



**REVIEW OF APPLICATION FOR LIHI RECERTIFICATION OF THE
PENACOOK LOWER FALLS HYDROELECTRIC PROJECT, LIHI #64**

**FERC Project No. 3342
Contoocook River, Penacook NH**



**September 28, 2021
Maryalice Fischer, Certification Program Director**

TABLE OF CONTENTS

I. INTRODUCTION 1

II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW 1

III. PROJECT LOCATION AND SITE CHARACTERISTICS..... 2

IV. REGULATORY AND COMPLIANCE STATUS 6

V. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI 7

VI. ZONES OF EFFECT 7

VII. DETAILED CRITERIA REVIEW 9

 A: Ecological Flow Regimes 9

 B: Water Quality..... 11

 C: Upstream Fish Passage 11

 D: Downstream Fish Passage 13

 E: Shoreline and Watershed Protection 14

 F: Threatened and Endangered Species 15

 G: Cultural and Historic Resources Protection 15

 H: Recreational Resources 16

VIII. CERTIFICATION RECOMMENDATION 17

**FINAL REVIEW OF APPLICATION FOR LIHI RECERTIFICATION
OF THE PENACOOK LOWER FALLS HYDROELECTRIC PROJECT, LIHI #64**

This report provides final review findings and recommendations for the recertification application submitted to the Low Impact Hydropower Institute (LIHI) by Briar Hydro Associates, a subsidiary of Essex Hydro (Applicant) for recertification of the Penacook Lower Falls Hydroelectric Project, LIHI #64 (Project). The Project is a 4.6 MW facility located on the Contoocook River in the village of Penacook, the Town of Boscawen, and the City of Concord, NH. The final recertification application package was filed on June 30, 2021 and is subject to review under the 2nd Edition LIHI Handbook.

I. INTRODUCTION

The Project was first certified by LIHI in 2010 for a 5-year term which expired on August 13, 2015. The Project was recertified effective August 13, 2015 for another 5-year term which expired on August 13, 2020. The term was extended several times, most recently to October 31, 2021 to allow time to complete the recertification process. The 2015 recertification included two conditions discussed in Section IV.

II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW

Under the 2nd Edition LIHI Handbook, reviews are a two-phase process starting with a limited review of a completed LIHI application, focused on three questions:

- (1) Is there any missing information from the application?
- (2) Has there been a material change in the operation of the certified facility since the previous certificate term?
- (3) Has there been a change in LIHI criteria since the Certificate was issued?

In accordance with the Recertification Standards, if the only issue is some missing information, a Stage II review may not be required. These standards also state that "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. If the answer to either question (2) or (3) is "Yes", a more thorough review of the application using the LIHI criteria in effect at the time of the recertification application, and completion of a Stage II report is required. As a result, all projects currently applying for renewal must go through a full review unless their most recent certification was completed using the 2nd Edition Handbook.

A review of the initial application submitted June 30, 2021 resulted in a Stage I report dated July 6, 2021. The Stage I assessment found no material changes at the Project and determined that only a small amount of additional information was needed to conduct the review. That information was provided by the Applicant on July 6, 2021. The only material change is a positive one in that the Project conducts nightly operational shutdowns during the fall after rain events to support downstream passage of American eels (see Section VII.D).

The application was posted for public comment on July 16, 2021 and the 60-day public comment period ended on September 14, 2021. This Stage II assessment included review of the recertification application package, the FERC eLibrary, other publicly available information, and annual compliance statements submitted during the past term of Certification.

III. PROJECT LOCATION AND SITE CHARACTERISTICS

The Project is located at river mile (RM) 0.2 on the Contoocook River. The Contoocook River flows for 71 miles from Poole Pond in Rindge, NH north to the state capitol in Concord, where it enters the Merrimack River. Tributaries include the North Branch River which enters in Hillsborough, and the Warner and Blackwater rivers, both of which enter from the north, only two miles apart, near the village of Contoocook. The drainage basin is approximately 766 square miles (Figure 1). The river drops about 130 feet in its final 20 miles (6.5 ft/mile), thus explaining the location of the village of Penacook and the development of numerous water-powered mills over the past two centuries. At the Project, the river has a very steep gradient extending to a point 600-700 feet downstream of the dam. In this reach there are many areas of exposed ledge and boulders.

The Project was constructed in 1983 by New Hampshire Hydro Associates, at a site with an existing dam¹ that was reconstructed for the Project. The Federal Energy Regulatory Commission (FERC) license was subsequently transferred to the current owner in 2002.

The Project dam is the first upstream of the confluence with the Merrimack River (Figure 2). The nearest downstream dams on the Merrimack River are three dams associated with the Merrimack River Project (P-1893) including the Hooksett development, LIHI #162. Sewall's Falls located in Concord NH upstream of the Merrimack River Project formerly included a hydro plant and dam that was first constructed in 1892 and which produced electricity until 1966. The dam was breached by flooding in 1984 and the site was turned into a recreation area.

Upstream dams include:

- Penacook Upper Falls, LIHI #52, P-6689 (RM 1) owned by Briar Hydro Associates
- Rolfe Canal, LIHI #104, P-3240 (RM 2.1) also owned by Briar Hydro Associates
- Hopkinton Hydro P-5735 owned by Contoocook Hydro LLC (RM 17)
- Hoague-Sprague P-4337 owned by Green Mountain Power Corp.
- Hopkinton flood control dam owned by the US Army Corp of Engineers
- Hosiery Mill P-6116 owned by the Town of Hillsborough
- Steeles Pond P-3265 on the North Branch River, owned by NH Water Resources Board
- Monadnock Paper Mills P-6597
- Noone Mills dam P-4318
- Cheshire dam P-9509

¹ Called the Allied Leather Dam by the State of New Hampshire at the time of licensing, per Appendix F of the 1982 FERC license application <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01B98528-66E2-5005-8110-C31FAFC91712>

There are also numerous other small non-hydro dams on the river. Each upstream project up to and including Hosiery Mill have downstream fish passage.

Figure 1. Project location and watershed

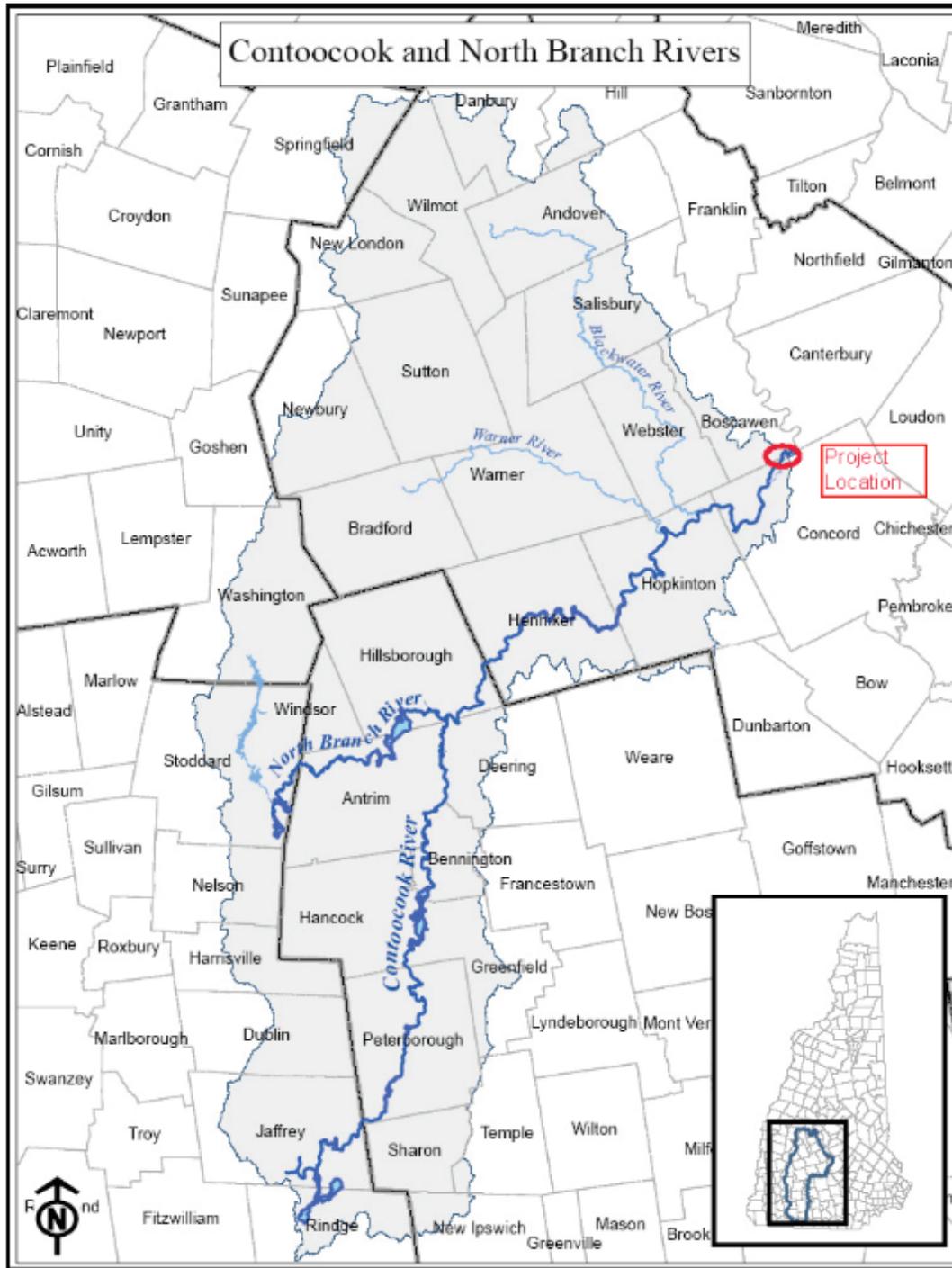
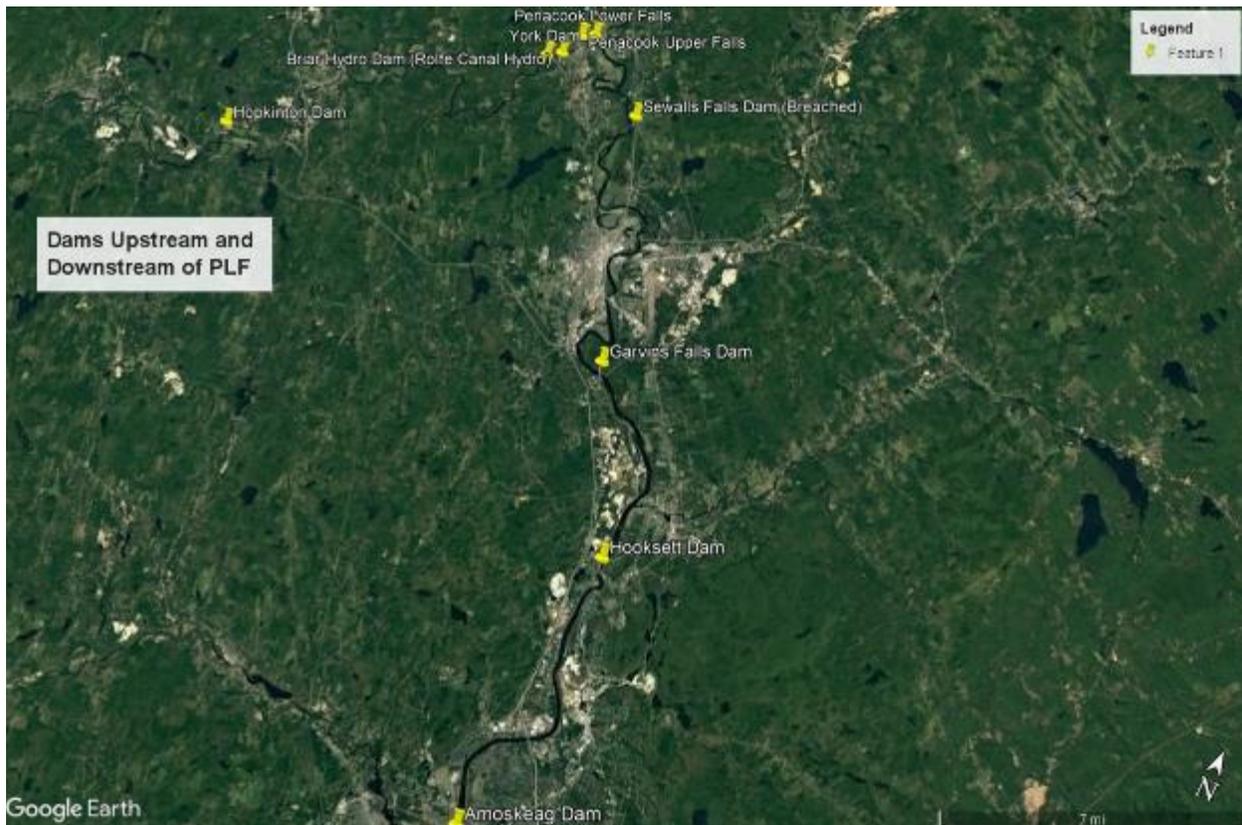


Figure 2. Nearest upstream and downstream dams

The Project consists of a concrete diversion spillway with three 9.5-foot by 10-foot high timber gates and 7 timber stoplog gates, a concrete gravity auxiliary spillway 316 feet long, and a main concrete spillway, gated and 106 feet long (Figure 3). The dam impounds a reservoir with a surface area of 8.4 acres at the maximum impoundment level of 278 feet msl² having a storage capacity of 54 acre-feet. The dam and spillways create a bypassed reach approximately 680 feet long. The Project boundary encompasses approximately 10 acres, including water and land up to the 280-foot elevation contour (NGVD29) around the impoundment.

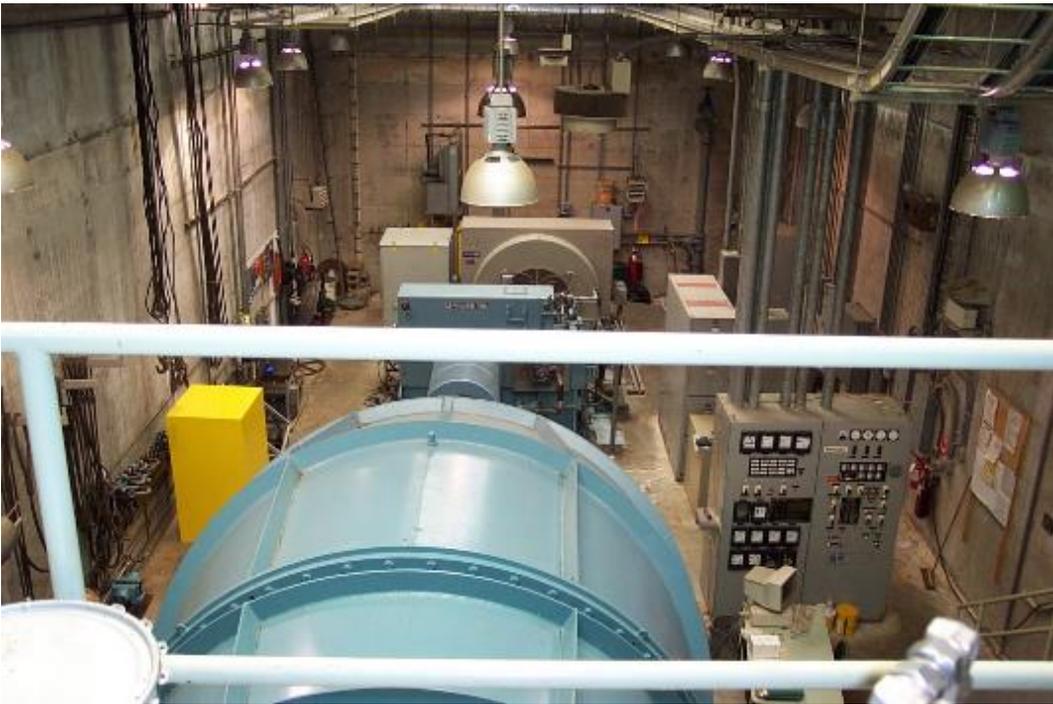
A 70-foot-long forebay leads to the powerhouse that contains a single horizontal 3 meter Kaplan turbine, rated at 4.6 MW (Figure 4). The turbine discharges to a 45-foot-wide by 700-foot-long tailrace.

² The relicensing PAD states the maximum impoundment elevation at both 272 feet (p. 11) and 278 feet (p. 10) forming the 8.4-acre reservoir.

Figure 3. Project Dam Structures



Figure 4. Powerhouse Interior



IV. REGULATORY AND COMPLIANCE STATUS

FERC issued a major license for the Project on November 17, 1982³ which superseded the original FERC exemption issued September 10, 1981. Changes in the Project's design precipitated the conversion of the exemption to the license. The license was amended in 1986 to reflect agreement among the then owner, resource agencies, and the owner of the Merrimack River Project on the timing of fish passage installation at the Project (see Section VII.C).

The current license expires on November 30, 2024 having been extended from October 31, 2022 in a 2018 FERC order to align with the license expiration dates of the Penacook Upper Falls and Rolfe Canal Projects.⁴ The Applicant had already filed a Notice of Intent to relicense the Project and Preliminary Application Document (PAD) in 2017 but the FERC order terminated that licensing proceeding and is currently in relicensing using FERC's Traditional Licensing Process (TLP).

A water quality certificate (WQC) was issued by the State of New Hampshire on August 16, 1983.⁵ It determined that the proposed Project would not result in adverse impacts and includes provisions for run-of-river operation and impoundment level management.

A review of the FERC eLibrary from January 1, 2015 to present identified various dam safety filings, routine compliance filings, and relicensing documents. The combined relicensing Preliminary Application Document (PAD) was filed on November 28, 2019⁶ and FERC approved use of the Traditional Licensing Process on February 6, 2020. In 2020, the joint agency meeting (online) and agency site visits were held. Comments on the PAD were also submitted in 2020. The Applicant filed a Proposed Study Plan in December 2020⁷, received comments from resource agencies, and filed the Revised Study Plan on July 6, 2021 (document dated March 2021).⁸ Relicensing studies related to the LIHI criteria are discussed in Section VII.

The current LIHI Certification included the following two conditions both of which have been satisfied.

Condition 1: The facility owner shall consult with NHDES to determine the most appropriate and efficient way to report on minimum flows and pond level fluctuations, then, after reaching agreement with NHDES on best methods, complete the subject summary report on or before the end of December 2016. The owner shall provide a copy of this report to LIHI along with all

³ See Appendix 1 in <https://lowimpacthydro.org/wp-content/uploads/2021/07/Penacook-Lower-Falls-LIHI-recertification-application-June-2021-Complete.pdf>

⁴ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01F4FC67-66E2-5005-8110-C31FAFC91712>

⁵ See Appendix 3 in <https://lowimpacthydro.org/wp-content/uploads/2021/07/Penacook-Lower-Falls-LIHI-recertification-application-June-2021-Complete.pdf>

⁶ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02052DEE-66E2-5005-8110-C31FAFC91712>

⁷ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020AFFE1-66E2-5005-8110-C31FAFC91712>

⁸ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020DEC56-66E2-5005-8110-C31FAFC91712>

related correspondence.

Status: This condition was satisfied in 2017 after the Applicant had consulted with New Hampshire Department of Environmental Services (NHDES) and reached an agreement on the best methods for reporting minimum flows/pond level fluctuations. Data was provided to NHDES and a summary of monitoring and reporting procedures was provided to LIHI.

Condition 2: Within 30 days after LIHI recertification, the facility owner shall complete consultation with the NHDES to finalize the details of an alternative approach for spot testing the current water quality conditions at the facility. The owner shall provide LIHI with all related correspondence pertaining to resolution of this issue and with the water quality data once testing has been completed. The owner shall complete the water quality testing before the end of December 2016, weather permitting.

Status: This condition was satisfied in 2018. Water quality sampling was conducted in 2015 and 2016. NHDES requested additional sampling in 2017 given inconclusive results in 2016. In 2017, NHDES conducted their own sampling and confirmed in a November 20, 2017 letter to LIHI that the Project waters meet state water quality standards.

V. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI

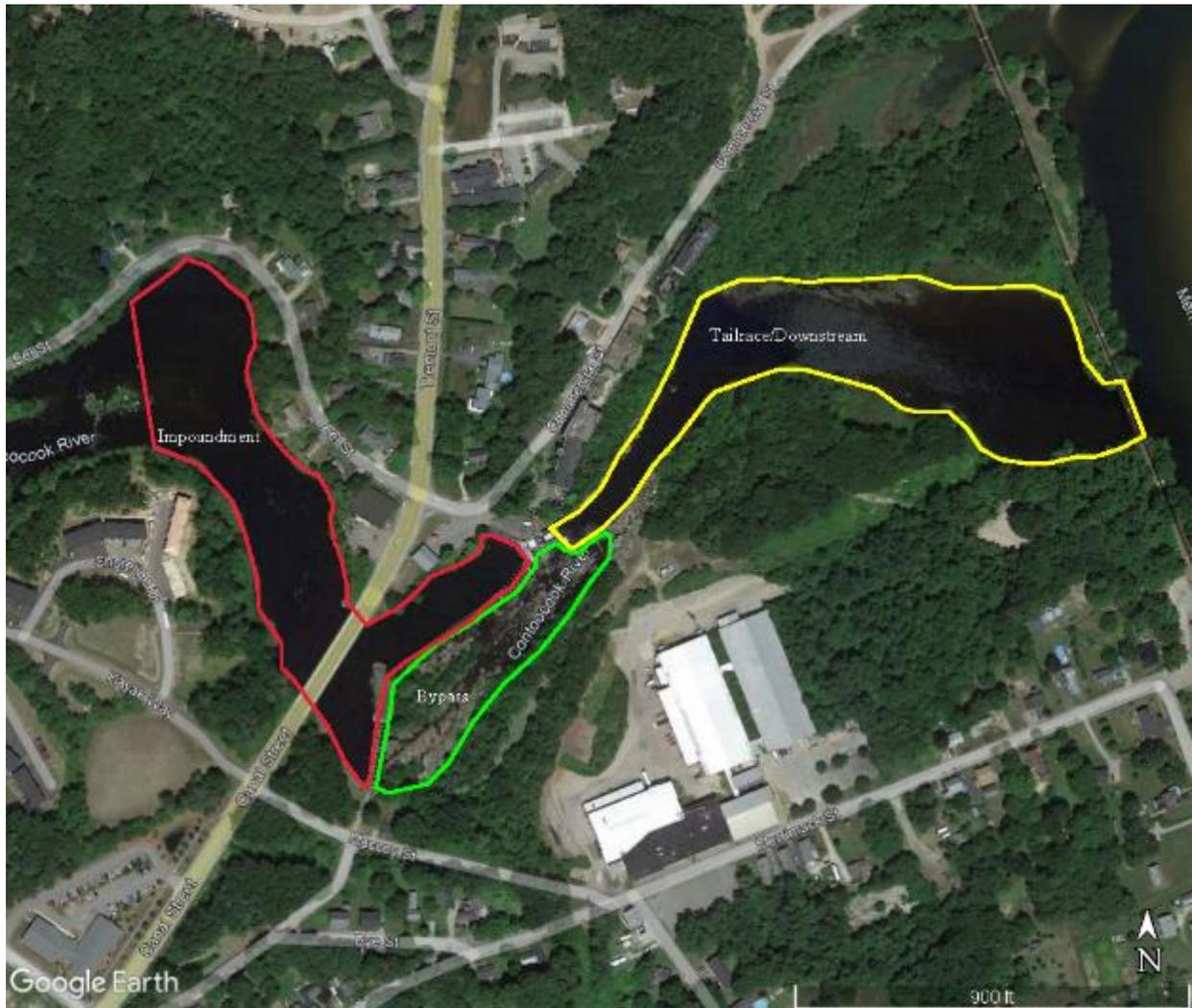
The application was publicly noticed on July 16, 2021 and notice of the application was forwarded to resource agency and stakeholder representatives listed in the application. No public comments were received during the 60-day comment period which ended on September 14, 2021. Based on the completeness of the application, no direct outreach to resource agencies or other stakeholders was conducted as part of this review.

VI. ZONES OF EFFECT

The Applicant delineated the Project into three Zones of Effect (ZoEs) as shown in Figure 5 (river miles estimated and mapped from Google Earth which differ from the application).

- Zone 1: impoundment extending from RM 0.55 – 0.3
- Zone 2: de minimis bypassed reach extending from RM 0.44 – 0.3
- Zone 3: tailrace/downstream zone extending from RM 0.3 – 0.0

Figure 5. Zones of Effect



The Applicant selected the standards shown in the tables below. The Reviewer agrees with the selected Standards except where noted in **red** below.

Zone:		1: Impoundment	2: Bypassed Reach	3. Downstream Reach
River Mile Extent:		RM 0.55 – 0.3	RM 0.44 – 0.3	RM 0.3 – 0.0
Criterion		Standard Selected		
A	Ecological Flows	2	2	2
B	Water Quality	3	3	3
C	Upstream Fish Passage	1	2	2
D	Downstream Fish Passage	2	1 , 2	1
E	Shoreline and Watershed Protection	1	1	1
F	Threatened and Endangered Species	1	1	1
G	Cultural and Historic Resources	1	1	1
H	Recreational Resources	2	2	2

VII. DETAILED CRITERIA REVIEW

A: Ecological Flow Regimes

Goal: *The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

Assessment of Criterion: The Applicant selected Standard A-2, Agency Recommendation for all Zones.

Discussion: The Project is operated in a run-of-river mode. The impoundment level is maintained at a consistent elevation monitored by a pond level control system. The bypassed reach minimum flow is 338 cfs or inflow if less, recommended by US Fish and Wildlife Service (USFWS) at the time of FERC licensing for protection of fish and aquatic habitat, and embodied in FERC license article 33. Based on discharge records at the now discontinued USGS gaging station that was located near the Project, the 7Q10 flow is 94 cfs.

The FERC eLibrary contains no reports of flow deviations during the current LIHI term which was confirmed by the Applicant in response to my inquiry.

At the time of licensing, NH Fish and Game Department (NHFG) reported that the bypassed reach was likely to have “*minimal production of benthic fauna*” due to the well-scoured,

smooth, granite ledge and large boulders.⁹ In the current relicensing, resource agencies recommended a bypassed reach instream flow study as part the current relicensing. In their comments on the Applicant’s PAD and proposed study plan, USFWS and New Hampshire Department of Environmental Services (NHDES) recommended an Instream Flow Incremental Methodology (IFIM) study in the Project’s bypassed reach.

However, the Applicant’s revised study plan did not change the study plan in response to agency comments, noting that the Project bypassed reach is short (~680 ft), high gradient (3-4%), “with bedrock reaches lacking in diverse substrate or refuge habitat. Under high flows, the bedrock reaches appear to possess very little persistent habitat for aquatic species, i.e., fish rearing in the bedrock habitat would be washed downstream during spill flows”. The Applicant stated that sampling in the reach would be hazardous to personnel at all but the lowest flows and that the revised plan incorporated resource agency comments “to the extent practicable” (Figure 6a, 6b).

Figure 6a. Bypassed reach (downstream).



Figure 6b. Bypassed reach (upstream).



⁹ See Appendix F of the 1982 FERC license application
<https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01B98528-66E2-5005-8110-C31FAFC91712>

USFWS had stated the proposed study plan “*provides only anecdotal information*” about the bypassed reach, which they felt is insufficient for determining Project effects and the agency reiterated its recommendation to conduct an IFIM study in its comments on the proposed study plan. Based on discussions at a March 3, 2021 agency meeting, the Applicant conducted a one-flow survey to map pertinent features of the reach. The study was conducted in early September 2021 and the report was issued for agency review on September 22, 2021. To date, no agencies have provided comments on the study.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to satisfy the ecological flows criterion under its current license conditions, pending results from the relicensing study and any new agency recommendations related to ecological flows. Therefore, a general condition related to relicensing is recommended.

B: Water Quality

Goal: *Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

Assessment of Criterion: The Applicant selected Standard B-3, Site-Specific Studies for all Zones.

Discussion: As noted in Section IV, the Applicant and NHDES conducted water quality sampling in 2015, 2016 and 2017. Results indicated that water quality standards are met in the Project reaches as confirmed in a November 2017 NHDES letter to LIHI. The Contoocook River in the vicinity is listed as impaired for low pH and the Applicant provided data for 2019 under the NH Volunteer River Assessment Program which showed one of four samples falling below the state minimum standard. Low pH is common in New Hampshire rivers and due to low natural buffering capacity in conjunction with atmospheric deposition.

The Applicant is conducting a more detailed water quality study in 2021 for relicensing in accordance with the NHDES study request, in order to update existing information.

Based on the application, supporting and publicly available documentation, and FERC eLibrary documents, this review finds that the Project is unlikely to impact water quality given run-of-river operations and continues to satisfy the water quality criterion, pending results from the relicensing study and any new agency recommendations related to water quality protection. Therefore, a general condition related to relicensing is recommended.

C: Upstream Fish Passage

Goal: *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 populations in areas affected by the facility.*

Assessment of Criterion: The Applicant selected Standard C-1, Not Applicable/De Minimis Effect

for Zone 1 and Standard C-2, Agency Recommendation for Zones 2 and 3.

Discussion: Diadromous fish species present in the lower Merrimack River basin include American shad, river herring, sea lamprey, and American eel, although only American eel is present in the Contoocook River due to pre-existing downstream barriers in the Merrimack River mainstem. Atlantic salmon were historically present but were extirpated when the downstream dams were constructed. The salmon restoration program was discontinued and there are currently no goals for restoration of the species in the Merrimack River basin.

FERC license article 32 required construction of upstream fish passage facilities within 3 years after the completion of upstream fish passage at Sewall's Falls dam located on the Merrimack River downstream of the Contoocook River confluence. After a dam breach in 1984 the Sewall's Falls hydroelectric project was never developed making Garvin's Falls (P-1893) the nearest downstream project on the Merrimack River. FERC amended article 32 in 1986 which now requires the Project owner to file functional design drawings within 2 years after the passage of 15,000 adult American shad at Garvin's Falls. To date, upstream fish passage has not been developed at Garvin's Falls. A further agreement was reached among various state and federal agencies that delayed the installation of upstream fish passage at Garvin's Falls until 15,000 American shad are observed at the next downstream dam, Hooksett (LIHI #162). The 2021 LIHI annual compliance submittal for Hooksett noted that consultation is ongoing with resource agencies to design a nature-like fishway, with final design underway in 2021 and construction expected in 2022.

A new Merrimack River Watershed Comprehensive Plan for Diadromous Fishes¹⁰ was issued in 2021 and approved by FERC as a "comprehensive plan". It includes a recommendation for fish passage facilities to be installed at the Project and the upstream Penacook Upper Project (LIHI #52) and Rolfe Canal (LIHI #104) by 2030. This goal implies that 15,000 shad will have reached Hooksett and passage will have been installed and 15,000 shad will have passed Garvin's Falls by 2028.

As part of the current Project relicensing, a study is currently underway to evaluate the feasibility of upstream and downstream passage. The goal of the study is to determine physical upstream and downstream fish passage facilities for the fish species of interest that meet fish behavior, ichthyomechanics, hydraulics, hydrology, and hydropower operations for the three lowest projects on the Contoocook River.

The Project does not currently have upstream eel passage. It is likely that eels can naturally pass above the dam since electrofishing conducted by the resource agencies in 2015 and 2016 observed eels upstream of the Project, according to the Preliminary Application Document.¹¹ A relicensing study is currently underway to conduct baseline nighttime visual surveys and electrofishing for eels.

¹⁰ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020DBC23-66E2-5005-8110-C31FAFC91712>

¹¹ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02052DEE-66E2-5005-8110-C31FAFC91712>

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to satisfy the upstream passage criterion, pending results from the relicensing studies and any new agency recommendations for upstream passage measures. Therefore, a general condition related to relicensing is recommended.

D: Downstream Fish Passage

Goal: *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.*

Assessment of Criterion: The Applicant selected Standard D-2, Agency Recommendation for Zone 1, and Standard D-1, Not Applicable/De Minimis Effect for Zones 2 and 3. This review finds that Standard D-2 is more appropriate for Zone 2, the bypassed reach.

Discussion: The lower Contoocook River and the Merrimack River are considered warmwater fisheries. Species include primarily yellow perch, pumpkinseed, sucker, smallmouth bass (a locally sought-after game species). Other species include chain pickerel, brown bullhead, and white perch.¹²

Downstream passage is currently provided by a 40-cfs flow through a pipe located in a gated concrete spillway which discharges to the bypassed reach indicating that Standard 2 is more appropriate. In accordance with USFWS requirements, the bypass flow is maintained from May 1 through June 30 each year. Starting in 2018 during the downstream eel passage season from August 15 to November 15, the Applicant began shutting down all three projects on the lower Contoocook River for three nights in a row following periods of a half inch of rain or more. Starting in 2020, the threshold for nightly shutdowns was lowered to one quarter inch of rain.

The intake has trash racks with 3-5/8-inch clear spacing which is wide enough to allow fish to become entrained within the turbine. In addition to the relicensing studies related to instream flows, and upstream/downstream passage feasibility, studies currently underway include telemetry studies of downstream migrating American eels and another for adult alosines. A third study is a desktop study evaluating downstream survival for juvenile and adult eels and alosines expected to be conducted in 2021/2022 when results from the telemetry studies are available to provide data on route selection.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to satisfy the downstream passage and protection criterion, pending results from the relicensing studies and any new agency recommendations for downstream passage measures. Therefore, a general condition related to relicensing is recommended.

¹² <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02052DEE-66E2-5005-8110-C31FAFC91712>

E: Shoreline and Watershed Protection

Goal: *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.*

Assessment of Criterion: The Applicant selected Standard E-1, Not Applicable/De Minimis Effect for all Zones.

Discussion: The Project is located in a developed area near the center of the Village of Penacook. The impounded area between the dam and the upstream Penacook Upper Falls dam is crossed by the Canal Street bridge that crosses the Contoocook river and includes a mix of residential and commercial development. Most of the riverbanks have some vegetation, though the buffer is narrow in some places.

License article 24 requires that lands shall be kept clear “along open conduits” and that all brush and debris shall be removed. It further requires that all dead trees along the impoundment shall be removed. Article 34 requires consultation and cooperation with the National Park Service, US Department of Interior and NH Department of Resources and Economic Development (now the Department of Business and Economic Affairs) and other appropriate agencies for the protection and development of the natural, scenic, and aesthetic resources and values of the Project area.

No Shoreline Management Plan is in effect, nor are the any protection requirements for the facility. There are no critical habitats or lands of ecological significance. However, the Contoocook River is a designated river under the NH Rivers Management and Protection Act and thus subject to a management plan¹³ as well as development and vegetation removal restrictions within 250 feet of the river’s edge, under the NH Shoreland Water Quality Protection Act. The Applicant also states: “given the very small impoundment area, limited land ownership [4.3 acres], and existing commercial and industrial development around the Project there is little opportunity for Project-related watershed protection’.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project with run-of-river operation and small footprint does not adversely impact the shoreline or watershed, and continues to satisfy the shoreline and watershed protection criterion.

¹³ <https://www4.des.state.nh.us/blogs/rivers/wp-content/uploads/ctc-plan.pdf>

F: Threatened and Endangered Species

Goal: *The facility does not negatively impact federal, or state listed species.*

Assessment of Criterion Passage: The Applicant selected Standard F-1, Not Applicable/De Minimis Effect for all Zones.

Discussion: The Applicant conducted a USFWS I Pac online data check as part of the LIHI recertification application that showed that only Northern long-eared bat may be present near the Project. There is no critical habitat designated for the species. Protected migratory birds could also be present on a transient basis at certain times of the year including bald eagle, golden eagle, black-billed cuckoo, bobolink, Canada warbler, Cape May warbler, prairie warbler, evening grosbeak, olive-sided flycatcher, rusty blackbird, and wood thrush.

The Applicant also requested information from the NH Natural Heritage Bureau which indicated that several state-listed species are or could be present in the Project vicinity, but none are located within the Project boundary other than potentially the long-leaved pondweed. That species has only old historical records in the Contoocook River upstream of the dam.

Only the brook floater mussel (state-endangered) may be present in or adjacent to the Project boundary. As part of the current Project relicensing, a study is currently underway to survey and characterize the existing freshwater habitat and assess the presence and relative distribution freshwater mussels in the impoundment and downstream reach.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that given the very small Project footprint and developed location, there are unlikely to be any impact on the bat and bird species, and the Project continues to satisfy the threatened and endangered species criterion, pending results from the relicensing study and any new agency recommendations for protection of mussels. Therefore, a general condition related to relicensing is recommended.

G: Cultural and Historic Resources Protection

Goal: *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.*

Assessment of Criterion: The Applicant selected Standard G-1, Not Applicable/De Minimis Effect for all Zones.

Discussion: There are no cultural or historic resources associated with the project. License article 35 required consultation at the time of Project construction, with the State Historic Preservation Office (SHPO). At that time, the SHPO confirmed that the Project would have no effect on cultural or historic resources. However, any newly discovered resources would be subject to consultation and protection or mitigation. In 2020, the Applicant made repairs to the

causeway which could be eligible for listing on the National Register of Historic Places. The Applicant consulted with the SHPO which confirmed that no historic properties were affected by the Project. ¹⁴

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project does not adversely affect cultural or historic resources and continues to satisfy the cultural and historic resources protection criterion.

H: Recreational Resources

Goal: *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.*

Assessment of Criterion Passage: The Applicant selected Standard H-2, Agency Recommendation for all Zones.

Discussion: The Project includes a parking area and boat launch facility in a cove on the southern shore of the Contoocook River approximately 700 feet downstream of the powerhouse free of charge to visitors. The application states that the boat launch area provides access to the Merrimack River and is widely used by local fishermen, daytime boaters and by local kayak clubs. Moderate levels of angling have been observed in the impoundment and on the southern bank of the tailrace (Figure 7). Angler access was requested by USFWS during Project licensing. ¹⁵

FERC license standard articles 17 and 18 require maintenance of reasonable recreational facilities recommended by resource agencies; and allowing free access to Project waters and lands where safe to do so, respectively. The most recent publicly available FERC environmental inspection report is from 2004 which indicated that there is some informal access in the bypass, but it is limited. FERC also stated that the launch site is leased from a private company, is gravel covered and a trashcan is made available. The site is usually left open but can be closed at night if required by the City. The parking area is of sufficient size to accommodate several trailers. The picnic tables were placed by the licensee on municipal land as part of an agreement with the Village of Penacook. This land is not within the project boundary. ¹⁶

No resource agencies requested a recreational study as part of the current relicensing.

¹⁴ See Appendix 10 of the LIHI recertification application.

¹⁵ Appendix F of the 1982 FERC license application

<https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01B98528-66E2-5005-8110-C31FAFC91712>

¹⁶ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01CDF372-66E2-5005-8110-C31FAFC91712>

Figure 7. Boat Ramp and Angler Access



Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to satisfy the recreational resources criterion.

VIII. CERTIFICATION RECOMMENDATION

This review included evaluation of the application, a review of the FERC eLibrary during the current LIHI term, and review of other publicly available information. Based on this evaluation, the Reviewer recommends that the Penacook Lower Falls Project be recertified for a term of five (5) years with the following condition.

Condition 1. The FERC license expires on October 31, 2024 during the new LIHI term. The facility Owner shall provide updates to LIHI in annual compliance statements on the ongoing status of Project relicensing including study reports filed, agency comments on them, any additional studies required with scope and schedule, all FERC filings, resource agency consultation, and agency prescriptions and recommendations. LIHI reserves the right to modify the Certificate or conditions based on the outcome of the relicensing.