

**Full Application Review for
Low Impact Hydropower Certification of
Crocker Dam Hydroelectric Project**



Prepared by Peter Drown, Cleantech Analytics LLC

December 3, 2015

Cleantech
analytics LLC

I. Executive Summary

This report reviews the Full Original Application for the Crocker Dam Hydroelectric Project (“Crocker Dam”), a proposed 145 KW located on river mile 2.5 of the Whitman River in Westminister in Worcester County, Massachusetts. FERC issued an Order Issuing License (Minor Project) to the Project on September 5, 2012, and issued a two-year extension to commence construction on July 29, 2015. The project is required to commence construction by September 5, 2016 and be completed by September 5, 2019. The proposed construction will take place at the existing Crocker Dam, and will consist of extending the penstock and adding one 145 KW turbine, tailrace, and appurtenant facilities. On September 15, 2015, Whitman River Dam, Inc. submitted a complete application for the Crocker Dam Project. This report reviews the facts provided in that application, includes comments provided by resource agencies, evaluates the Project in accordance with the former LIHI criteria and provides a recommendation to certify the Project as “Low Impact.” **Annual generation on the new facility is anticipated to be approximately 887,450 KWh.**

The Whitman River is located in the Upper Worcester Plateau ecoregion of central MA, and comprises part of the Nashua Watershed. The River originates at the outlet of Lake Wampanoag and drains 8.4 miles southeasterly through predominantly forested, hilly terrain through several small impoundments until it reaches the confluence with the North Nashua River in Fitchburg, MA. The Whitman River is designated as “Good” (not impaired) in the latest Water Quality Assessment Status Report (2012). The project area was identified as possible habitat for the Northern Long-eared Bat, but the USFWS confirmed that no impact to the bat was anticipated as long as no tree-cutting activity took place at the site. The applicant confirmed that no tree cutting will occur during construction. The Westminister Conservation Commission is responsible for governing watershed protection pursuant to the Massachusetts Wetlands Protection Act, and the Commission has issued an Order of Conditions approving the project’s construction subject to various provisions to protect and preserve the shorelands and areas impacted by the Facility.

The applicant provided documentation to LIHI to evaluate as part of their application, including original correspondence with agencies provided during the 2012 FERC Licensing, updated correspondence with several agencies, and site plans of the facility. FERC e-library and comments submitted by agencies throughout the licensing process were reviewed, along with various clarification questions with the applicant. As the project has not yet been constructed, there is no period of history to evaluate for compliance with the terms and conditions required by the various resource agencies involved in the licensing process. Massachusetts Department of Fish and Game and Massachusetts Department of Environmental Protection provided comments on the LIHI application, noting no objections to LIHI certification provided the project is constructed and operated as licensed. According to the LIHI Handbook, LIHI may suspend or revoke the certification should the impacts of the project once operational cause non-compliance with the certification criteria. In my opinion, the supporting documentation and confirmation from resource agencies is sufficient to determine the Crocker Dam Hydroelectric Project will be in compliance with LIHI criteria if constructed and operated as licensed, and represents a strong candidate for certification.

II. Recommendations

Based on a thorough review of the application and supporting documentation, public records, and communications with resource agencies, in my opinion the Crocker Dam Hydroelectric Project meets the requirements for LIHI certification for one, five-year term. As the project consists of new construction and does not have a period of performance to evaluate for compliance, the following plans are requested as conditions of certification:

1. The Applicant shall copy LIHI on plan submitted to MDEP for monitoring run-of-river operation within 3 months of turbine installation, and shall notify LIHI when plan has been approved by MDEP.
2. The Applicant shall copy LIHI on plan submitted to MDEP for monitoring and maintaining the 6 mg/l dissolved oxygen standards within 3 months of turbine installation, and shall notify LIHI when plan has been approved by MDEP.
3. In accordance with Water Quality Certificate condition #19, the Applicant will install full-depth, one-inch clear trashracks with velocities less than or equal to 2 feet per second at the intakes to reduce impingement and entrainment of fish at the project.
4. The Applicant shall notify LIHI if and when relevant resource agencies (MDFW and/or USFWS) require the installation of Fish Passage facilities.
5. The Applicant shall notify LIHI when the Facility comes online and begins producing power.

III. Facility Description

The Crocker Dam Hydroelectric Project (“Project”) is a proposed 145 KW located on river mile 2.5 of the Whitman River in Westminster in Worcester County, Massachusetts. The project is located at the existing Crocker Pond Dam, built in 1933 to provide water supply for the former Crocker Paper Company and predecessors for industrial purposes. FERC issued an Order Issuing License (Minor Project) to the Project on September 5, 2012, and issued a two-year extension to commence construction on July 29, 2015. The project is required to commence construction by September 5, 2016 and be completed by September 5, 2019.

The proposed project will consist of: (1) the existing 520-foot-long, 38.5-foot-high earthen embankment and masonry Crocker Pond dam with a 120-foot-long arched spillway section currently topped with 26-inch-high wooden flashboards; (2) an existing 102.9-acre impoundment with normal water surface elevation of 752.66 feet above mean sea level (msl); an existing 8-foot-wide, 12-foot-high floodgate; (3) an existing 3-foot-wide, 3-foot-high mud gate; (4) an existing gate house equipped with an existing 47-foot-long, 42-inch-diameter penstock and a new 18-foot-wide, 6.5-foot-high metal trashrack with 1-inch-wide bar spacing; (5) a 42-inch-diameter penstock extension; (6) a new powerhouse containing one 145-kW turbine generating unit; (7) a new 20-foot-wide, 6-foot-deep, 35-foot-long tailrace; (8) a new 240-foot-long, 480-volt (V) transmission line; and (9) appurtenant facilities. The project is a true “run-of-river” project with the powerhouse located adjacent to the impoundment creating a very short (~50 ft.) bypass reach. In addition, the project is required to operate on an instantaneous run-of-river mode per the FERC license requirements.

The Whitman River is located in the Upper Worcester Plateau ecoregion of central MA, and comprises part of the Nashua Watershed. The River originates at the outlet of Lake Wampanoag and drains southeasterly until it reaches the confluence with the North Nashua River in Fitchburg, MA. Topography is hilly throughout the subregion, and streamflow has significant seasonal changes. The River is approximately 8.4 miles long and occupies 28.25 square miles of land, of which 72% is forested. Less than 10% of the land use consists of impervious surfaces, limiting the impact of traditional non-point source contaminants (pesticides, fertilizers, asphalt, human waste, etc.) The Whitman River supports a variety of resident fish and other aquatic resources, including freshwater mussels. There are no historical records of migratory fish at the project site, but State and Federal Resource Agencies have ongoing efforts to restore anadromous fish populations in the greater Nashua River watershed. After recent fish surveys revealed the presence of reproducing trout in the area, the MDEP is planning to change the definition of the site from warm-water fishery to cold-water fishery. This change has not yet been made, however cold water standards are still used in the WQC per statute and the area is managed as a cold-water fishery.

Crocker Pond comprises approximately 105 acres, and the depth of the reservoir is approximately 25 feet at the dam. There are no plans to modify the existing reservoir or change reservoir operations, which are currently run-of-river. The shorelines surrounding the reservoir consist of heavy vegetation including wood lands, brush and weedy thicket sub-growth. According to the applicant, there are “no anticipated soil movements or other forms of instability evident in the area.” The only construction activity impacts will include the installation of powerhouse and draft tube underground and slightly into the land adjacent to the stream course. The FERC License notes applicant proposes to use best management practices to control soil erosion and sedimentation during construction. The Westminster Conservation Commission, the entity responsible for administering and enforcing the Massachusetts Wetlands Protection Act, issued an Order of Conditions for the project, establishing the basis for watershed protection for the Facility.

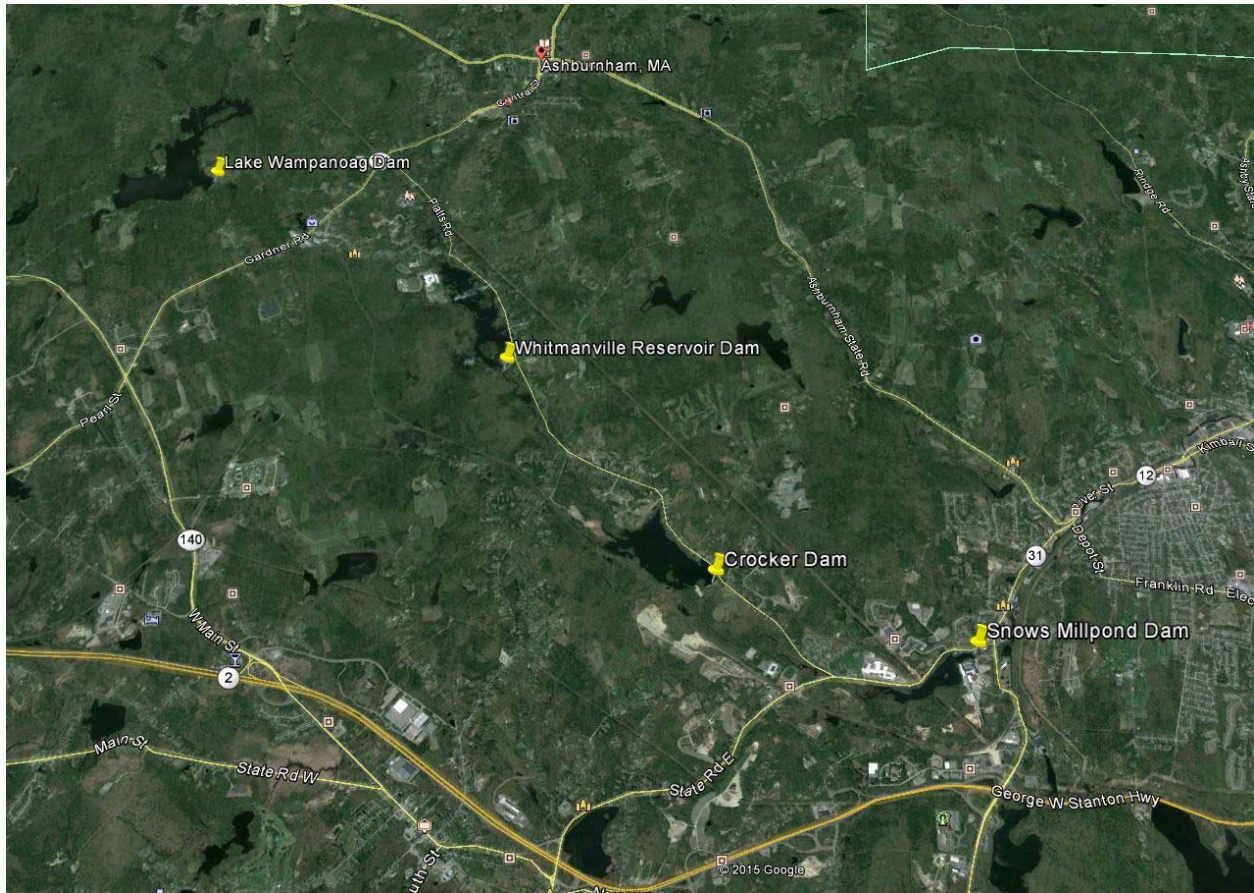


Figure 1 – Whitman River Aerial View



Figure 2 – Crocker Dam Downstream Face (Right Side)



Figure 3 – Crocker Dam Downstream Face (Left Side)

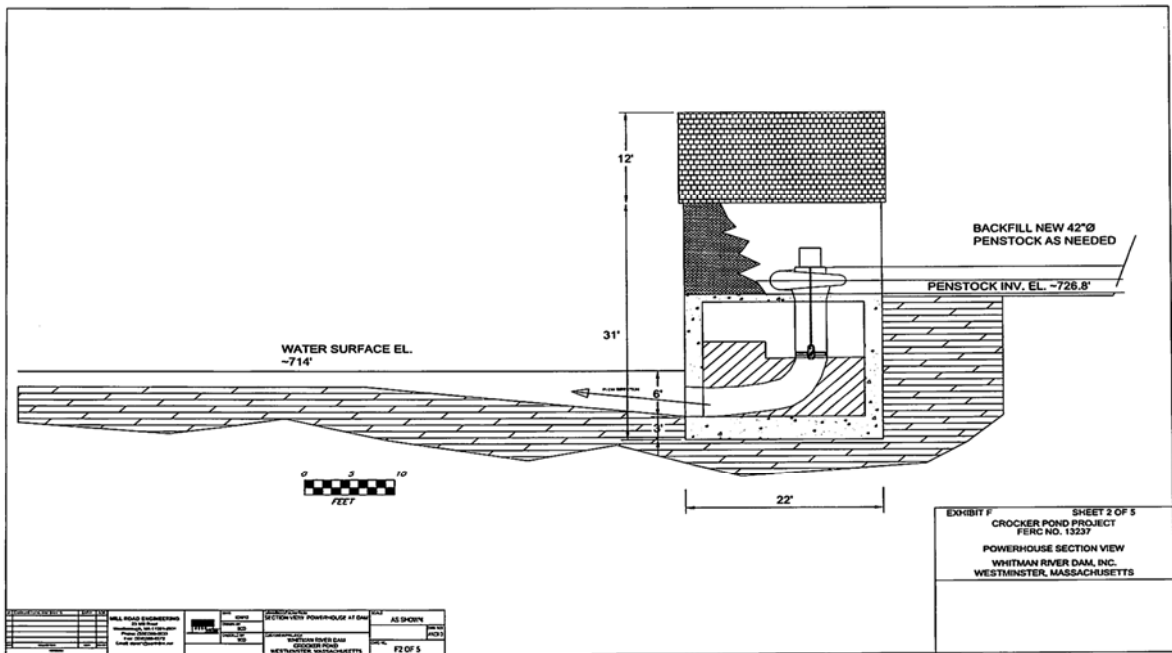


Figure 4 - Project Plan Powerhouse Section View

IV. Regulatory Status

On August 2, 2010, the Whitman River Dam, Inc (“Whitman”) submitted an application for Water Quality Certification (“WQC”) to the Massachusetts Department of Environmental Protection (“MDEP”) to construct and operate the Crocker Dam Hydroelectric Project (“Project.”) On February 4, 2011, MDEP issued the WQC with 25 conditions the applicant must comply with to construct and operate the Project¹. Having received the WQC, on August 29, 2011, Whitman filed an application with FERC for an original license to construct, operate and maintain the proposed Project. Over the next year, comments were received from the U.S. Department of Interior and Massachusetts Department of Fisheries and Wildlife, and comments and recommendations were incorporated into the preparation of an Environmental Assessment. On September 5, 2012, FERC issued an Original Minor License to the Project. The License includes various standard and project-specific Articles along with the original 25 conditions of the WQC. These measures include: run-of-river operation with operation compliance monitoring; water quality monitoring; erosion and sediment control; minimum flows during impoundment refilling; a trashrack to avoid fish entrainment; and consultation if previously unidentified archaeological or historic properties are discovered during the course of constructing, operating, or maintaining project works. The specifics of these measures are described in greater detail under “Section V. Detailed Criteria Review” below.

As the project has not yet been constructed, there is no period of history to evaluate for compliance with the terms and conditions required by the various resource agencies involved in the licensing process. None of these agencies objected to LIHI certification. However, as noted in the LIHI Handbook, LIHI reserves the right to suspend or revoke the LIHI certification should the project become non-compliant once operational.

V. Detailed Criteria Review

A.) Flows

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 rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?*

Yes – PASS. Flow conditions for the Facility are governed by the Water Quality Certificate (WQC) issued February 4, 2011. Provision #13 of the WQC requires the Licensee to operate in an instantaneous run-of-river mode, with outflows equaling inflows at the project on an instantaneous basis. Provision #17 requires the Licensee to submit a plan for monitoring run-of-river operation within 3 months of turbine installation, including pond level control mechanisms and flow releases from the Project. The Licensee is required to consult with resource agencies while developing these plans, and submit final plan to

¹ 14 of the conditions are classified as “General or Administrative” by FERC

MassDEP for approval. Provision #18 of the WQC requires the Licensee to submit a plan for monitoring and maintaining the 6 mg/l dissolved oxygen standards within 3 months of turbine installation, and make any necessary adjustments (such as providing continuous spill during summer months or improving aeration at outlet, if needed). The Licensee is required to consult with resource agencies while developing these plans, and submit final plan to MassDEP for approval. Provision #22 requires the Licensee to maintain a minimum flow in the bypass reach sufficient to maintain water quality standards at all times (see Criteria B. "Water Quality" for the specific WQ standard.)

As the project has not yet been constructed, and all Flow requirements for the facility are to be implemented post-construction, there is no period of history to evaluate for compliance with the requirements. However, the Applicant should copy LIHI on submission of the above plans, and this is included as a condition of certification.

B.) Water Quality

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?*

Yes – Go to B2. The Facility was issued a Water Quality Certificate (WQC) on February 4, 2011. The WQC contains 24 provisions to protect water quality in the impacted area. The Whitman River is designated as a Class B water for its entire length in Massachusetts, and is therefore required to meet the minimum criteria listed within 314 CMR 4.05(3)(b) and 4.05(5). Fish sampling in 2010 revealed the presence of reproducing trout downstream of the Crocker Dam, so this section of the Whitman River will be designated as a cold water fishery in the next Water Quality Standards update. Pursuant to 314 CMR 4.06(1)(d)7 requires waters that are not currently designated as cold water but contain habitat that supports cold water fish population to be managed as a cold water fishery. Therefore, the project must meet the Dissolved Oxygen and Temperature standards required for a cold water fishery, and these standards are applied in the WQC. Provision #18 of the WQC requires the Licensee to submit a plan for monitoring and maintaining the 6 mg/l dissolved oxygen standards within 3 months of turbine installation, and make any necessary adjustments (such as providing continuous spill during summer months or improving aeration at outlet, if needed). Robert Kubit was contacted and stated that he did not have any objections to the facility achieving LIHI certification (see Appendix A), provided it can meet the 6 mg/l standard.

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?*

No – PASS. The latest Water Quality Assessment Status Report (2012) designates the Whitman River as "Good," with assessed purposes being aesthetic value and fish, shellfish and wildlife protection and propagation.

C.) Fish Passage and Protection

1. *Are anadromous and/or catadromous fish present in the Facility area or are they known to have been present historically?*

No – Go to C6. – According to the FERC License, MDFW, and the Environmental Assessment conducted during project review, no migratory fish species are present in the vicinity of the project (Appendix A.)

6. *Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of Riverine fish?*

Yes – Go to C7. No Mandatory Fish Passage Prescriptions were included in the FERC License or accompanying WQC, and were not requested by any state or federal agency during the 2011-2012 licensing process. MDEP noted that fish surveys in 2010 revealed the presence of reproducing trout in the Whitman River, which would change the classification of the river from warm-water fishery to cold-water fishery. The change has yet to be reflected in the Massachusetts Water Quality Standards, but the project was treated as a cold-water fishery in the WQC standards and Robert Kubit from MDEP confirmed that the area is to be managed with that classification.

Conditions 20 and 21 of the Water Quality Certification and included in the FERC License reserve the right to prescribe upstream and downstream eel and anadromous fish passage facilities and operations when determined necessary by MDFW. MDFW provided letter October 1, 2015 stating: “USFWS has a river herring restoration program in place on the Nashua River and passage for river herring may be required in the future.” As passage has not been implemented yet for this project, and the project is bound by the WQC and FERC License to install passage facilities when deemed necessary, in my opinion the project is in compliance with this criterion. The applicant should notify LIHI if and when these facilities have been requested.

7. *Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?*

Yes – PASS. Provision #19 of the WQC requires the Licensee to install full-depth, one inch clear trash racks with velocities less than or equal to two feet per second (<2 fps) at the intakes to reduce impingement and entrainment of fish at the Project. The Applicant requested that LIHI be copied on all correspondence concerning the plans and MDEP’s approval of the plans will be forward to LIHI upon receipt.

D.) Watershed Protection

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 9shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)?*

Yes – Go to D4. Westminster Conservation Commission is responsible for administering and enforcing the Massachusetts Wetlands Protection Act and Westminster's local wetlands bylaw which protects the quality and quantity of surface and ground water, prevents flooding and storm damage and protects wetlands-dependent wildlife and their habitat. Approval of projects by the Commission ensures that measures are taken to prevent erosion and damage to resource areas. The Applicant provided the Order of Conditions issued by the Commission, approving construction of the project. The Order contains specific provisions for ensuring erosion control, complying with Stormwater Pollution Protection during and post-construction, best management practices maintenance, installing sediment control devices, and regulating buffer zones to prevent the intrusion of any contaminating materials at the site, along with various other conditions governing Watershed Protection at the site.

The Water Quality Certificate and FERC License have additional conditions impacting the Watershed Protection criterion. Condition 9 requires the licensee to submit a plan to monitor and control erosion to keep impacted waters free from turbidity. Condition 10 requires the licensee to dispose of debris and remove sediments in a manner that will not impair water quality. Standard Article 14 of FERC License requires the Licensee to take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The shorelines surrounding the reservoir consist of heavy vegetation including woodlands, brush and weedy thicket sub-growth. According to the applicant, there are "no anticipated soil movements or other forms of instability evident in the area." The only construction activity impacts will include the installation of powerhouse and draft tube underground and slightly into the land adjacent to the stream course. The FERC License notes applicant proposes to use best management practices to control soil erosion and sedimentation during construction. In my opinion, the requirements set forth in the Order of Conditions developed by the Westminster Conservation Commission and provided to the Massachusetts Department of Environmental Protection are the most stringent and specific watershed protection requirements, and if the applicant constructs and operates project in accordance with these requirements, they will meet LIHI criteria for Watershed Protection.

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?*

Yes – Pass. Shoreland management plans fall under the Massachusetts Wetlands Protection Act and are contained in the Order of Conditions described in D4 above. The Order of Conditions has been approved by MDEP and the Westminster Conservation Commission.

E.) Threatened and Endangered Species Protection

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

Yes – Go to E2. The USFWS IPaC database was queried on September 16, 2015, and an autogenerated report for the project area was provided and included in Appendix A. The report lists the threatened Northern Long Eared Bat (*Myotis Septentrionalis*) within the area affected by the Project. The Massachusetts OLIVER database was also queried, and no priority habitat was identified in the immediate project area or downstream reach. There appeared to be a small area of Priority Habitat extending further upstream and terminating at the mouth of the reservoir, which forms Crocker Pond. Comments filed by MDFW on October 1, 2015 (see Appendix A,) noted that “operation of the project within the terms and conditions set out in the FERC license will not result in “adverse effects” to the actual Resource Area habitat or a “take” of rare species...” Therefore, the species of concern appears to be solely the Northern Long Eared Bat.

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?*

N/A – Go to E3.

3. *If the Facility has received authorization 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 authorization pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authorization?*

N/A – Go to E5.

5. *If E.2 and E.3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?*

Yes – PASS. The Northern Long-eared Bat was federally listed on May 5, 2015. The bat roosts in both live and dead trees during summer and in large caves or mines during winter. During dusk the bats emerge to fly through understory of forested hillsides and ridges, and also feed by gleaning insects from

vegetation and water surfaces. No critical habitat rules or conservation plans have been published for the Northern long-eared Bat². The predominant threat to the bat is White-nose syndrome, a fungal disease known to affect bats. USFWS was contacted regarding the possible existence of the species in the project area, and confirmed that no impact to the bat is anticipated as long as no tree-cutting will take place. The applicant confirmed that no tree-cutting activities would take place (Appendix A.) (Also, see the comment provided by MDFW referenced in E.1 regarding the existence of Priority Habitat at the entrance of the Crocker Pond reservoir.) In regards to the Priority Habitat identified at the mouth of the Crocker Pond reservoir, MDFW provided the following statement in their letter from October 1, 2015 (Appendix A): “A review by the Division’s Natural Heritage and Endangered Species Program (NHESP) found that operation of the project within the terms and conditions set out in the FERC license will not result in “adverse effects” to the actual Resource Area habitat or a “take” of rare species...” In my opinion, the weight of the two comments from USFWS and MDFW confirm the Project will not negatively affect listed species if built and operated as required in the FERC license.

F.) Cultural Resource Protection

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?*

The Massachusetts Historical Commission provided comments during the original FERC licensing, dated September 4, 2009, stating that “the project is unlikely to affect any significant historic properties,” and recommending that FERC make a finding of “no historic properties affected.” Article 403 of the FERC License requires the licensee to stop activities and consult with the State Historic Preservation Officer if any cultural resources are discovered during construction or operation. As the project has not yet been constructed, and no historic properties have been discovered during the 2009 review, in my opinion the Facility is in compliance with this criterion.

G.) Recreation

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 – Go to G3. The FERC License contains Article 13, which requires the licensee, “so far as it is consistent with the proper operation of the project, allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting.” The Licensee has committed to allowing the public access to project lands, where appropriate, for fishing and boating, and will investigate the need for canoe take out above dam, portage route and put in below dam. The Licensee will install these facilities if deemed necessary. In my opinion, the facility is in compliance with recreational access conditions contained in the FERC License.

² <https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=A0JE>

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

Yes – See G1.

H.) *Facilities Recommended for Removal*

1. *Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?*

No – Facility PASSES.

I. Public Comments

One public comment was received from Dr. Caleb Slater from MDFW, and is included in Appendix A, “Resource Agency Comments.”

Appendix A. Resource Agency Communications

Date: October 29, 2015

Contact: Robert Kubit, P.E.

Agency: Massachusetts Department of Environmental Protection



Kubit, Robert (DEP) <robert.kubit@state.ma.us>

Oct 29 (3 days ago) ☆



to Peter ▾

Hi Peter,

The MassDEP has no objection for the Crocker dam to receive LIHI certification. Maintaining a dissolved oxygen of 6.0 mg/l after construction is complete (in accordance with the WQC) is our primary concern.

Bob

Robert Kubit, P.E.
MassDEP
Division of Watershed Management
8 New Bond Street
Worcester MA 01606
Telephone: [\(508\) 767-2854](tel:(508)767-2854)
Email: robert.kubit@state.ma.us
Fax: [\(508\) 791-4131](tel:(508)791-4131)

Date: October 05, 2015
Contact: Susi vonOettingen, Endangered Species Biologist
Agency: U.S. Fish and Wildlife Service

10/5/2015

Gmail - Northern Long-eared Bat Impacts



Peter Drown <peter.drown@gmail.com>

Northern Long-eared Bat Impacts

2 messages

Peter Drown <peter.drown@cleantechanalytics.com>
To: "vonOettingen, Susi" <susi_vonoettingen@fws.gov>

Sat, Oct 3, 2015 at 6:57 PM

Hi Ms. vonOettingen,

I am performing a Low-impact Assessment for two hydropower projects currently under construction in MA. The projects are Crocker Dam (FERC # 13237), and the [REDACTED] Both are very small hydropower projects at existing dams. The IPAC database revealed the presence of Northern Long-eared Bat.

There will be no tree-cutting in either project. Construction is limited to the powerhouse and dam.

Per our previous conversation, you mentioned that the habitat of the bat is unaffected if no tree-cutting is planned. Can you confirm this holds true for both of these projects as well?

Thank you,

--

Peter Drown, Principal
Cleantech Analytics LLC
(207) 951-3042

vonOettingen, Susi <susi_vonoettingen@fws.gov>
To: Peter Drown <peter.drown@cleantechanalytics.com>

Mon, Oct 5, 2015 at 9:20 AM

Yes, it does. If there is no tree clearing, then we would not anticipate impacts to bats.

Thanks for checking.

Susi

Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-223-2541 ext. 6418
Please note my new extension.

www.fws.gov/newengland

[Quoted text hidden]

<https://mail.google.com/mail/u/0/?ui=2&ik=4642cf9445&view=pt&search=inbox&th=1502fed069e04e14&siml=1502fed069e04e14&siml=1503829482c1c3c9>

1/1

Date: October 03, 2015
Contact: Generic (IPAC Response Letter)
Agency: U.S. Department of Interior/USFWS



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland



Consultation Code: 05E1NE00-2016-SLI-0004

October 03, 2015

Event Code: 05E1NE00-2016-E-00009

Project Name: Crocker Dam Hydroelectric Project

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

To Whom It May Concern:

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

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

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



United States Department of Interior
Fish and Wildlife Service

Project name: Crocker Dam Hydroelectric Project

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened		

<http://ecos.fws.gov/ipac>, 10/03/2015 03:15 PM

3

Date: October 01, 2015

Contact: Dr. Caleb Slater, Anadromous Fish Project Leader

Agency: Massachusetts Division of Fisheries and Wildlife



Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Jack Buckley, Director

October 1, 2015

Dana Hall, Director
Low Impact Hydropower Institute
34 Providence Street
Portland, ME
04103

RE: Crocker Dam Project
FERC No. P-13237

Dear Ms. Hall:

The Department of Fish and Game ("DFG") hereby submits the following comments on the Low Impact Hydropower Institute's ("LIHI") Pending Application for the proposed LIHI re-certification of the Crocker Dam Project FERC No P-13237 located on the Whitman River, in Westminster, Massachusetts.

DFG is submitting these comments to LIHI in order to fulfill the requirements of the Massachusetts Department of Energy Resources ("DOER") Renewable Energy Portfolio Standard Regulations (225 CMR 14.00; "RPS I" and 225 CMR 15.00; "RPS II"). The RPS I and RPS II regulations were promulgated by DOER on January 1, 2009 and require that any hydroelectric project wishing to qualify as either a RPS I or RPS II generator first obtain LIHI certification. These regulations also require all relevant regulatory agencies to comment on the pending LIHI application.

PROJECT

The proposed project will consist of: (1) the existing 520-foot-long, 38.5-foot-high earthen embankment and masonry Crocker Pond dam with a 120-foot-long arched spillway section currently topped with 26-inch-high wooden flashboards; (2) an existing 102.9-acre impoundment with normal water surface elevation of 752.66 feet above mean sea level (msl); an existing 8-foot-wide, 12-foot-high floodgate; (3) an existing 3-foot-wide, 3-foot-high mud gate; (4) an existing gate house equipped with an existing 47-foot-long, 42-inch-diameter penstock and a new 18-foot-wide, 6.5-foot-high metal trashrack with 1-inch-wide bar spacing; (5) a 42-inch-diameter penstock extension; (6) a new powerhouse containing one 145-kW turbine generating unit; (7) a new 20-foot-wide, 6-foot-deep, 35-foot-long tailrace; (8) a new 240-foot-long, 480-volt (V) transmission line; and (9) appurtenant facilities.

FISH AND WILDLIFE RESOURCES

The Whitman River supports fish and aquatic resources, including a number of resident fish species, and freshwater mussels. Restoration of anadromous fish populations are ongoing in the greater Nashua River watershed.

IMPACTS AND MITIGATION

Run-of-river Operation

As long as the project operates in a true run-of-river mode, with inflow equal to outflow on an instantaneous basis. Maintaining natural flow through the project protects the existing habitat which

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benefits fish and wildlife species. Downstream habitats also benefit from run-of-river operation. The resulting stable flow regime supports the riverine assemblage in the free-flowing sections of river below the project.

Bypass Flows

The project will have a very short bypass reach as the powerhouse is located at the base of the dam, and a small continuous flow through the flashboards and down the spillway will be provided for aesthetic purposes.

Migratory fish

No migratory fish have been documented at the project site, however the US Fish and Wildlife Service has a river herring restoration program in place on the Nashua River and passage for river herring may be required in the future.

Endangered Species

A review by the Division's Natural Heritage and Endangered Species Program (NHESP) found that operation of the project within the terms and conditions set out in the FERC license will not result in "adverse effects" to the actual Resource Area habitat or a "take" of rare species and thus will not require a Conservation and Management permit pursuant to 321 CMR 10.23.

COMMENTS

The project has not yet been constructed, but if it is built and operated as specified in the FERC's "ORDER ISSUING ORIGINAL MINOR LICENSE", issued September 5, 2012, the Division has no objection to its certification as a "low Impact" facility.

Thank you for this opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Caleb Slater". The signature is fluid and cursive, with a long horizontal stroke at the end.

Caleb Slater, Ph.D.
Anadromous Fish Project Leader