

## **REVIEW OF APPLICATION FOR CERTIFICATION OF METHUEN FALLS HYDROELECTRIC PROJECT**

This report provides review findings and recommendations related to the application submitted to the Low Impact Hydropower Institute (LIHI) by letter dated February 27, 2013 from Olson Electric Development Co., Inc. (Applicant) for Low Impact Hydropower Certification of the Methuen Falls Hydroelectric Project (the Project). The application was revised and re-filed in July 2013.

### **I. PROJECT'S GEOGRAPHIC LOCATION**

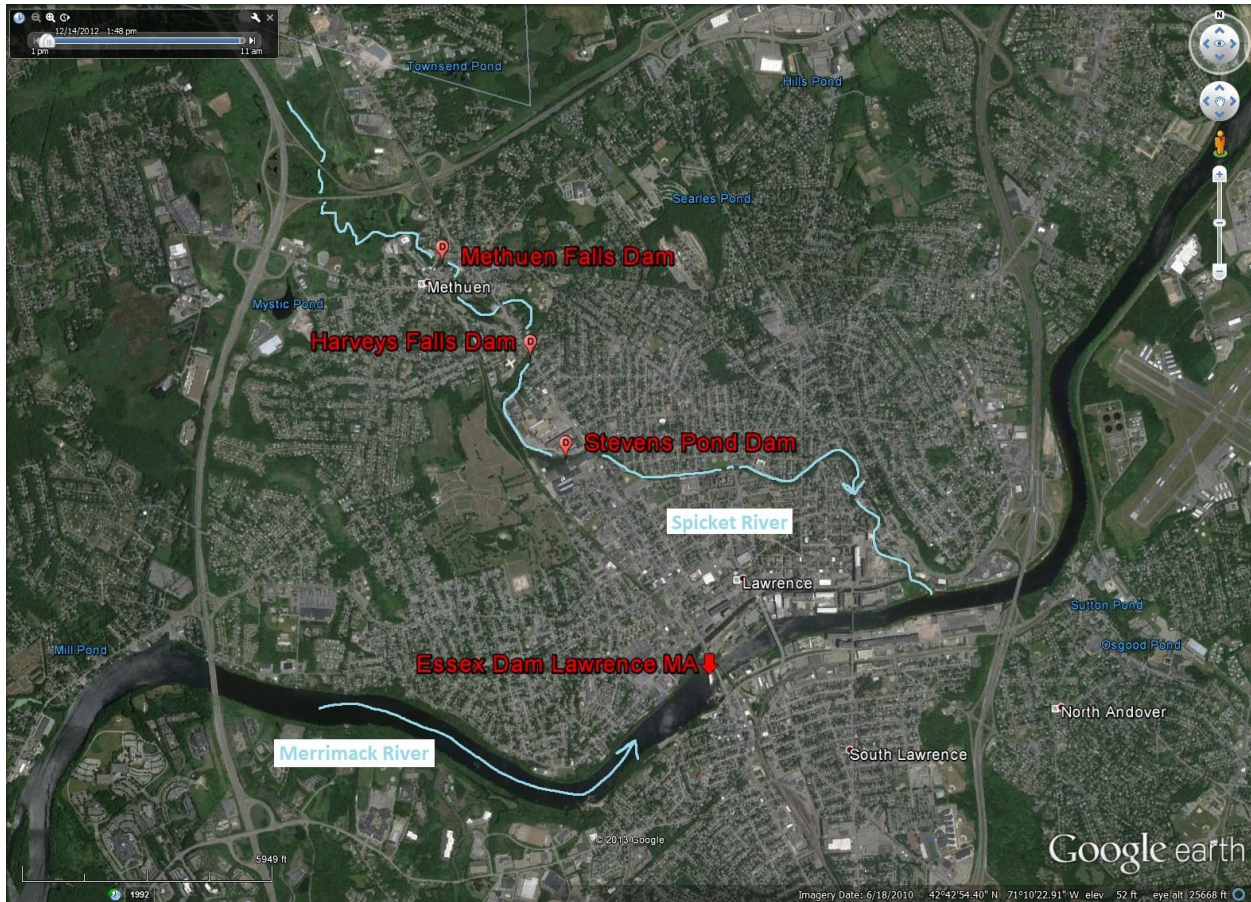
The Methuen Falls Hydroelectric Project is located on the Spicket River in the City of Methuen, Essex County, Massachusetts. The Spicket River, a tributary of the Merrimack River and part of the Gulf of Maine watershed, is a 17.7-mile-long river located in both New Hampshire and Massachusetts. The river begins at the outlet of Island Pond in Derry, New Hampshire, and flows south into Salem, New Hampshire, passing through the Arlington Mill Reservoir. The river continues through Salem, and enters the city of Methuen, Massachusetts, where it drops nearly 100 feet over a series of dams on its way to the Merrimack River in Lawrence, Massachusetts about four miles downstream of the Project.



The Spicket River enters the Merrimack River about one mile downstream of Essex Dam, an operating hydroelectric dam (Lawrence Hydroelectric Project, FERC Project No. 2800) that is the lowest dam on the mainstem of the Merrimack River.

Three other dams, none utilized for power production, are located on the Spicket River. Wheeler Dam, north of Salem, New Hampshire, forms Arlington Mill Reservoir, which is used for recreation. Harveys Falls Dam (unknown use) and Stevens Pond Dam (cooling water source for a textile manufacturing process) are located downstream of the Project dam as shown in Figure 2.

**Figure 1. Merrimack River basin showing Project location north of Lawrence, Mass.**



**Figure 2. Location photo showing relationship of Methuen Falls Dam to Essex Dam on the Merrimack River and two other dams located on the Spicket River downstream.**

## **II. PROJECT AND IMMEDIATE SITE CHARACTERISTICS**

The Project dam, which was originally constructed circa 1885, is a gravity structure made of cut granite built on a bedrock foundation. The downstream face is vertical dry stone masonry laid on a running bond pattern. Its maximum height above the river bed is twenty feet with three feet of plywood flashboards on the crest. The overflow spillway consists of three sections separated by two large masonry piers and has a total length of 130 feet. There are two 3 foot wide by 4 foot high fully automated flood gates located on the southern pier.

The Project intake is located on the northern end of the dam. The intake structure consists of a formed concrete box protected by 16 foot wide by 10 foot deep galvanized trashracks. The intake is sealed by a 10 foot wide by 10 foot deep fully automated aluminum head gate. Water is transported to the powerhouse via a 150 foot long, 7 foot high by 10 foot wide granite topped brick channel that transitions into a 4 foot diameter steel penstock at a ninety degree angle. The penstock transfers water into a 7 foot high by 20 foot square concrete pressure case which houses Unit #1. A 3 foot long, 3 foot diameter steel penstock supplies water from the concrete pressure



case to a 6 foot high by 6 foot square steel pressure case that houses Unit #2. Each pressure case passes water to the tailrace via conical draft tubes.

The powerhouse is located in the historic Methuen Company Spinning Mill #5. The c. 1840 structure contains 6,000 square feet of finished interior space and sits 3½ stories above grade. The first floor houses the following major components;

- Turbine #1: 405hp Vertical Leffel - Francis Unit  
Generator #1: 285kw Vertical General Electric
- Turbine #2: 120hp Vertical S. Morgan Smith - Francis Unit  
Generator #2: 90kw Vertical Westinghouse
- Switchgear, Excitation, HPU, & other Controls & Automation Equipment



**Figure 3. Aerial view of Project.**

On average, the Facility annually produces approximately 1.0 GWh of electricity. The spring months of March, April, May and June typically make up the largest percentage (42%) of annual production. The dryer summer and fall months of July, August, September and October make up the smallest percentage (20%) with the winter months of November, December, January and February making up the balance (38%).

The Project is operated as a true run-of-river facility and discharges a continuous minimum flow of 3 cfs through the one 150 foot long bypassed reach.

The project is located within the Spicket Falls Historic District. The Historic District is part of the Methuen Multiple Resource Area, which is listed on the National Register of Historic Places.



**Figure 4. Project dam.**



**Figure 5. Project site showing gray powerhouse building on right.**





**Figure 6. Intake on left as viewed from upstream.**

### **III. REGULATORY AND COMPLIANCE STATUS**

The Federal Energy Regulatory Commission (FERC) granted the Project a 40-year license as Project No. 8093 on March 27, 1986. There are no post-licensing proceedings of note, except for reclassification of the Project dam as low hazard.

No compliance issues were revealed in my review of the last ten years of documents in FERC eLibrary. The Applicant, however, does not maintain records to demonstrate compliance with the flow requirements of the license and no FERC site inspection reports were available.

#### IV. PUBLIC COMMENTS RECEIVED BY LIHI

The LIHI application was deemed complete and publicly noticed on August 8, 2013. The comment period ended on October 8, 2013. The Massachusetts Division of Fisheries & Wildlife (MassWildlife) commented on the application by letter dated August 26, 2013. MassWildlife recommended two conditions for certification:

1. Implementation of an upstream eelway and downstream passage measures in the form of seasonally installed narrow-spaced screens or seasonal nighttime shutdowns. Implementation would require consultation with, and approval of facilities by the Division and the US Fish and Wildlife Service. Passage measures would need to be implemented within 2 years of certification although interim measures should be in place as soon as possible.
2. Increasing the minimum flow in the project bypass reach to 16 cfs upon certification.

The conditions for certification I recommend below are consistent with MassWildlife's recommendations.

#### V. LIHI CRITERIA REVIEW

Under each of the issue sections that follow, I include a table that contains the related LIHI questionnaire sections and my analysis and conclusions.

**General Conclusions and Recommendations.** I recommend that the facility be conditionally certified for the standard period of five years, with three recommended conditions to address issues related to minimum bypass flows, flow compliance, and fish passage. The three recommended conditions are set forth below. If these conditions are attached to the certification, it is my opinion that the Project will meet all of LIHI's criteria as explained below. The three conditions have been concurred with by the Applicant, U.S. Fish and Wildlife Service (USFWS), and MassWildlife (see appended emails).

Regarding flows, the facility as licensed operates in an instantaneous run-of-river mode assuring consistency with the USFWS summer aquatic base flow in the below-project reach of river; however, the minimum bypass flow of 3 cfs was only designed to address aesthetics and not habitat protection. Based on a recent instream flow study, the Applicant proposes to increase the minimum to 16 cfs, which the Resource Agencies consider to be appropriately protective. The license does not require the Applicant to develop a flow management and record keeping plan; such plans are an essential part of helping to assure compliance with the flow criteria.

Regarding water quality, the Massachusetts Department of Environmental Protection (MassDEP) indicates that it reasonably assured that the Project complies with water quality standards (with the understanding that MassWildlife's recommended conditions are adopted) and does not cause or contribute to the existing impaired conditions of the river.

Regarding fish passage, catadromous American eel are believed to be present in the Spicket River basin upstream of the Facility dam but no measures are in place to accommodate safe

upstream and downstream passage. Consequently, I recommend that the certification be conditioned to require fish passage for eel, beginning with interim downstream passage in 2014, and with permanent measures for upstream and downstream passage designed and implemented as acceptable to the USFWS and the MassWildlife for completion by August 2016. Anadromous species are not present nor is passage likely to be needed within the term of the certification, but the recommended condition includes notification of LIHI should circumstances change and a passage request is made by a resource agency.

Regarding recreation, the Project boundaries encompass a very small area. There are no special requirements under the license and neither a recreation plan nor facilities. The dam can be portaged.

Regarding other LIHI criteria, there are no known listed T&E species at the site. The building housing the Project generating equipment is historic and protected under the license. The watershed protection criteria do not apply, and there is no watershed enhancement fund that would qualify the facility for extension of the certification term by three years. Dam removal has not been recommended according to the available record.

**Issue 1.** The Facility as licensed is not required to maintain a minimum bypass flow that can be considered appropriately protective of fish, wildlife, and water quality.

**Recommended Condition No. 1.** Effective immediately upon receipt of this grant of certification, Olson Electric Development Co., Inc. shall increase the minimum bypass flow to 16 cfs, or instantaneous inflow if less.

**Issue 2.** The Facility does not maintain records for monitoring compliance with the flow management requirements of the license.

**Recommended Condition No. 2.** Within 90 days of LIHI's grant of certification, Olson Electric Development Co., Inc. shall develop a flow monitoring and record keeping plan in consultation with the USFWS and MassWildlife and file the plan with LIHI. The plan shall include the information on the mechanism for maintaining the bypass minimum flow (noting that at least 3 cfs should be provided as full-crest spillage for consistency with the license). Before filing the plan with LIHI, Olson Electric Development Co., Inc. shall seek written approval from the agencies and include any written responses to LIHI at the same time the plan is filed.

**Issue 3.** The Facility does not provide measures for safe and effective upstream and downstream American eel passage.

**Recommended Condition No. 3.** By April 1, 2014, Olson Electric Development Co., Inc. shall enter into, and provide LIHI with a copy of, an agreement reached between the USFWS, MassWildlife, and Olson Electric Development Co., Inc. for providing both interim and permanent safe, timely, and effective downstream passage and permanent safe, timely and effective upstream passage for American eel, including a description of the planned passage and protection measures and the implementation schedule for design, installation, and operations. Said permanent facilities shall be in place and operational by August 1, 2016, and Olson Electric Development Co., Inc. shall notify LIHI within two weeks of completion. In the interim, effective immediately, Olson Electric Development Co., Inc. shall institute interim downstream passage which shall consist of nightly shutdowns (dusk to dawn) during rainy nights from

August 15 to November 15. Olson Electric Development Co., Inc. shall keep a log during this period, showing precipitation and generation information, and provide it to the USFWS and MassWildlife by December 31 annually until permanent measures are in place. This interim passage provision shall be included in the aforementioned agreement. In the event that the USFWS and MassWildlife determine prior to the installation of permanent downstream passage that the above-described interim downstream passage measure is not providing safe, timely and effective interim passage for outmigrating eels, Olson Electric Development Co., Inc. shall implement other reasonable interim measures as requested by these agencies.

During the term of this certification, should a resource agency request implementation of upstream passage at the Facility for anadromous fish species, Olson Electric Development Co., Inc. shall so notify LIHI within 14 days and provide LIHI with a copy of the request and its response.

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#### A. Flows

The Project was licensed on March 27, 1986. As such, the Resource Agency Recommendations precede the cutoff date of January 1, 1987 for applicability of Criterion A.1. The Project is licensed and operated as a true run-of-river facility (Article 21) with a minimum bypass flow of 3 cfs (Article 22). According to the license, the USFWS had recommended a minimum instantaneous downstream flow of 37.0 cfs; EPA recommended, and the Massachusetts Department of Environmental Quality Engineers (now MassDEP) required in its January 24, 1984, water quality certification, a minimum downstream flow of 14.76 cfs (an estimate of the river's 7Q10 low flow statistic) for sanitary wasteload assimilation purposes; and the Methuen Conservation Commission recommended a minimum spillage of 3 cfs for aesthetics.

The flow recommendation made by the USFWS was likely derived from its New England Regional Flow Policy (1981), which applies a minimum flow of 0.5 cfs per square mile of watershed area as a summer aquatic base flow (unless site specific gage records are available and meet certain criteria to support estimation of base flow statistics). The watershed area at the Project dam is 73.8 square miles. While flows downstream of the Project tailrace meet this standard, the flow through the 150-foot bypassed reach does not. Consequently, for the purposes of the LIHI application, the Applicant elected to commission a consultant to complete an instream flow study (PHABSIM) for the bypassed reach in consultation with the agencies. The Applicant provided the consultant's report (*Methuen Falls Hydroelectric Project: Bypass Flow Study*, Normandeau Associates, October 2012) as part of its certification application, as well as concurrence documentation from the USFWS and MassWildlife that 16 cfs would be a suitable minimum flow for protection of fish habitat (white sucker and common shiner, target species) in the bypassed reach. To institutionalize the 16 cfs flow, I recommend that the LIHI certification be subject to Recommended Condition #1.

The license does not require the Applicant to operate under a flow management plan and to maintain compliance records. Since the Applicant does not maintain records that can be used to



demonstrate compliance with the license and LIHI flow criteria, I recommend that LIHI certification be subject to Recommended Condition #2.



**Figure 7. Bypassed reach viewed from dam; tailrace located on downstream side of concrete training wall on river left. (*Methuen Falls Hydroelectric Project: Bypass Flow Study*, Normandeau Associates, October 2012)**

LIHI Questionnaire: Flows	
<b>A.1</b>	<b>Is the Facility in <i>Compliance</i> with <i>Resource Agency Recommendations</i> issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?</b>
	<i>Reviewer Analysis/Conclusions:</i> The Resource Agency Recommendations adopted in the federal license were made before 1987. This subcriterion only applies when the recommendations are from or after 1987. <b>N/A = Go to A.2</b>
<b>A.2</b>	<b>If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in <i>Compliance</i> with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or “good” habitat flow standards calculated using the Montana-Tennant method?</b>
	<i>Reviewer Analysis/Conclusions:</i> With respect to the below-tailrace reach, the Facility meets the Flow criterion under A.2, as the Facility is operated strictly run-of-river, which should assure consistency with a minimum flow of 37 cfs (USFWS summer ABF); however, the minimum bypass flow contained in the license is less than the ABF and Tennant standards. <b>No = Go to A.3</b>
<b>A.3</b>	<b>If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?</b>
	The Applicant has addressed minimum bypass flows through completion of an instream flow study and consultation with the resource agencies, which concur with a minimum flow of 16 cfs to protection instream habitat. The Facility will continue, consistent with Article 21 of the license, to operate in a strictly run-of-river mode, which should protect habitat below the tailrace. I have recommended two conditions for certification: Recommended Condition #1 to institute the 16 cfs bypass flow immediately and Recommended Condition #2 to develop a flow monitoring and record-keeping plan. <b>YES (so long as Recommended Conditions #1 and #2 are attached to the certification) = PASS</b>

## B. Water Quality

The water quality certification for the FERC license proceeding was issued on January 24, 1984, which is too early to qualify the Project under B.1.a. The only condition of that certification was the 7Q10 minimum flow discussed under A. Flows above. By email dated November 12, 2013 (appended), MassDEP indicated, however, that there is reasonable assurance that the Facility will comply with water quality standards as long as the conditions recommended by MassWildlife are implemented.

The entire 5.8-mile river segment in Massachusetts (MA84A-10) is 303(d) listed according to Final Massachusetts Year 2012 Integrated List of Waters (March 2013). The reference mentions bacteriological contamination; however, Aquatic Biota (macroinvertebrates) are also impaired. The state assessment also notes physical substrate habitat alteration as an impairment cause.

With regard to 303(d) listing of the waters at the site, MassDEP stated in an email to the Applicant on June 7, 2012, “In regards water quality, the MA Department of Environmental Protection believes the 1999 Merrimack River Water Quality Assessment Report is representative of current conditions in the vicinity of the Methuen Falls Dam. The Spicket River (MA84A-10) is heavily impacted by urbanization and is listed as a Category 5 water: “Waters Requiring a TMDL”. The Department believes that the Methuen Falls Hydroelectric Project and its operations neither cause nor contribute to the presence of pathogens, escherchia coli and fecal coliform both immediately up and downstream of or in the Project area.”

LIHI Questionnaire: Water Quality	
<b>B.1</b>	<p><b>Is the Facility either:</b>  <b>a) In Compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986? Or</b>  <b>b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?</b></p> <p><i><b>Reviewer Analysis/Conclusions:</b></i> The Project water quality certification was issued in 1984. The Project does qualify under B.1.a; however, MassDEP is reasonably assured that the Project will comply with water quality standards as long as MassWildlife’s flow and passage recommendations are adopted.  <b>YES to (b) = Go to B.2</b></p>
<b>B.2</b>	<p><b>Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?</b></p> <p><i><b>Reviewer Analysis/Conclusions:</b></i> The entire river segment in Massachusetts is 303(d) listed for non-support of uses, including aquatic biota and recreation.  <b>YES = Go to B.3</b></p>
<b>B.3</b>	<p><b>If the answer to question B.2 is yes, has there been a determination that the Facility does not cause, or contribute to, the violation?</b></p> <p>MassDEP asserts that the Project does not cause, or contribute to, the impairments.</p>



### *C. Fish Passage and Protection*

According to *Strategic Plan & Status Review, Anadromous Fish Restoration Plan, Merrimack River* (Technical Committee for Anadromous Fishery Management of the Merrimack River Basin and Advisors to the Technical Committee, October 16, 1997), anadromous fish, including Atlantic salmon, American shad, and river herrings (alewives and blueback herring), populated the Merrimack River basin historically. The focus of the strategic plan is on addressing passage at Merrimack River mainstem dams and restoring anadromous fish to the Merrimack River and major tributaries other than the Spicket River. Migratory fish have unimpeded access to the mouth of the Spicket River as the first Merrimack River dam, Essex Dam, is one mile upstream.

While there is no present initiative to restore anadromous fish to the Spicket River basin, the license does acknowledge that as a future possibility and indicates that the license includes sufficient terms and conditions to empower FERC to order “passage facilities and other protective measures at the project to preclude adverse impacts to anadromous fish, if , in the future, the Spickett River [alternate spelling] is included in the on-going anadromous fish restoration program for the Merrimack River Basin.” The state and federal agencies have not yet indicated an interest in anadromous passage.

Efforts by state and federal agencies to protect and enhance the depleted coastwise stock of American eel are ongoing. The USFWS is currently reviewing eel status for possible protection under the Endangered Species Act. MassWildlife, by letter dated May 24, 2012 to the Applicant, stated that three fish surveys completed in the summer of 2011 were dominated by American eel. Of the 124 fish collected, representing 12 different species, 48 were American eel (length of 130-750 mm). The sampling was done downstream of the Project dam; however, one sampling station was upstream of Harveys Falls Dam, and eels were present in that sampling set. Harveys Falls Dam does not have upstream passage facilities. MassWildlife indicated that it is confident that eel pass the Project dam as well. Both the USFWS service and MassWildlife, in comments provided to the Applicant for use in the application, stated that they would be looking for upstream and downstream passage facilities “in the near future.” The facilities would likely be an upstream eelway and downstream passage measures in the form of seasonally installed narrow-spaced screens or seasonal nighttime shutdown and spillage with implementation within two years of a request, although interim downstream passage could follow more quickly after a request. The Applicant committed to this proposal. MassWildlife, in its comments filed during the public notice period, more specifically requested interim downstream passage “as soon as possible” and permanent upstream and downstream passage within two years of certification.

In order to assure compliance with the LIHI fish passage criteria, I recommend that LIHI certification be subject to Recommended Condition #3, which provides for preparation of a plan and schedule for interim and permanent downstream eel passage and permanent upstream eel passage. The condition as drafted also includes notification of LIHI should a resource agency request upstream and/or downstream passage of anadromous fish.

LIHI Questionnaire: Fish Passage and Protection	
<b>C.1</b>	<p><b>Is the Facility in Compliance with <i>Mandatory Fish Passage Prescriptions</i> for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?</b></p> <p><i>Reviewer Analysis/Conclusions:</i> No prescription exists. N/A = Go to C.2</p>
<b>C.2</b>	<p><b>Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?</b></p> <p><i>Reviewer Analysis/Conclusions:</i> Several anadromous species continue to run the Merrimack River but dams block fish from moving up the Spicket River through the Facility area. American eel, a catadromous species, persists in the watershed. <b>Yes with respect to anadromous fish = Go to C.2.a</b> <b>No with respect to catadromous fish = Go to C.3</b></p>
<b>C.2.a</b>	<p><b>If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?</b></p> <p><i>Reviewer Analysis/Conclusions:</i> Two mainstem dams are located downstream of Methuen Falls Dam, none with upstream fish passage facilities. <b>Yes with respect to anadromous fish = Go to C.2.b</b></p>
<b>C.2.b</b>	<p><b>If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?</b></p> <p><i>Reviewer Analysis/Conclusions:</i> Such a request has not been made to date. N/A with respect to anadromous fish = Go to C.3</p>
<b>C.3</b>	<p><b>If, since December 31, 1986:</b></p> <ul style="list-style-type: none"> <li>a) Resource Agencies have had the opportunity to issue, and considered issuing, a <b>Mandatory Fish Passage Prescription</b> for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and</li> <li>b) The Resource Agencies declined to issue a <b>Mandatory Fish Passage Prescription</b>,</li> <li>c) Was a reason for the Resource Agencies' declining to issue a <b>Mandatory Fish Passage Prescription</b> one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?</li> </ul>

	<p><b>Reviewer Analysis/Conclusions:</b> The agencies have had an opportunity to prescribe fish passage under the federal license but have not done so to date. None of the three C.3.c factors apply to this Facility.</p> <p><b>N/A for both anadromous and catadromous fish = Go to C.4</b></p>
<b>C.4</b>	<p><b>If C3 was not applicable:</b></p> <p><b>a) are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? OR</b></p> <p><b>b) If the Facility is unable to meet the fish passage standards in 4.a, has the Applicant either i) demonstrated, and obtained a letter from the U.S. Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource, or ii) committed to the provision of fish passage measures in the future and obtained a letter from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service indicating that passage measures are not currently warranted?</b></p> <p><b>Reviewer Analysis/Conclusions:</b></p> <p>With respect to <b>anadromous species</b>, the Resource Agencies have no current plans to initiate restoration of fish to the Spicket River basin. Condition #3, however, will provide for LIHI notification of any prescription for the Project dam.</p> <p>With respect to <b>catadromous species</b>, the Applicant does not have any passage facilities in place at this time and has not attempted to demonstrate effective eel passage but has committed to providing facilities when requested. I recommend that Condition #3 be attached to the certification to address the lack of safe and effective passage facilities for the existing American eel population.</p> <p><b>YES to (b) for anadromous fish (so long as Recommended Condition #3 is attached to the certification) = Go to C.5</b></p> <p><b>YES to (b) for catadromous fish (so long as Recommended Condition #3 is attached to the certification) = Go to C.5</b></p>
<b>C.5</b>	<p><b>Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of Riverine fish?</b></p> <p><b>Reviewer Analysis/Conclusions:</b> There are no prescriptions for riverine fish.</p> <p><b>N/A = Go to C.6</b></p>
<b>C.6</b>	<p><b>Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?</b></p> <p><b>Reviewer Analysis/Conclusions:</b> There are no Resource Agency Recommendations for entrainment protection measures. Interim and permanent downstream passage measures for eel will address entrainment of outmigrants.</p> <p><b>N/A = PASS</b></p>



#### D. Watershed Protection

The Facility dam creates a riverine impoundment with a surface area of about 8.7 acres extending upstream about 1,600 feet to a railroad bridge. No protected buffer zones have been created along the impoundment through a settlement agreement or the federal license. The formal Project boundaries are extremely limited as shown in Figure 9.

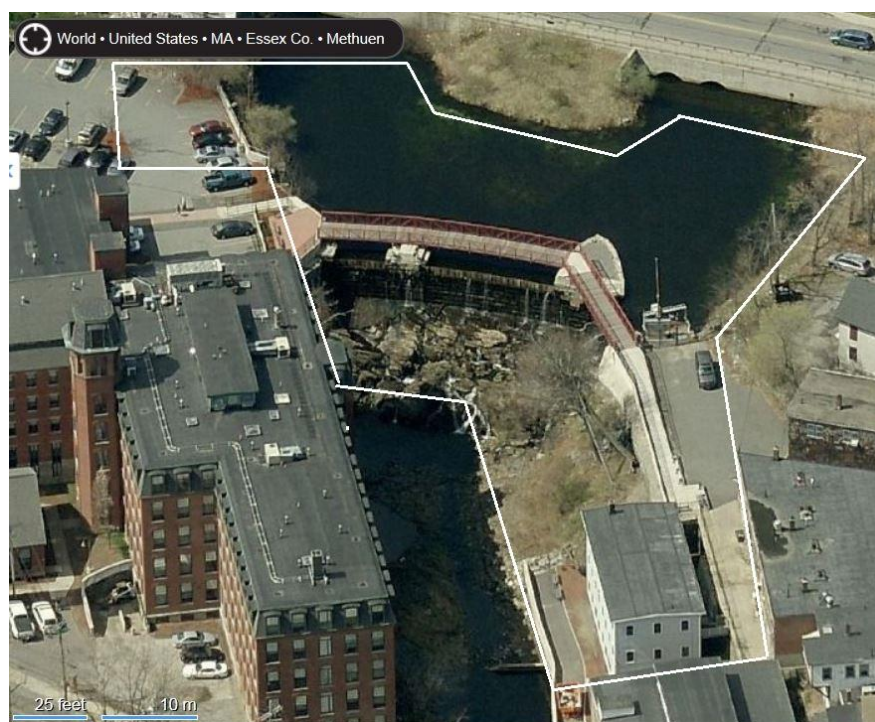


Figure 8. Project boundaries.

LIHI Questionnaire: Watershed Protection	
<b>D.1</b>	<b>Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline?</b>
	<i>Reviewer Analysis/Conclusions:</i> There are no buffer zones at this project. <b>NO = Go to D.2</b>
<b>D.2</b>	<b>Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?</b>
	<i>Reviewer Analysis/Conclusions:</i> There is no watershed enhancement fund. The facility does not qualify for an extension of the LIHI certification term by three years. <b>NO = Go to D.3</b>

<b>D.3</b>	<p><b>Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation).</b></p> <p><i>Reviewer Analysis/Conclusions:</i> There is no settlement agreement. <b>NO = Go to D.4</b></p>
<b>D.4</b>	<p><b>Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project?</b></p> <p><i>Reviewer Analysis/Conclusions:</i> There are neither recommendations nor a shoreline management plan related to the licensee's Facility. <b>N/A = PASS</b></p>

### E. Threatened and Endangered Species Protection

There is no record of federally or state listed threatened and endangered species in the Facility area according to the USFWS (email to Applicant, May 23, 2012) and MassWildlife (letter to Applicant, May 1, 2012).<sup>1</sup>

LIHI Questionnaire: Threatened and Endangered Species Protection	
<b>E.1</b>	<p><b>Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?</b></p> <p><i>Reviewer Analysis/Conclusions:</i> There is no record of state or federally listed T&amp;E species in the Facility area presently. <b>NO = PASS</b></p>

<sup>1</sup> Federal listings for Massachusetts are available at:  
<http://www.fws.gov/newengland/pdfs/MA%20species%20by%20town.pdf>  
The Facility is in Essex County.

#### F. Cultural Resource Protection

The Methuen Company Spinning Mill #5, which houses the generating equipment, is a contributing structure within the Spicket Falls Historic District. The District was added to the National Register of Historic Places in 1984. There is no evidence of conflicts with respect to cultural resources protection. As part of licensing, the structure was rehabilitated under a plan approved by the Advisory Council on Historic Preservation. Article 20 of the license required the licensee to implement the plan in a manner consistent with the historic character of the mill building and afforded protection of historic resources both during and following construction.



Figure 8. Methuen Falls site, c. 1890.

LIHI Questionnaire: Cultural Resource Protection	
<b>F.1</b>	<b>If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?</b>
	<b>Reviewer Analysis/Conclusions:</b> No conflicts were identified in the record. <b>YES = PASS</b>



### G. Recreation

There are very limited recreational opportunities at the site, and the license does not contain any specific requirements to provide recreational facilities of any nature. Article 22 requires a spillage flow of 3 cfs to protect aesthetics.

By email dated October 29, 2013, the Applicant confirmed that access to the Project lands is allowed without charge. By email dated November 4, 2013, the Applicant indicated that boat access to the impoundment is available via a set of stairs on the upstream side of the Lowell Street bridge (first bridge upstream of the dam); the bridge is outside of the Project boundary. Boaters can portage the site using the stairs for egress and then reentering the river at the Project tailrace. (referenced emails contained in the appendix)

LIHI Questionnaire: Recreation	
<b>G.1</b>	<b>If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?</b> <i>Reviewer Analysis/Conclusions:</i> There is neither a recreation plan nor facilities provided or required. <b>YES = Go to G.3</b>
<b>G.3</b>	<b>Does the Facility allow access to the reservoir and downstream reaches without fees or charges?</b> <i>Reviewer Analysis/Conclusions:</i> Access is provided without charge within the limited Project boundaries. <b>YES = PASS</b>

### H. Facilities Recommended for Removal

The record does not indicate an interest on the part of resource agencies in removing the dam.

LIHI Questionnaire: Facilities Recommended for Removal	
<b>H.1</b>	<b>Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?</b> <i>Reviewer Analysis/Conclusions:</i> No. <b>NO = PASS</b>

**APPENDIX**

**Contents**

Correspondence..... A-1 to A-16  
Contacts ..... A-17

**From:** Kevin Olson [mailto:kevin@olsonelectric.com]  
**Sent:** Monday, November 04, 2013 3:27 PM  
**To:** 'Jeffrey Cueto'  
**Subject:** RE: Methuen application

Jeff,

Yes, they are. There is a set of stairs at the Lowell St. bridge that allow you to enter or exit the river on the upstream side and you can access the down stream side at the project tailrace via our 1<sup>st</sup> floor driveway.

Thanks,  
Kevin

**From:** Jeffrey Cueto [mailto:ompompanoo@aol.com]  
**Sent:** Thursday, October 31, 2013 1:15 PM  
**To:** 'Kevin Olson'  
**Subject:** RE: Methuen application

Thanks for the response, Kevin. Following up on the recreation question, although no formal recreational facilities are required or provided, are boaters able to portage around the dam and, if so, how?  
Jeff

**From:** Kevin Olson [mailto:kevin@olsonelectric.com]  
**Sent:** Tuesday, October 29, 2013 2:27 PM  
**To:** 'Jeffrey Cueto'  
**Cc:** 'Mike Sale'  
**Subject:** RE: Methuen application

Jeff,

The following is in response to your questions of 10/24/13 including attachments...

3. *For the other four dams on the river, are any of them regulated by FERC? If so, please provide the FERC project numbers.*

**KO: None of the other dams on the river are FERC regulated.**

*You didn't provide the river mile information, but I can figure it out.*

**KO: River mile information is unknown**

6. *Please confirm that there have been no post-licensing compliance issues.*

**KO: On January 23, 1990 the FERC issued a Compliance Order claiming the licensee had failed to submit satisfactory stability analyses or detailed designs for remedial measures (attached). At that time the project dam was classified as a high-hazard dam. The licensee commissioned numerous studies which ultimately led to a request**



**to properly classify the dam. On January 26, 1996 the FERC issued an order reclassifying the dam as low-hazard (attached).**

*I had asked for a copy of the FERC EA. Is it unavailable?*

**KO: FERC EA is unavailable.**

*I had also asked for a copy of FERC's most recent inspection report, if available.*

**KO: A copy of a FERC environmental inspection was requested. No such inspection has been done.**

10. *Please send me a Google Earth map showing the location of the head of the impoundment, or describe it so I can find it myself.*

**KO: A copy of a map showing the head of the impoundment has been included as an attachment.**

11. *Did you update Appendix 2 with the requested contact information? I only have the original Appendix 2. If you sent it, I can check with LIHI to get it transferred to my folder.*

**KO: In addition to a listing of the contacts which was requested and provided as part of the questionnaire (Appendix 2) you've requested we state the last time we had discussions, if any, with the contact, the general nature of the discussion, and our assessment of the ongoing working relationship with the contact. All contact with resource agencies and non-governmental organizations has been via email and included as attachments to the application.**

A.3. *With respect to quantitative water quality concerns related to water quality, the issue is typically whether or not the facility creates substandard dissolved oxygen concentrations, and occasionally excessive water temperatures. Appendix A-2 doesn't appear to address that. In cases where there is limited water quality data, state water quality agencies sometimes request data collection before making a determination. My understanding is that you are proposing that the LIHI certification be conditioned on increasing the bypass minimum flow from 3 cfs to 16 cfs year round based on your study and resource agency input. You don't indicate whether records are kept to enable demonstration of compliance with run-of-river operation and the bypass minimum flow. Consequently, I will suggest that a flow management plan be drafted and implemented for LIHI certification. Did you provide information on the hydraulic capacity of the units?*

**KO: The hydraulic capacity of the units is 158cfs.**

*Your project description says that you maintain a minimum flow of 37 cfs downstream. That doesn't appear to be a license requirement. The license requires instantaneous run-of-river.*

**KO:** The agreement to operate of the project in a run-of-river mode ensuring a continuous flow release, from the project, of at least 37.0 cfs or inflow to the project area, whichever is less, is a license requirement (See Appendix 1-1).

*B.1.b. See comment under A.3.*

*C.2. Thanks for the information on American eel passage. There doesn't appear, however, to be any information on anadromous passage, historical or future. Please clarify what this river's status is with respect to the Merrimack anadromous fish restoration plan.*

**KO:** The Massachusetts Division of Fisheries and Wildlife (Division) is the agency responsible for the protection and management of the fish and wildlife resources of the Commonwealth. On April 9, 2012 Section C. "Fish Passage and Protection" of the LIHI questionnaire was provided in its entirety to Dr. Caleb Slater, PhD Anadromous Fish Project Leader for the Division and a response was requested (see Appendix C-1). On May 24, 2012 Dr. Caleb Slater provided a response (see Appendix C-2).

*Is there a reason that the fisheries agencies are not requesting eel passage at this time? I'll probably be asking them, but if you have any insight that would be helpful.*

**KO:** It is my understanding that based on conclusions included in Dr. Slater's letter to the LIHI of August 26, 2013 (attached) upstream eelway and downstream eel passage prescriptions are imminent.

*F.1. Article 20 of the license appears to address historic resources. Can you provide documents related to compliance with Article 20 as requested in the Intake Review?*

**KO:** Please see Appendices F-1 thru F-3. There is no other documentation related to the compliance with Article 20 of the license other than that which has already been provided.

*I had also asked if the entire mill building is part of the licensed project.*

**KO:** The entire mill building is part of the licensed project.

*G. Please elaborate on the extent of access made available to the river on project lands. Also, please indicate whether a portage and/or boat access are provided.*

**KO:** The project does not restrict access to the river on project lands. And pursuant to Appendix G no recreational facilities, accommodations (including recreational flow releases) have been requested or provided.

*I has also asked for a map showing the project boundary.*

**KO: A copy of a map showing the project boundary has been included as an attachment**

Please feel free to reply with any additional questions or concerns.

Best Regards,  
Kevin Olson



**HYDROPOWER**

Olson Electric Development Co., Inc.  
30r Hampshire Street  
Methuen MA 01844

(978) 975-0400 Office  
(978) 975-0044 Fax  
(978) 204-9775 Mobile

**From:** Jeffrey Cueto [<mailto:ompompanoo@aol.com>]  
**Sent:** Thursday, October 24, 2013 12:23 PM  
**To:** 'Kevin Olson'  
**Cc:** 'Mike Sale'  
**Subject:** Methuen application

Kevin – I have a few questions/comments regarding the revised application. The numbers refer to the questionnaire sections.

3. For the other four dams on the river, are any of them regulated by FERC? If so, please provide the FERC project numbers.

You didn't provide the river mile information, but I can figure it out.

6. Please confirm that there have been no post-licensing compliance issues. I had asked for a copy of the FERC EA. Is it unavailable? I had also asked for a copy of FERC's most recent inspection report, if available.



10. Please send me a Google Earth map showing the location of the head of the impoundment, or describe it so I can find it myself.

11. Did you update Appendix 2 with the requested contact information? I only have the original Appendix 2. If you sent it, I can check with LIHI to get it transferred to my folder.

A.3. With respect to quantitative water quality concerns related to water quality, the issue is typically whether or not the facility creates substandard dissolved oxygen concentrations, and occasionally excessive water temperatures. Appendix A-2 doesn't appear to address that. In cases where there is limited water quality data, state water quality agencies sometimes request data collection before making a determination.

My understanding is that you are proposing that the LIHI certification be conditioned on increasing the bypass minimum flow from 3 cfs to 16 cfs year round based on your study and resource agency input.

You don't indicate whether records are kept to enable demonstration of compliance with run-of-river operation and the bypass minimum flow. Consequently, I will suggest that a flow management plan be drafted and implemented for LIHI certification.

Did you provide information on the hydraulic capacity of the units?

Your project description says that you maintain a minimum flow of 37 cfs downstream. That doesn't appear to be a license requirement. The license requires instantaneous run-of-river.

B.1.b. See comment under A.3.

C.2. Thanks for the information on American eel passage. There doesn't appear, however, to be any information on anadromous passage, historical or future. Please clarify what this river's status is with respect to the Merrimack anadromous fish restoration plan.

Is there a reason that the fisheries agencies are not requesting eel passage at this time? I'll probably be asking them, but if you have any insight that would be helpful.

F.1. Article 20 of the license appears to address historic resources. Can you provide documents related to compliance with Article 20 as requested in the Intake Review? I had also asked if the entire mill building is part of the licensed project.

G. Please elaborate on the extent of access made available to the river on project lands. Also, please indicate whether a portage and/or boat access are provided. I has also asked for a map showing the project boundary.

><{{{> **Jeffrey R. Cueto, P.E.**

><{{{> (802) 223-5175

><{{{> [ompompanoo@aol.com](mailto:ompompanoo@aol.com)

---

**From:** Kevin Olson [<mailto:kevin@olsonelectric.com>]  
**Sent:** Thursday, November 07, 2013 1:49 PM  
**To:** 'Jeffrey Cueto'  
**Cc:** [jerryo@olsonelectric.com](mailto:jerryo@olsonelectric.com)  
**Subject:** RE: Methuen dams

Hey Jeff,

In my original narrative I had only included the most immediate upstream and downstream Dams. When I added the 4<sup>th</sup> Stevens' Pond Dam it appears that I added it in the wrong place. The flashboard reference actually describes our Methuen Falls Dam. There are no flashboards installed at Stevens' Pond Dam. Furthermore, there is no other hydropower currently located on the Spicket River. Please see the attached revised Appendix 3-1 for clarification.

Wheeler Dam Current use - Recreation  
Harvey's Falls Dam Current use - Unknown  
Stevens' Pond Dam Current use – Cooling Water for Textile Manufacturing Process

Thanks,  
Kevin

**From:** Jeffrey Cueto [<mailto:ompompanoo@aol.com>]  
**Sent:** Thursday, November 07, 2013 1:14 PM  
**To:** 'Kevin Olson'  
**Subject:** Methuen dams

Kevin – You indicated that there are three other dams on the river but none are FERC regulated. For Stevens, you stated that the dam carries plywood flashboards, which suggests that it is used for hydropower. Is that correct...is it unlicensed? What purposes do the other three dams serve?  
Thanks.  
Jeff

><{{{> **Jeffrey R. Cueto, P.E.**  
><{{{> (802) 223-5175  
><{{{> [ompompanoo@aol.com](mailto:ompompanoo@aol.com)

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**From:** Kubit, Robert (DEP) [mailto:robert.kubit@state.ma.us]  
**Sent:** Tuesday, November 12, 2013 1:16 PM  
**To:** 'Jeffrey Cueto'  
**Subject:** LIHI Comments - FERC 8093

Good afternoon Jeff.

I am reasonably assured the Methuen Hydroelectric Project complies with Massachusetts water quality standards (314 CMR 4.00) provided the facility operates in an instantaneous run-of-river mode with a minimum bypass flow approved by the MADFW. Additional conditions by the MADFW regarding aquatic habitat, such as eel passage, need also be implemented in order to comply with Massachusetts water quality standards.

Hope this helps.

Bob

Robert Kubit, P.E.  
MassDEP  
Division of Watershed Management  
627 Main Street  
Worcester MA 01608  
Telephone: (508) 767-2854  
Email: [robert.kubit@state.ma.us](mailto:robert.kubit@state.ma.us)  
Fax: (508) 791-4131

**From:** Jeffrey Cueto [mailto:[ompompanoo@aol.com](mailto:ompompanoo@aol.com)]  
**Sent:** Sunday, November 10, 2013 3:39 PM  
**To:** Kubit, Robert (DEP)  
**Subject:** Methuen Hydroelectric Project - LIHI Review

Hi, Bob.

Kevin Olsen provided a copy of your June 7, 2012 email in his application. You specifically indicated that the hydroelectric facility is not causing, or contributing to, the bacteriological contamination problems for which the river is 303(d) listed. I was wondering whether you can make a more general statement that you are reasonably assured the facility complies with your state's water quality standards (assuming compliance with the flow requirement of instantaneous run-of-river operation and a bypass minimum flow of 16 cfs). As you are aware, the owner has agreed to increase the spillage flow based on an instream flow study and consultation with Caleb Slater and John Warner. That should benefit dissolved oxygen levels I would expect as the current requirement is only 3 cfs. He has also agreed to provide eel passage when an agency request is made.

Since it appears that no flow management and record keeping plan was required, I intend to recommend that any LIHI certification include that as a condition.



Thanks for your input.  
Jeff

><{{{> **Jeffrey R. Cueto, P.E.**  
><{{{> (802) 223-5175  
><{{{> [ompompanoo@aol.com](mailto:ompompanoo@aol.com)

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**From:** Grader, Melissa [mailto:[melissa\\_grader@fws.gov](mailto:melissa_grader@fws.gov)]  
**Sent:** Wednesday, November 13, 2013 3:04 PM  
**To:** Jeffrey Cueto  
**Cc:** Warner, John; Caleb Slater  
**Subject:** Re: Methuen Hydroelectric Project - LIHI Review

Hi Jeff,

Your proposed language looks fine to us.

Best,  
Melissa

Melissa Grader  
Fish and Wildlife Biologist  
U.S. Fish and Wildlife Service - New England Field Office  
103 East Plumtree Road  
Sunderland, MA 01375  
413-548-8002 x124  
[melissa\\_grader@fws.gov](mailto:melissa_grader@fws.gov)

~~~~~  
"Heaven is under our feet as well as over our heads" Henry David Thoreau

----- Forwarded message -----  
From: **Slater, Caleb (MISC)** <[caleb.slater@state.ma.us](mailto:caleb.slater@state.ma.us)>  
Date: Wed, Nov 13, 2013 at 12:12 PM  
Subject: RE: Methuen Hydroelectric Project - LIHI Review  
To: Jeffrey Cueto <[ompompanoo@aol.com](mailto:ompompanoo@aol.com)>, "[John\\_Warner@fws.gov](mailto:John_Warner@fws.gov)"  
<[John\\_Warner@fws.gov](mailto:John_Warner@fws.gov)>

OK-

**From:** Jeffrey Cueto [mailto:[ompompanoo@aol.com](mailto:ompompanoo@aol.com)]  
**Sent:** Monday, November 11, 2013 1:52 PM  
**To:** [John Warner@fws.gov](mailto:John.Warner@fws.gov); Slater, Caleb (FWE)  
**Subject:** RE: Methuen Hydroelectric Project - LIHI Review

John and Caleb – I noticed that the passage condition as originally drafted did not include upstream passage for American eel within two years which had been my intent and would be consistent with Caleb’s recommendations to LIHI by letter dated August 26, 2013. So here’s the updated version. Sorry about that.

Jeff

**Issue 3.** The Facility does not provide measures for safe and effective upstream and downstream American eel passage.

**Recommended Condition No. 3.** By April 1, 2014, Olson Electric Development Co., Inc. shall enter into, and provide LIHI with a copy of, an agreement reached between the USFWS, MassWildlife, and Olson Electric Development Co., Inc. for providing both interim and permanent safe, timely, and effective downstream passage and permanent safe, timely and effective upstream passage for American eel, including a description of the planned passage and protection measures and the implementation schedule for design, installation, and operations. Said permanent facilities shall be in place and operational by August 1, 2016, and Olson Electric Development Co., Inc. shall notify LIHI within two weeks of completion. In the interim, effective immediately, Olson Electric Development Co., Inc. shall institute interim downstream passage which shall consist of nightly shutdowns (dusk to dawn) during rainy nights from August 15 to November 15. Olson Electric Development Co., Inc. shall keep a log during this period, showing precipitation and generation information, and provide it to the USFWS and MassWildlife by December 31 annually until permanent measures are in place. This interim passage provision shall be included in the aforementioned agreement. In the event that the USFWS and MassWildlife determine prior to the installation of permanent downstream passage that the above-described interim downstream passage measure is not providing safe, timely and effective interim passage for outmigrating eels, Olson Electric Development Co., Inc. shall implement other reasonable interim measures as requested by these agencies.

During the term of this certification, should a resource agency request implementation of upstream passage at the Facility for anadromous fish species, Olson Electric Development Co., Inc. shall so notify LIHI within 14 days and provide LIHI with a copy of the request and its response.

**From:** Jeffrey Cueto [<mailto:ompompanoo@aol.com>]  
**Sent:** Sunday, November 10, 2013 6:43 PM  
**To:** '[John.Warner@fws.gov](mailto:John.Warner@fws.gov)'; 'Slater, Caleb (MISC)'  
**Subject:** Methuen Hydroelectric Project - LIHI Review

Hi, John and Caleb. I'm reviewing the Methuen Project for which Olsen Electric provided your review comments concerning flows and passage. I am considering recommending several conditions for LIHI certification. For flows, two conditions, one increasing the minimum bypass flow from the licensed 3 cfs to 16 cfs as you both recommend based on the 2012 Normandeau study and a second requiring a flow management and record keeping plan developed in consultation with your agencies. As I understand it, there is no record keeping requirement to assure compliance with instantaneous r-o-r and the spillage for the bypass. Also, I'm unsure how the spillage is maintained, and it would be good if you had an opportunity to review and approve that measure.

Regarding anadromous passage, I don't any mention of the Spicket River in the Merrimack strategic plan. Would it be correct to say that anadromous fish (species?) were historically present in that river but the focus of restoration at this time is the Merrimack mainstem and other tribs?

Regarding eels, I've generally been recommending immediate interim downstream passage if they are already present upstream, and a plan and schedule for implementation of permanent up/downstream passage. If there is a technical reason why that doesn't make sense, please let me know. The way the LIHI criteria are structured, as I read them, facilities generally must show effective passage (or at least reasonably immediate steps to get effective passage) if the fish are currently present and there is no formal prescription.

Below are the draft conditions if you wouldn't mind reading them over to make sure they work for you.

Thanks.

Jeff



><{{{~}}> **Jeffrey R. Cueto, P.E.**

><{{{~}}> (802) 223-5175

><{{{~}}> [ompompanoo@aol.com](mailto:ompompanoo@aol.com)

**Issue 1.** The Facility as licensed is not required to maintain a minimum bypass flow that can be considered appropriately protective of fish, wildlife, and water quality.

**Recommended Condition No. 1.** Effective immediately upon receipt of this grant of certification, Olson Electric Development Co., Inc. shall increase the minimum bypass flow to 16 cfs, or instantaneous inflow if less.

**Issue 2.** The Facility does not maintain records for monitoring compliance with the flow management requirements of the exemption.

**Recommended Condition No. 2.** Within 90 days of LIHI's grant of certification, Olson Electric Development Co., Inc. shall develop a flow monitoring and record keeping plan in consultation with the USFWS and MassWildlife and file the plan with LIHI. The plan shall include the information on the mechanism for maintaining the bypass minimum flow (noting that at least 3 cfs should be provided as full-crest spillage for consistency with the license). Before filing the plan with LIHI, Olson Electric Development Co., Inc. shall seek written approval from the agencies and include any written responses to LIHI at the same time the plan is filed.

**Issue 3.** The Facility does not provide measures to for safe and effective downstream eel passage.

**Recommended Condition No. 3.** By April 1, 2014, Olson Electric Development Co., Inc. shall enter into, and provide LIHI with a copy of, an agreement reached between the USFWS, MassWildlife, and Olson Electric Development Co., Inc. for providing both interim and permanent safe, timely, and effective downstream passage for American eel, including a description of the planned passage and protection measures and the implementation schedule for design, installation, and operations. Said permanent facilities shall be in place and operational by August 1, 2016, and Olson Electric Development Co., Inc. shall notify LIHI within two weeks of completion. In the interim, effective immediately, Olson Electric Development Co., Inc. shall institute interim downstream passage which shall consist of nightly shutdowns (dusk to dawn) during rainy nights from August 15 to November 15. Olson Electric Development Co., Inc. shall keep a log during this period, showing precipitation and generation information, and provide it to

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John P. Warner  
Assistant Supervisor, Conservation Planning Assistance and Endangered Species  
New England Field Office, U.S. Fish and Wildlife Service  
70 Commercial Street, Suite 300  
Concord, NH 0330-5087  
phone: 603-223-2541, Ext 15  
fax: 603-223-0104

---

**From:** Slater, Caleb (MISC) [mailto:caleb.slater@state.ma.us]  
**Sent:** Wednesday, November 13, 2013 12:12 PM  
**To:** Jeffrey Cueto; John\_Warner@fws.gov  
**Subject:** RE: Methuen Hydroelectric Project - LIHI Review

Jeff,

Those conditions make perfect sense. I have attached the my comment letter which describes the American eel distribution that we have documented in the Spickett River.

Caleb



Caleb Slater, PhD  
Anadromous Fish Project Leader  
Massachusetts Division of Fisheries and Wildlife  
**PLEASE NOTE NEW FIELD HEADQUARTERS ADDRESS** (Phones and Emails have not changed.)

Mass. Division of Fisheries & Wildlife  
100 Hartwell Street, Suite 230  
West Boylston MA 01583  
508-389-6331  
[www.mass.gov/masswildlife](http://www.mass.gov/masswildlife)

**From:** Jeffrey Cueto [<mailto:ompompanoo@aol.com>]  
**Sent:** Sunday, November 10, 2013 6:43 PM  
**To:** [John.Warner@fws.gov](mailto:John.Warner@fws.gov); Slater, Caleb (FWE)  
**Subject:** Methuen Hydroelectric Project - LIHI Review

Hi, John and Caleb. I'm reviewing the Methuen Project for which Olsen Electric provided your review comments concerning flows and passage. I am considering recommending several conditions for LIHI certification. For flows, two conditions, one increasing the minimum bypass flow from the licensed 3 cfs to 16 cfs as you both recommend based on the 2012 Normandeau study and a second requiring a flow management and record keeping plan developed in consultation with your agencies. As I understand it, there is no record keeping requirement to assure compliance with instantaneous r-o-r and the spillage for the bypass. Also, I'm unsure how the spillage is maintained, and it would be good if you had an opportunity to review and approve that measure.

Regarding anadromous passage, I don't any mention of the Spicket River in the Merrimack strategic plan. Would it be correct to say that anadromous fish (species?) were historically present in that river but the focus of restoration at this time is the Merrimack mainstem and other tribs?

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Below are the draft conditions if you wouldn't mind reading them over to make sure they work for you.

Thanks.  
Jeff

><{{{> **Jeffrey R. Cueto, P.E.**  
><{{{> (802) 223-5175  
><{{{> [ompompanoo@aol.com](mailto:ompompanoo@aol.com)

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***Recommended Condition No. 1.*** Effective immediately upon receipt of this grant of certification, Olson Electric Development Co., Inc. shall increase the minimum bypass flow to 16 cfs, or instantaneous inflow if less.

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***Recommended Condition No. 2.*** Within 90 days of LIHI's grant of certification, Olson Electric Development Co., Inc. shall develop a flow monitoring and record keeping plan in consultation with the USFWS and MassWildlife and file the plan with LIHI. The plan shall include the information on the mechanism for maintaining the bypass minimum flow (noting that at least 3 cfs should be provided as full-crest spillage for consistency with the license). Before filing the plan with LIHI, Olson Electric Development Co., Inc. shall seek written approval from the agencies and include any written responses to LIHI at the same time the plan is filed.

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During the term of this certification, should a resource agency request implementation of upstream passage at the Facility for anadromous or catadromous fish species, Olson Electric Development Co., Inc. shall so notify LIHI within 14 days and provide LIHI with a copy of the request and its response.

---



**From:** Kevin Olson [mailto:kevin@olsonelectric.com]  
**Sent:** Tuesday, November 12, 2013 12:02 PM  
**To:** 'Jeffrey Cueto'  
**Cc:** jerryo@olsonelectric.com  
**Subject:** RE: Methuen

Jeff,

We are in agreement in principal with the recommendations and look forward to consulting with the agencies referenced.

Thanks Jeff.

Best Regards,  
Kevin Olson



**HYDROPOWER**

Olson Electric Development Co., Inc.  
30r Hampshire Street  
Methuen MA 01844

(978) 975-0400 Office  
(978) 975-0044 Fax  
(978) 204-9775 Mobile

**From:** Jeffrey Cueto [mailto:ompompanoo@aol.com]  
**Sent:** Monday, November 11, 2013 2:00 PM  
**To:** 'Kevin Olson'  
**Subject:** Methuen

Kevin – I have completed a draft report reviewing the Methuen project for LIHI certification. I have emails outstanding to USFWS, MassDEP and MassWildlife and hope to hear back from them so I can complete the report for consideration at the next meeting (November 21). In the emails to USFWS and MassWildlife, I asked for their concurrence on three conditions related to flows and fish passage. I think they are consistent with what you would be expecting, but I would appreciate your feedback before the meeting so I can let the Board know your position. Thanks.  
Jeff

**Issue 1.** The Facility as licensed is not required to maintain a minimum bypass flow that can be considered appropriately protective of fish, wildlife, and water quality.

**Recommended Condition No. 1.** Effective immediately upon receipt of this grant of certification, Olson Electric Development Co., Inc. shall increase the minimum bypass flow to 16 cfs, or instantaneous inflow if less.

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**Recommended Condition No. 2.** Within 90 days of LIHI's grant of certification, Olson Electric Development Co., Inc. shall develop a flow monitoring and record keeping plan in consultation with the USFWS and MassWildlife and file the plan with LIHI. The plan shall include the information on the mechanism for maintaining the bypass minimum flow (noting that at least 3 cfs should be provided as full-crest spillage for consistency with the license). Before filing the plan with LIHI, Olson Electric Development Co., Inc. shall seek written approval from the agencies and include any written responses to LIHI at the same time the plan is filed.

**Issue 3.** The Facility does not provide measures for safe and effective upstream and downstream American eel passage.

**Recommended Condition No. 3.** By April 1, 2014, Olson Electric Development Co., Inc. shall enter into, and provide LIHI with a copy of, an agreement reached between the USFWS, MassWildlife, and Olson Electric Development Co., Inc. for providing both interim and permanent safe, timely, and effective downstream passage and permanent safe, timely and effective upstream passage for American eel, including a description of the planned passage and protection measures and the implementation schedule for design, installation, and operations. Said permanent facilities shall be in place and operational by August 1, 2016, and Olson Electric Development Co., Inc. shall notify LIHI within two weeks of completion. In the interim, effective immediately, Olson Electric Development Co., Inc. shall institute interim downstream passage which shall consist of nightly shutdowns (dusk to dawn) during rainy nights from August 15 to November 15. Olson Electric Development Co., Inc. shall keep a log during this period, showing precipitation and generation information, and provide it to the USFWS and MassWildlife by December 31 annually until permanent measures are in place. This interim passage provision shall be included in the aforementioned agreement. In the event that the USFWS and MassWildlife determine prior to the installation of permanent downstream passage that the above-described interim downstream passage measure is not providing safe, timely and effective interim passage for outmigrating eels, Olson Electric Development Co., Inc. shall implement other reasonable interim measures as requested by these agencies.

During the term of this certification, should a resource agency request implementation of upstream passage at the Facility for anadromous fish species, Olson Electric Development Co., Inc. shall so notify LIHI within 14 days and provide LIHI with a copy of the request and its response.

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## CONTACTS

| Entity                                                                           | Authorized Representatives                          | Contact Information                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| United States Fish and Wildlife Service                                          | John P. Warner<br>Assistant Supervisor              | Conservation Planning Assistance and Endangered Species<br>New England Field Office, U.S. Fish and Wildlife Service<br>70 Commercial Street, Suite 300<br>Concord, NH 03301<br>(603) 223-2541 - ext.15<br>Email: <a href="mailto:John.Warner@fws.gov">John.Warner@fws.gov</a> |
|                                                                                  | Melissa Grader<br>Fish & Wildlife Biologist         | c/o Connecticut River Coordinator's Office<br>103 East Plumtree Road<br>Sunderland, MA 01375<br>Telephone: (541) 312-6422<br>Email: <a href="mailto:melissa_grader@fws.gov">melissa_grader@fws.gov</a>                                                                        |
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| Massachusetts Division of Fisheries & Wildlife                                   | Caleb Slater, PhD<br>Anadromous Fish Project Leader | Mass. Division of Fisheries & Wildlife<br>100 Hartwell Street, Suite 230<br>West Boylston MA 01583<br>Telephone: (508) 389-6331<br>Email: <a href="mailto:caleb.slater@state.ma.us">caleb.slater@state.ma.us</a>                                                              |
| State Historical Preservation Office                                             | Edward L. Bell<br>Senior Archaeologist              | Massachusetts Historical Commission<br>220 Morrissey Boulevard<br>Boston, MA 02125<br>Telephone: (617) 727-5128                                                                                                                                                               |
| National Park Service<br>Rivers and Special Studies Branch                       | Kevin Mendik                                        | Telephone: (617) 223-5299<br>Email: <a href="mailto:kevin_mendik@nps.gov">kevin_mendik@nps.gov</a>                                                                                                                                                                            |
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