAA06EF-47DB-C946-9616-7C9868200000

7.0 SUPPORTING DOCUMENTATION

- Great Lakes Hydro America, LLC files Volume II of VI of the Final License Application in support of relicensing the Mattaceunk Hydroelectric Project under P-2520 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01E30CC0-66E2-5005-8110-C31FAFC91712
- Final Environmental Assessment for Hydropower License re the Mattaceunk Hydroelectric Project under P-2520. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01F9CFC2-66E2-5005-8110-C31FAFC91712