

**APPLICATION REVIEW FOR
LOW IMPACT HYDROPOWER INSTITUTE
CERTIFICATION
of the
PUTTS BRIDGE PROJECT NO. 10677**



FEBRUARY 18, 2013

Application Reviewer: Patricia McIlvaine

WRIGHT-PIERCE 
Engineering a Better Environment

**APPLICATION REVIEW FOR LOW IMPACT HYDROPOWER
INSTITUTE CERTIFICATION**

PUTTS BRIDGE PROJECT - FERC PROJECT NO. P-10677

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REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE PUTTS BRIDGE HYDROELECTRIC PROJECT

Prepared by:
Patricia McIlvaine
February 18, 2013

I. INTRODUCTION AND OVERVIEW

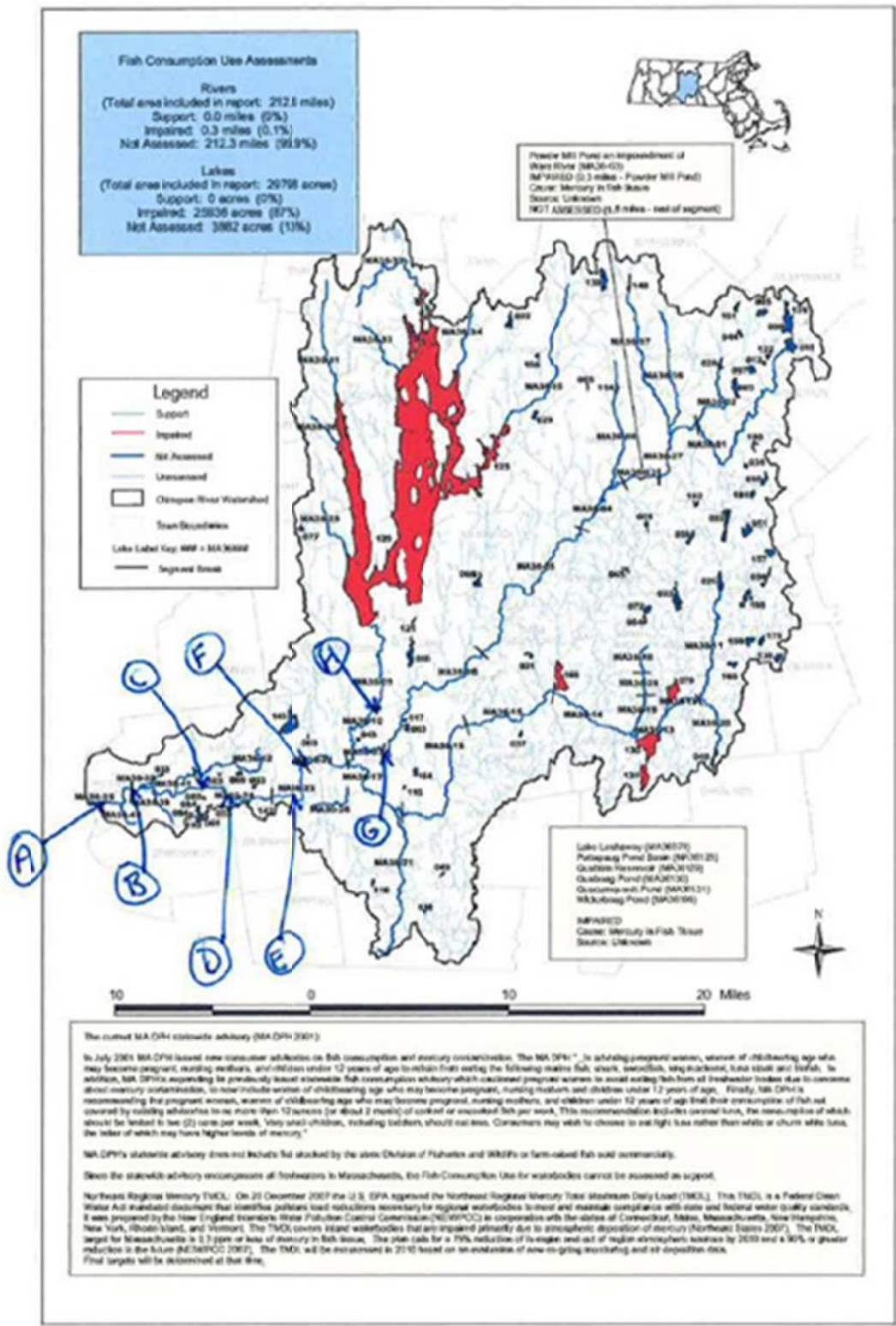
This report reviews the original application submitted by Essential Power LLC (Essential Power or Applicant) on August 31, 2012 to the Low Impact Hydropower Institute (LIHI) for Low Impact Hydropower Certification for the Putts Bridge Hydroelectric Project (Putts Bridge or Project). In response to the Intake Review completed in November 30, 2012, the applicant chose to submit a revised application package on December 10, 2012, rather than provide the missing information.

The Putts Bridge Project was granted an Exemption from Licensing by the Federal Energy Regulatory Commission (FERC) on September 11, 1992 as Project Number 10677. The Project, originally licensed by Western Massachusetts Electric Company (WMECO) was sold to Consolidated Edison Energy Inc. (CEEI) in 1999 and to North American Energy Alliance LLC (NAEA), now called Essential Power, in 2008. The station has an estimated annual production of 15,500 MWh.

II. PROJECT'S GEOGRAPHIC LOCATION

The project is located in the Towns of Wilbraham and Ludlow and City of Springfield in Hampden County, Massachusetts. The Project dam crosses the town line between Springfield and Ludlow; the powerhouse is located in Ludlow. The impoundment extends in a northeasterly direction, bordering Springfield and Ludlow. The Project was originally constructed in 1918 by the Ludlow Manufacturing Company. In 1988, the Federal Energy Regulatory Commission determined that the Chicopee River was a navigable waterway under its jurisdiction and ordered Western Massachusetts Electric Company, the Project's owner at the time, to prepare an application for Exemption from Licensing.

The Putts Bridge project is situated upstream of three other hydroelectric facilities located on the Chicopee River and downstream of two other dams on the Chicopee River as well as other dams on the Ware, Swift and Quaboag Rivers. As shown on the diagram on the next page, the order of the hydroelectric dams, starting with the lowest dam, on the Chicopee River is Dwight Station Project (P-10675) river mile 1.2, Chicopee Falls Project (P-6522) river mile 3.0, Indian Orchard Project (P-10678) river mile 7.8, Putts Bridge Project (P-10677) river mile 9.2, Collins Hydro Project (P-6544) river mile 12.6 and Red Bridge Project (P-10676) river mile 15.2. Dwight Station Project, Indian Orchard Project and the Red Bridge Project (P-10676) also owned and operated by Essential Power. The Project drains an area of 686 square miles.



- A - DWIGHT
- D - PUTTS BRIDGE
- G - THORN DIKE
- B - CHICOPEE
- E - COLLINS
- H - BONDSVILLE
- C - INDIAN ORCHARD
- F - RED BRIDGE

III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The existing major project works include a dam with a crest elevation of 203.6 feet (NGVD), an impoundment, a concrete headgate structure, two conduits, forebay, trashrack, intake structure, a powerhouse with two generating units, a tailrace channel (normal tailrace elevations 160.9 feet) and appurtenant facilities.



Putts Bridge Spillway, Skimming Gate and Head Gates

The dam, built in 1918, crosses the Chicopee River in a roughly north-to-south direction, and is a concrete gravity structure approximately 223-foot long by 22-foot high. The northern abutment of the dam is contiguous with the abutment for the Ludlow Avenue Bridge. Adjacent to this abutment are a skimming gate and a deep sluice gate. A 23-foot non-overflow section extends from the gate area to the 200-foot long ogee spillway which extends across the river to the south abutment. A concrete retaining wall extends from the south abutment for about 133 feet.

The forebay is a reinforced 40 by 104 foot concrete structure measuring 40 feet wide by 104 feet long with an 18-foot wide skimming gate. The trashrack is situated along the western forebay wall, with a mechanical trash rake mounted on rails along the entire width of the trashrack. Wooden headgates isolate the forebay from the generating units.

The Putts Bridge Project powerhouse is a 45 by 154 foot concrete and brick structure, housing the two operating units (Units No. 2 and 3) and one retired, No. 4. Unit No.1 was never installed and Unit No.5 is a retired waterwheel exciter. The tailrace canal runs 355 feet from the powerhouse in a westerly direction to where the flow re-enters the Chicopee River. The

powerhouse's 11.5 KV generators are connected to 11.5 KV circuit breaker to a 4.5 MVA autotransformer located at WMECO's North Street substation.



Powerhouse



Impoundment

Essential Power dams on the Chicopee River have little to no control over their inflows. At normal pond elevation the Putts Bridge Project impoundment extends approximately 3.3 miles upstream of the dam. The Putts Bridge project is operated in a limited pond-and-release mode, utilizing the useable storage capacity (65 acre-feet) afforded by a 1.0 foot drawdown during the second quarter and 2.0 foot drawdown during the balance of the year. The station is operated semi-automatically by float controls. The operating mode of the Putts Bridge project does not

change during dry, mean or high water years. As flows vary at the Project, the number of turbines operating and the duration of operation changes, increasing and decreasing the amount of generation realized. Initially, the exemption required a continuous minimum flow release of 247 cfs, or inflow, at the project dam to the bypass reach. This was subsequently revised in 1999 to 25 cfs as further discussed in Section 2.1 - Criteria A - River Flows.

IV. REGULATORY AND COMPLIANCE STATUS

In 1988, the Federal Energy Regulatory Commission determined that the Chicopee River was a navigable waterway under its jurisdiction and ordered Western Massachusetts Electric Company, the Project's owner at the time, to prepare an application for Exemption from Licensing. The License Exemption was issued to WMECO on September 11, 1999. It was subsequently amended on December 29, 1999, to reflect upgraded nameplate capacity due to unit rewinding rather than increased cooling at the station transformer in lieu of installation of a minimum flow unit, and on November 8, 2001, which solely revised the project description to reflect the as-built capacities.

A Water Quality Certification (WQC) was not issued for the Putts Bridge Project as at the time of the processing for a License Exemption, the Massachusetts Department of Environmental Protection (MDEP) had not completed a water quality study for the Project waters, and hence did not issue a WQC.

The applicant reports that the Project has been in continuous compliance with its requirements for exemption from licensing since 1992. A review of the FERC database from January 2008 (when Essential Power took ownership) through January 2013 found no reported compliance issues. However, as discussed under Section 2.1, LIHI's Intake Review of the Project identified that the Minimum Flow and Impoundment Fluctuation Monitoring Plan, which was a condition of the License Exemption, had never been finalized in the past, but has since been approved by FERC. Other than this issue, Essential Power appears to have demonstrated conscientious attention to the environmentally-related issues associated with the Putts Bridge Project's current FERC License Exemption.

Due to the comprehensive consultations conducted by the applicant with the resource agencies, the reviewer only consulted with Mr. Robert Kubit of MDEP to clarify comments made in his letter dated June 8, 2012. A summary of this discussion is included under Section 2.2 - Criteria B - Water Quality.

V. PUBLIC COMMENT RECEIVED BY LIHI

The deadline for submission of comments on the certification application was February 18, 2013. No public comments letters were received by LIHI. This was likely due in part to the extensive resource agency consultation undertaken by the applicant during the application process. These agency consultation documents were provided as part of the application. Key comment letters are included in Appendix B.

VI. SUMMARY OF COMPLIANCE WITH CRITERIA AND ISSUES IDENTIFIED

Criterion A - Flows - The facility appears to be operated in compliance with the established minimum flow requirements, reservoir elevation, fluctuations and deviation reporting. With the exception of a stated preference for run-of-river operation by MDEP, no specific areas of concern were identified by the resource agencies in letters obtained from them by the applicant. A condition associated with submission of flow data requested by the USFWS is recommended.

Criterion B - Water Quality - The facility appears to be operated in compliance with all quantitative water quality standards, although compliance with qualitative standards cannot be confirmed. Further discussion is provided under Section 2.2 - Criteria B – Water Quality. The Project is not responsible for the 303d listing of the project waters.

Criterion C - Fish Passage and Protection. The USFWS and MDFW reserved their authority within the FERC license under Section 30(c) of the FPA for construction of fish passage when deemed required. FERC included these as mandatory conditions. There are no migratory species in the Chicopee River above the most downstream dam (Dwight Station); and agencies have no active plans to introduce such species. No passage or protection requirements have been identified for migratory or riverine species at this time.

Criterion D - Watershed Protection - There are no requirements for a buffer zone, shoreline protection fund or shoreline management plan for the Facility. Thus, as all requirements, of which there are none, are nonetheless being met, this Facility passes for this criterion. No additional term for certification is appropriate.

Criterion E - Threatened and Endangered Species Protection – No federally listed species, or state endangered species are found in the area. The swamp dock (*Rumex verticillatus*), a state threatened plant species, has been reported to be in the vicinity of the Project and/or its downstream. Required consultation with MDFW under Article 14 for land disturbance activities would offer protection to this species if found onsite.

Criterion F - Cultural Resources – Articles 12 and 13 of the License Exemption have protective measures to ensure that any ground disturbance activities do not impact historical artifacts. Presently, Essential Power reports it has no plans to engage in any land-disturbing, land-clearing or spoil-producing activities at the site but if these conditions change, Essential Powers is committed to adhere to these requirements.

Criterion G - Recreation - The Project was found to be in compliance with all recreational requirements although some maintenance issues were discovered by FERC in 2010 and remedied in 2012.

Criterion G - Facilities Recommended for Removal - No resource agencies have recommended dam removal.

VII. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review of information submitted by the applicant, the additional documentation noted herein, the public comments submitted in writing or through my consultations with various resource agencies and other entities, I believe that the Project would be compliance with the LIHI criteria, provided the information identified in the recommended conditions, all associated with flow, is provided, as summarized below and discussed in more detail later in this report.

Therefore, I recommend that the Putts Bridge Project be certified to be in compliance with LIHI's criteria with a certification term of five years with the following conditions:

1. As the final confirmation that the recently submitted Minimum Flow and Impoundment Fluctuation Monitoring Plan sufficiently addresses compliance with the various flow requirements is contingent upon review and approval of six months of flow data by the USFWS, Essential Power shall provide LIHI a letter documenting that such records have been provided within nine months of Project certification.
2. Essential Power shall certify to LIHI that the 24 hour period of empirical data to compare with the calculated flows for USFWS's evaluation of the Flow Monitoring Plan has been provided. Essential Power shall also provide LIHI, documentation of the USFWS review/approval or concerns found with this data comparison within nine months of Project Certification.
3. Should this review process find that modifications are needed to the Flow Monitoring Plan, Essential Power shall forward a copy of the modifications, along with resource agency approval of these modifications, within one month of the Plan submission to FERC. Essential Power shall also provide LIHI a copy of FERC's final Plan approval within one month of receipt of this approval.

THE PUTTS BRIDGE PROJECT CONDITIONALLY MEETS THE LIHI CRITERIA FOR CERTIFICATION

VIII. DETAILED CRITERIA REVIEW

A. FLOWS

Goal: The Flows Criterion is designed to ensure that the river has healthy flows for fish, wildlife and water quality, including seasonal flow fluctuations where appropriate.

Standard: For instream flows, a certified facility must comply with recent resource agency recommendations for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the "good" habitat flow level under the Montana-Tennant

methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.

Criterion:

1) Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?

YES – The FERC License Exemption issued in September 1999 contained the following flow related requirements:

- continuous release of a minimum flow of 247 cubic feet per second (cfs), or inflow to the project, whichever is less, at the project dam to the bypass reach.
- Project operation to limit drawdown of the Project impoundment to no more than one foot below the top of the flashboards from April 1 through June 30. From July 1 through March 30 [31], the Exemptee agreed to limit drawdown to no more than 2 feet below the top of the flashboards, except during system emergencies or energy audits.
- within six months from the date of issuance of the exemption from licensing for the Project, present to the FWS for approval, a plan for monitoring project impoundment level and instantaneous bypass releases. Following approval of the plan, the Exemptee agree to measure and record impoundment level and flows according to the plan and provides records of these data to the FWS within 30 days from a request for the records.
- USFWS reservation of the right to add and/or alter these terms and conditions as appropriate in order to carry out its responsibilities with respect to fish and wildlife resources. The Exemptee agreed, within 30 days of receipt, to file with the Commission any additional or modified mandatory terms and conditions.

Subsequently, when the Exemptee elected to not install a minimum flow turbine, they proposed minimum flow release of 25 cfs to the bypass from installation of a new automated slide gate. In response to agency requests, a water quality study was performed in late 2000 which found that the dissolved oxygen level of the bypass met Class B water quality standards at this lower flow. Thus the revised minimum flow of 25 cfs was found acceptable as a permanent requirement.

It appears that the lack of an approved Minimum Flow and Impoundment Monitoring Plan was overlooked at this Project until identified as part of the LIHI Intake Review process at another Essential Power project. Essential Power developed the Plan, incorporating consultation comments from the USFWS, MDFW and MDEP, and issued the Plan to FERC on February 20, 2012. The Plan was approved by FERC on August 3, 2012. An agreement was also established under which Essential Power would provide six months of flow release data from the slide gate, and a 24 hour period of empirical data for comparison, to the USFWS for their review to confirm

adequacy of this Plan. These study needs are identified in an email from Melissa Grader of USFWS email dated August 27, 2012 (See Appendix B)

An email dated June 22, 2012 from Dr. Caleb Slater of MDFW stated that the Project is “not out of compliance with any state mandated minimum flow requirements”. As noted in a July 30, 2012 letter from Mr. Robert Kubit of MDEP, as the Project does not operate in a run-of-river mode in conformance with the MDEP’s stated goals, the MDEP does not support certification as a low-impact facility. Nonetheless, the current operating pond and release operational mode was not challenged by the agencies in 2000 when the revised minimum flow was changed to 25 cfs. The License exemption also includes a condition that allows the USFWS to add and/or alter these terms and conditions as appropriate in order to carry out its responsibilities with respect to fish and wildlife resources. Thus, the Project appears to be subject to modifications of these requirements through licensing modification, although none have been requested through this formal process, but only through the LIHI certification process.

This Project conditionally passes Criterion A - Flows- Go to B

B. WATER QUALITY

Goal: The Water Quality Criterion is designed to ensure that water quality in the river is protected.

Standard: The Water Quality Criterion has two parts. First, an Applicant must demonstrate that the facility is in compliance with state water quality standards, either through producing a recent Clean Water Act Section 401 certification or providing other demonstration of compliance. Second, an applicant must demonstrate that the facility has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d).

Criterion:

1) Is the Facility either:

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 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?

Yes. A Water Quality Certification (WQC) was not issued for the Putts Bridge Project as at the time of the processing for a License Exemption, the Massachusetts Department of Environmental Protection (MEDEP) had not completed a water quality study for the Project waters, and hence did not issue a WQC.

The existing water quality at the Putts Bridge project is classified by the MDEP as a Class B, warmwater fishery. At the commencement of the license process, WMECO filed results of a

water quality study, including a dissolved oxygen (“DO”) study for the Project. This study of the Putts Bridge Project was reported to have been submitted to DOI, USFWS and MDFW in late November 1989 for review and analysis, and that none of these agencies raised any objection to its data or conclusions. However no documentation was provided to support this. Water quality data from sampling in other sections of the Chicopee River was provided in the application, but none of these studies were in the immediate vicinity of the Putts Bridge project.

A letter provided by the applicant dated January 27, 2000 from USFWS, identified the need for a water quality assessment to confirm that the revised interim 25 cfs minimum flow into the bypass appropriately protects water quality in the bypass reach before this revised minimum flow was adopted as a permanent modification. Based on an email dated August 27, 2012, issued by Melissa Grader of USFWS, such water quality studies were completed in 2000, which confirmed that dissolved oxygen standards were being met in the bypass under a minimum flow release of 25 cfs.

A letter dated June 8, 2012 from Mr. Robert Kubit of MDEP (see Appendix B) stated that 1998 data is the most recent data available in the Putts Bridge area and suggested that *Aquatic Life Use* standard is considered to be on “Alert Status” due to possible impacts from hydromodification. Mr. Kubit recommended that additional data is needed to better understand the impacts of the hydropower activities on aquatic life. The Reviewer consulted with Mr. Robert Kubit on February 11, 2013 to obtain clarification of his comments. On this call, Mr. Kubit stated that he believes that the facility is “not in non-compliance with the “water chemistry” (i.e. quantitative) standards due to the constant flow, limited retention time of water in the impoundment and shallowness of the impoundment”. He also stated that some data from 2003 is available for these waters. However, he reiterated that he cannot state that the qualitative standard of “aquatic life use” is being met due to issues such as bank undercutting due to fluctuating flows.

LIHI’s criteria B.1.b is currently written as:

“The application must contain written correspondence from the appropriate state water quality official stating that the official is reasonably assured the waters in the Facility area and in the downstream reach are in compliance with the state’s quantitative water quality standards based on available data, river characteristics, permitted wasteloads, project operating constraints (e.g., spillage, hydraulic operating range) and other relevant data”

As *aquatic life use* is a qualitative standard, under the current criteria, the applicant does not need to confirm compliance with qualitative standards to meet B.1.b, although one of the basic intents of the Water Quality criteria is to ensure waters support a healthy aquatic life. Therefore, it appears that this criteria has been met.

Go to B2

2) 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?

YES. Based on a letter dated June 8, 2012 from Mr. Robert Kubit, the 2010 Clean Water Act Section 303(d) List of Impaired Waters indicates that this section of the Chicopee River (MA36-24) is impacted by fecal coliform and is listed as Category 5 waters requiring a TMDL. **Go to B3**

3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?

YES. The above noted letter states that the MDEP “believes that the Putts Bridge Project and its operations neither cause nor contribute to the presence of fecal coliform immediately up and downstream of or in the project area.”

The Project Passes Criterion B - Water Quality - Go to C

C. FISH PASSAGE AND PROTECTION

Goal: The Fish Passage and Protection Criterion is designed to ensure that, where necessary, the facility provides effective fish passage for riverine, anadromous and catadromous fish, and protects fish from entrainment.

Standard: For riverine, anadromous and catadromous fish, a certified facility must be in compliance with both recent mandatory prescriptions regarding fish passage and recent resource agency recommendations regarding fish protection. If anadromous or catadromous fish historically passed through the facility area but are no longer present, the facility will pass this criterion if the Applicant can show both that the fish are not extirpated or extinct in the area due in part to the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency. When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

Criterion:

1) Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?

Yes. The 1992 License Exemption, Article 2, contains a requirement that the Exemptee would construct, operate, maintain and monitor upstream and downstream fish passage facilities when prescribed by the USF&S or MDFW. These requirements are noted as *mandatory terms* and

conditions under Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act, and are detailed in a letter dated from August 1992 from the USFWS. As written, these requirements clearly apply to both anadromous and riverine fish, but remain “silent” with regard to catadromous species. Currently there are no active migratory fish management efforts within the Chicopee River watershed. As noted by Ms. Melissa Grader of the USFWS in an email dated August 27, 2012, and one from Dr. Caleb Slator of MDFW on June 22, 2012, no fish passage facilities are currently required for the Putts Bridge Project." In February 11, 2013 emails, Dr. Slator and Melissa Grader confirmed that passage for American eel is also not required at this time.

Go to C2

2) 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)?

The 1998 Environmental Report states anadromous species are stopped from ascending the river by the Dwight Dam. The ER is silent on catadromous species. In past communications with Dr. Slator from September 27, 2011 regarding the Red Bridge Project, he acknowledged the presence of American eel in the River “upstream Dwight Dam”. Nonetheless, the 2012 and 2013 emails from USFWS and MDFW confirm “no fish passage” of any kind is required at the site at this time.

Go to C2a

a) 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?

YES. See discussion above under C2 above. ***Go to C2b***

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?

YES, No upstream or downstream passage has been requested to date based on consultation with USFWS and MDFW, although construction of passage is mandated in the License Exemption when requested by such agencies. Acceptance of the FERC License is a legally enforceable commitment to provide such passage.

Go to C5

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?

NOT APPLICABLE. No fish passage requirements have been issued for riverine fish. *Go to C6*

6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?

YES. No such requirements are included in the License Exemption.

The Project Passes Criterion C - Fish Passage and Protection - Go to D

D. WATERSHED PROTECTION

Goal: The Watershed Protection criterion is designed to ensure that sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.

Standard: A certified facility must be in compliance with resource agency and Federal Energy Regulatory Commission (“FERC”) recommendations regarding watershed protection, mitigation or enhancement. In addition, the criterion rewards projects with an extra three years of certification that have a buffer zone extending 200 feet from the high water mark or an approved watershed enhancement fund that could achieve within the project’s watershed the ecological and recreational equivalent to the buffer zone and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is 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.

Criterion:

1) 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 average annual high water line for at least 50% of the shoreline, including all of the undeveloped shoreline?

NO, *go to D2*

2) 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?

NO, *go to D3*

3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders, with 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)

NO, *Go to D4*

4) 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.

NOT APPLICABLE. No Shoreland Management Plan, buffer zone or enhancement fund was required for the Putts Bridge Project.

The Project Passes Criterion D - Watershed Protection - Go to E

E. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Threatened and Endangered Species Protection Criterion is designed to ensure that the facility does not negatively impact state or federal threatened or endangered species.

Standard: For threatened and endangered species present in the facility area, the Applicant must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and receive long term authority for a “take” (damage) of the species under federal or state laws.

Criterion:

1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?

YES. No federally listed species, or state endangered species are found in the area. The swamp dock (*rumex verticillatus*), a state threatened plant species, has been reported to be in the vicinity of the Project and/or its downstream reach, based on a letter dated May 30, 2012 from MDFW, Natural Heritage and Endangered Species Program. This species was not discussed as being in the area of the project during field studies conducted in 1998.

Go to E2

2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?

NOT APPLICABLE. No recovery plan has been created for swamp dock. *Go to E3*

- 3) **If the Facility has received authority to Incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental take statement; (ii) Obtaining an incidental take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authorization?**

NOT APPLICABLE, Go to E5

- 5) **If E2 and E3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?**

YES. The 1998 Environmental Report notes that no federally or state endangered or threatened species were found in the Project vicinity, thus no impact to protected species was expected. A February 12, 2013 email received from Ms. Amy Coman of MDFW, Natural Heritage and Endangered Species Program stated that although swamp dock may be onsite, the Massachusetts Endangered Species Act (MESA) would not require review under the Act unless some other permitting action is required. The consultation required with MDFW under Article 14 of the License Exemption before any land disturbance activities are undertaken would trigger review for impacts to this species. As a result, it appears that if present, this species would be protected via this required review.

The Project Passes Criterion E - Threatened and Endangered Species Protection - Go to F

F. CULTURAL RESOURCE PROTECTION

Goal: The Cultural Resource Protection Criterion is designed to ensure that the facility does not inappropriately impact cultural resources.

Standard: Cultural resources must be protected either through compliance with FERC license provisions, or through development of a plan approved by the relevant state or federal agency.

Criterion:

- 1) **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?**

YES. The Facility is in compliance with all requirements regarding cultural resource protection, mitigation or enhancement included in its FERC exemption from license. In view of the results of discovery efforts during the licensing process and the SHPO's determination at that time, the FERC found that the Facility would have no effect on any structure, site, building, district, or object listed in or eligible for listing in the National Register of Historic Places.

During the licensing process, Commission staff specifically determined that exempting the proposed project would have no effect on National Register or eligible properties based on the Exemptee proposal to use the existing project works for its historic purpose, i.e. hydropower. Article 12 requires the Exemptee to: (1) consult with the State Historic Preservation Officer (SHPO) before undertaking any construction activity that would result in any modification of the project's existing historic facilities; and (2) file, for Commission approval, its final design drawings, including SHPO's comments on these drawings. Article 13 required that CEEI consult with the SHPO and, if necessary, develop and implement a cultural resource management plan before undertaking any project-related construction activity that is not specifically authorized by the 1992 exemption order.

Presently, Essential Power reports it has no plans to engage in any land-disturbing, land-clearing or spoil-producing activities at the Putts Bridge Project. If these conditions change, they will adhere to the requirements of Articles 12 and 13.

The Project Passes Criterion F - Cultural Resource Protection - Go to G

G. RECREATION

Goal: The Recreation Criterion is designed to ensure that the facility provides access to the water without fee or charge, and accommodates recreational activities on the public's river.

Standard. A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a certified facility must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.

Criterion:

1) 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?

YES. The Putts Bridge Project is located in a primarily urban and industrial section of western Massachusetts. A large portion of the project impoundment is bordered to the north by the Minechoag Wetland. The Minechoag Wetland has several access points and is used for hiking and nature watching.

Limited seasonal boating and fishing opportunities are available at the Project. The project is

required to maintain a informal boat ramp and parking area on the east side of the impoundment (south shore). The facility was required by both the Massachusetts Division of Fisheries and Wildlife and the US Fish and Wildlife Service as noted in their comment letters on the Exemption from Licensing.

In its September 30, 2010 inspection report on the Project, FERC noted that the informal boat ramp and parking area did not meet the maintenance requirements of the Project's Exemption. Communications between NAEA and FERC in 2011 confirmed the needed repairs. Consequently, in the spring of 2012, Essential Power repaired the sign at the parking lot and cleaned the parking lot of debris.

Go to G3

3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?

YES. The application denotes that such access is provided free of charge.

The Project Passes Criterion G - Recreation - Go to G

H. FACILITIES RECOMMENDED FOR REMOVAL

Goal: The Facilities Recommended for Removal Criterion is designed to ensure that a facility is not certified if a natural resource agency concludes it should be removed.

Standard: If a resource agency has recommended removal of a dam associated with the facility, the facility will not be certified.

Criterion:

1) Is there a Resource Agency recommendation for removal of the dam associated with the Facility?

NO. No resource agency has recommended removal of this dam.

The Project Passes Criterion H -Facilities Recommended for Removal

APPENDIX A

INDEX OF PRIMARY CONTACT INFORMATION FOR LIHI CRITERIA

The following lists direct consultation initiated by the Reviewer. Extensive consultation with other resource agencies was initiated by the Applicant's representative and provided in the application or as follow-up to questions raised by the Reviewer.

LIHI CRITERION	PRIMARY CONTACT INFORMATION
Flows	None required
Water Quality	Robert Kubit, MDEP
Fish Passage & Protection	None required
Watershed Protection	None required
Threatened & Endangered Species	None required
Cultural Resources Protection	None required
Recreation	None required
Facilities Recommended for Removal	None required

RECORD OF CONTACTS

NOTE: The information presented below was gathered by telephone communication between the Reviewer and agency representative listed below.

Date:	February 11 2013 telephone call
Contact Person:	Robert Kubit, P.E. MDEP
Contact Information:	508-767-2854
Area of Expertise:	Water Quality

Mr. Kubit stated that he believes that the facility is “not in non-compliance with the “water chemistry” (i.e. quantitative) standards due to the constant flow, limited retention time of water in the impoundment and shallowness of the impoundment”. Such standards would include parameters such as toxics, dissolved oxygen, suspended solids, etc. He also stated that some data from 2003 is available for these waters, correcting the statement in his June 2012 letter that the most recent data is from 1998. However, he reiterated that he cannot state that the qualitative standard of “aquatic life use” is being met due to issues such as bank undercutting due to fluctuating flows. He stated that available data is not sufficient to document this position, and that as reported in his letter, additional studies would be needed to confirm whether or not aquatic life of this section of the river meets this “narrative” standard.

APPENDIX B

KEY RESOURCE AGENCY COMMUNICATIONS

From: Melissa_Grader@fws.gov
To: Bill_Short
Cc: caleb.slater@state.ma.us; Robert.Kubit@state.ma.us
Subject: RE: Putts Bridge LIHI review
Date: Monday, August 27, 2012 2:13:57 PM

Hello Bill,

I've finally had a chance to go through the Putts Bridge file and can offer the following comments regarding the LIHI consultation criteria you have requested our input on:

Project Details

The project was issued an exemption on 9/11/92. The project features were to include an existing 22 foot-high dam impounding 65 acres of water, two turbines with an installed capacity of 3,200 kW (operating at flows from 350 cfs up to 1,450 cfs), and a new minimum flow unit with an installed capacity of 370 kW. In August of 1998 NU informed FERC that it intended to increase capacity at some of the Chicopee River projects (including Putts Bridge) instead of installing minimum flow turbines. In July of 1999 NU sold the projects to Consolidated Edison Energy Massachusetts, Inc. (CEEMI). On December 29, 1999 FERC issued an Order Amending Exemptions, to increase the capacity of the four Chicopee River projects; Putts Bridge would increase from 3,200 kW up to 4,100 kW. In response to FERC's Order, the FWS submitted modified terms and conditions for the four projects (by letter dated January 27, 2000). At Putts Bridge, a water quality study was required, as well as the development of a flow monitoring plan and implementation of a reservoir refill protocol. On November 8, 2001 FERC issued a subsequent Order Amending Exemptions to reflect the actual installed capacities at the projects post-refurbishment. At Putts Bridge, the actual installed capacity was reduced from an anticipated 4,100 kW down to 3,900 kW. The Service's project file contains no additional documentation after November 15, 2001. However, a review of FERC Online indicates that there have been no documented compliance issues with the project (other than the below-noted flow monitoring plan) since that time.

LIHI Consultation Criteria

1. Endangered Species

There are no federally listed endangered species within the project area.

2. Exemption terms and conditions

Bypass flow

The project has a 1,500-foot-long bypass reach. Originally the FWS required that the project release 247 cfs at the dam to maintain habitat and water quality in the bypass reach (this flow was derived based on a hydrologic assessment intended to determine the historic, unregulated August median flow). In the draft exemption application, the then-applicant Northeast Utilities Service Company (NU), proposed to release this flow via a minimum flow turbine located within 60 feet of the base of the dam. However, NU subsequently decided to not install a minimum flow turbine, and requested that the bypass reach flow be reduced to 25 cfs. By letter dated 4/2/93, the FWS informed NU that a flow study would need to be conducted in order to determine the adequacy of a lower bypass flow. In September of 1993 NU hired a consultant to conduct a flow demonstration. Based on the results of that study, NU proposed to release 10 cfs into the bypass reach, and modify operations at both the Indian Orchard and Putts Bridge projects to ensure the required minimum flows are released at all times.

On June 27, 1994 FERC granted NU a 2 year extension of time to complete construction of the minimum flow turbine. In October of 1994 NU stated at a meeting that a new gate at the dam would be set at 12" to release 25 cfs to the bypass reach, and clarified that the reduced minimum/bypass flow at Putts Bridge would not affect the minimum releases at the downstream Indian Orchard Project. As part of the consultation process for NU's August 1998 proposed capacity increase at the project, the FWS recommended that NU monitor water quality in the bypass reach to verify that the 25 cfs release was sufficient to maintain aeration and circulation to the large pool at the downstream end of the bypass reach. The Service also requested that NU provide data demonstrating that the required bypass flow at Indian Orchard has been provided under the current Putts Bridge operational protocol. NU's consultant provided those data in a memo dated November 23, 1999. In January of 2000 CEEMI's consultant submitted a draft Water Quality Monitoring Plan for agency review and comment. In November of 2000 a report of the monitoring results was provided to the agencies, indicating that water quality standards in the bypass reach under the 25 cfs flow release were maintained.

Impoundment Fluctuations

During the exemption of licensing proceedings, the FWS requested that NU conduct studies to determine the extent of wetlands and fish spawning habitats that would be affected by water level fluctuations caused by project operations. Based on the study results, the FWS determined that fluctuations should be kept to within one foot of the top of flashboards from April 1 through June 30 (i.e., the warm-water fish spawning season), and to within two feet during the remainder of the year.

Flow Monitoring Plan

The terms and conditions submitted by the FWS for the project (per letter of 7/31/1992) required the Exemptee to develop a Flow Monitoring Plan, then measure flows and provide records of discharges at the project on regular intervals. In March of 1993 NU submitted a Flow Monitoring Plan that the agencies reviewed and FERC approved. However, because significant changes in the methods of releasing the bypass flows were made at the projects, the Service required the development of a revised Monitoring Plan (in an FWS letter dated 1/27/2000). In response to the modified condition, CEEMI's consultant provided a draft plan for agency review in October of 2001. The agencies commented on the draft plan, but CEEMI never submitted a revised plan for review and approval. As part of the LIHI consultation process for the Red Bridge Project, Essential Power developed a new Monitoring Plan, which FERC approved on August 3, 2012.

Fish Passage

The FWS terms and conditions require that the Exemptee provide fish passage facilities when prescribed by the FWS and/or MA DFW. To date, neither agency has triggered this fish passage requirement through the FERC process.

Water Quality

During the exemption from licensing process, NU's consultant conducted a water quality study at Putts Bridge to confirm that project operations at that time were not adversely affecting water quality. Results of the 1989 study showed that dissolved oxygen levels above and below the project met Class B standards. In addition, as noted in our comments under the Bypass Flow section, water quality was monitored in 2001 to confirm that the 25 cfs flow release was maintaining dissolved oxygen standards in the bypass reach.

Shoreland Management Plan

The Service, to date, has not required a Shoreland Management Plan pursuant to our statutory authority under Section 30(c) of the Federal Power Act.

Comments

Based on our review of the project file, it appears that the only outstanding issue regarding terms and conditions prescribed by this office for the project relate to flow monitoring. While the Exemptee has developed a Flow Monitoring Plan, our original terms and conditions also required that empirical measurements be taken to verify that the approved release method was providing the stipulated flow and that the Exemptee provide records of discharges at the project on regular intervals. These latter two requirements have not yet been fulfilled. Therefore, the Service recommends that, similar to the Red Bridge Project, Essential Power conduct field verification of the bypass flow at Putts Bridge, and provide digital records of headpond level, generation, and gate setting for a minimum of six months (at a minimum, covering the low flow months of June through September).

We hope these comments have been responsive to your requests regarding Low Impact Hydropower Certification criteria. If you have any questions or require additional information please feel free to contact me.

Regards,
Melissa

Melissa Grader
Fish and Wildlife Biologist
US FWS/New England Field Office
c/o CT River Coordinator's Office
103 East Plumtree Road
Sunderland, MA 01375
413-548-8002, x124
413-548-9622 (FAX)
melissa_grader@fws.gov
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▼ "Bill Short" <w.shortiii@verizon.net>

"Bill Short"
<w.shortiii@verizon.net>
08/15/2012 08:32 PM

To<Melissa_Grader@fws.gov>
cc"John J. Bahrs" <john.bahrs@essentialpowerllc.com>, "John J. Bahrs" <jbahrs1@gmail.com>
SubjectRE: Putts Bridge LIHI review

Melissa,

I understand that you only do LIHI work once you have finished your FWS work, but it has been 3 months since I first asked you to review these Putts Bridge materials.

I am going to start preparing the formal LIHI application on Friday. My client has wanted this application to be filed with LIHI several months ago. I have to move ahead.

Bill Short

From: Melissa_Grader@fws.gov [mailto:Melissa_Grader@fws.gov]
Sent: Wednesday, August 15, 2012 4:20 PM
To: Bill Short
Subject: RE: Putts Bridge LIHI review

Bill,

Unfortunately I had to devote most of the day to addressing a very time-sensitive issue, so I was unable to get to the Putts Bridge review. I will now be out of the office until next Thursday. I apologize for this review taking so long, but as I've told you, other duties take precedence over LIHI reviews. If you cannot wait any longer then please submit what you need to without FWS input. Otherwise I will do my best to get to it as soon as I return.

Regards,
Melissa

~~~~~  
Melissa Grader  
Fish and Wildlife Biologist  
US FWS/New England Field Office  
c/o CT River Coordinator's Office  
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~~~~~

▼ "Bill Short" <w.shortiii@verizon.net>

"Bill Short"
<w.shortiii@verizon.net>

08/14/2012 08:51 AM

To
<Melissa_Grader@fws.gov>
cc
"John J. Bahrs"
<john.bahrs@essentialpowerllc.com>,
"John J. Bahrs"
<jbahrs1@gmail.com>, "Kim
Marsili"
<Kim.Marsili@naeallc.com>,
"Nicholas Hollister"
<nicholas.hollister@naeallc.com>,
"David Schmidt"
<David.Schmidt@naeallc.com>

Subject
RE: Putts Bridge LIHI review

Melissa,

Thanks for the update. While conducting your review, if you have any questions, please do not hesitate to contact me.

Bill Short



From: Melissa_Grader@fws.gov [mailto:Melissa_Grader@fws.gov]

Sent: Monday, August 13, 2012 10:18 AM

To: w.shortiii@verizon.net

Subject: Putts Bridge LIHI review

Hi Bill,

I'm back from vacation. I have two unexpected site visits this week (today and tomorrow), but will try to get you a response on the Putts Bridge LIHI application by COB this Wednesday.

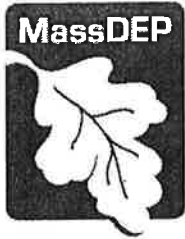
Regards,

Melissa

~~~~~

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~~~~~[attachment "William P Short III.vcf" deleted  
by Melissa Grader/R5/FWS/DOI]



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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RICHARD K. SULLIVAN JR.
Secretary

TIMOTHY P. MURRAY
Lieutenant Governor

KENNETH L. KIMMELL
Commissioner

Essential Power, LLC
c/o William P. Short III
44 West 62nd Street
P.O. Box 2371773
New York, New York 10023-7173

June 8, 2012

Re: LIHI Certification for Putts Bridge #10677
Water Quality

Dear Mr. Short,

According to the 2010 303(d) list, the Chicopee River (MA36-24) is impacted by fecal coliform and is listed as a Category 5 water: "Waters Requiring a TMDL". The Department believes that the Putts Bridge Hydroelectric Project and its operations neither cause nor contribute to the presence of fecal coliform both immediately up and downstream of or in the Project area.

The 1998 Chicopee River Water Quality Assessment Report is the latest report we have on water quality in the vicinity of Putts Bridge Dam. This report presents the following for river segment MA36-24:

"No current data/information was available therefore all uses are not assessed at this time. The *Aquatic Life Use*, however, is on "Alert Status" due to the potential impacts of hydromodification resulting from the hydropower operations.

Additional data is needed to evaluate the effects of hydropower activities on streamflow conditions and habitat quality along this segment of the Chicopee River (e.g., frequency and magnitude of streamflow fluctuations, habitat loss, etc.)."

We have no record of a 401 Water Quality Certification issued for this facility.

If there are any questions, please call me at 508-767-2854.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Kubit', written in a cursive style.

Robert Kubit, P.E.

Cc: Caleb Slater/MADFW