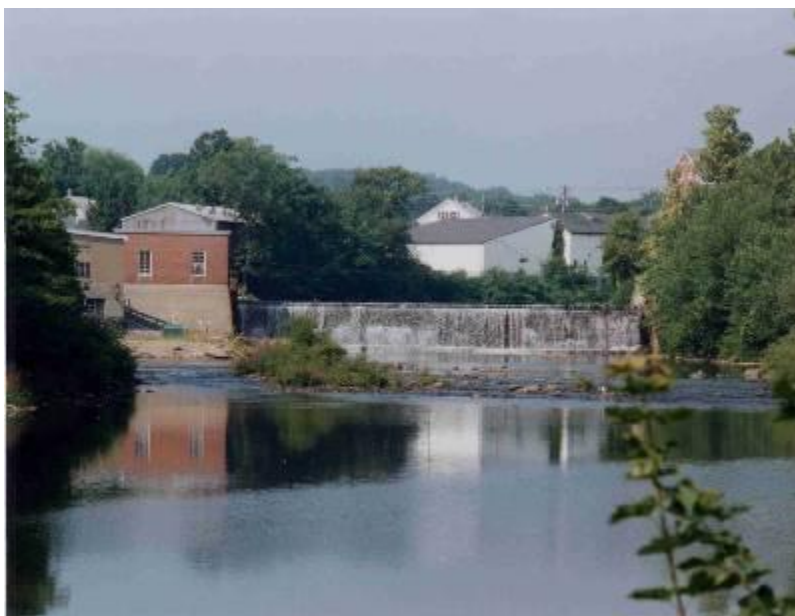


Putnam Hydropower

Recertification Application to the Low Impact Hydropower Institute

LIHI #3

FERC Project No. P- 5645



Prepared by

Charles Rosenfield

Putnam Hydropower, Inc.

December, 2016

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INTRODUCTION

This is an application to the Low Impact Hydropower Institute (LIHI) for the recertification of the Putnam Hydropower hydroelectric facility (LIHI #3). The project's existing LIHI certification will expire on April 10, 2017. Putnam Hydropower, the first LIHI project in New England and the longest currently certified project, was first certified in April, 2002. There have been no significant changes in the facility design or operation since the most recent LIHI review, which concluded in 2012 (see Fred Ayer letter dated August 9, 2012 and Pat McIlvaine letter of December 5, 2012; Appendix A). There have been no physical changes in the environmental conditions in the project vicinity since the 2012 LIHI review.

FACILITY DESCRIPTION

The Putnam Hydropower project, FERC P-5645, is located on the Quinebaug River in Putnam, Windham County, Connecticut. The project is approximately 750 feet downstream from the MSC hydroelectric project, P- 5689 and 2,500 feet upstream from Cargill Falls, P- 13080. The project consists of a 14.5 feet high stone block dam, 145 feet long, with the powerhouse at the west abutment. It has an impoundment with a surface area of approximately two acres and a five acre-feet of gross storage. The project has no bypass reach as discharge is to the pool at the base of the dam.

Table 1. Facility Description Information for recertification of the Mechanicsville Hydropower Facility (LIHI #74).

<i>Information Type</i>	<i>Description</i>	<i>Information</i>
<i>Name of the Facility</i>	Facility name (use FERC project name if possible)	Putnam Hydropower
<i>Location</i>	River name (USGS proper name)	Quinebaug River
	River basin name	Thames River basin
	Nearest town, county, and state	Putnam, Windham County, Connecticut
	River mile of dam above next major river	
	Geographic latitude	41.92204
	Geographic longitude	-71.90885
<i>Facility Owner</i>	Application contact names:	Charles Rosenfield
	Facility owner (individual and company names)	Charles Rosenfield, Putnam Hydropower, Inc.
	Operating affiliate (if different from owner)	None
	Representative in LIHI certification	Charles Rosenfield
<i>Regulatory Status</i>	FERC Project Number, issuance and expiration dates	P-5645, issued July 6, 1982 Exemption does not expire

	FERC license type or special classification (e.g., "qualified conduit")	Exemption
	Water Quality Certificate identifier and issuance date, plus source agency name	
	Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.)	
<i>Power Plant Characteristics</i>	Date of initial operation (past or future for operational applications)	Initial operation October 1987 Powerhouse constructed 1919
	Total name-plate capacity (MW)	0.6 MW
	Average annual generation (MWh)	2,800 MWh
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	Two Units: <ul style="list-style-type: none"> • Two identical vertical Francis turbines • 75 CFS minimum each • 265 CFS maximum each
	Modes of operation (run-of-river, peaking, pulsing, seasonal storage, etc.)	Run-of-River
	Dates and types of major equipment upgrades	Unit 2 turbine refurbishment and runner replacement, 2015
	Dates, purpose, and type of any recent operational changes	None
	Plans, authorization, and regulatory activities for any facility upgrades	None
<i>Character-istics of Dam, Diversion, or Conduit</i>	Date of construction	Dam circa 1830
	Dam height	16.5 ft to top of two-foot flashboards
	Spillway elevation and hydraulic capacity	Spillway elevation: 273.44 ft. MSL; Hydraulic Capacity: unrestricted spillway
	Tailwater elevation	256.94 ft. MSL
	Length and type of all penstocks and water conveyance structures between reservoir and powerhouse	The open flume powerhouse is the western dam abutment; there is no penstock.
	Dates and types of major generation-related infrastructure improvements to dam	Dam deck replaced 1997
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Hydropower
	Water source	Quinebaug River

	Water discharge location or facility	Quinebaug River
<i>Characteristics of Reservoir and Watershed</i>	Gross volume and surface area at full pool	2 acre reservoir with 5 acre-feet gross storage
	Maximum water surface elevation (ft. MSL)	276.44 ft. MSL
	Maximum and minimum volume and water surface elevations for designated power pool, if available	Not available
	Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile	Mechanicsville Hydroelectric Project, Rolland Zeleny, Saywatt Hydroelectric LLC, P- 9611. French River Mile 0 MSC, Energy Stream LLC, P-5679
	Downstream dam(s) by name, ownership, FERC number (if applicable), and river mile	Cargill Falls, Putnam Green Power LLC, P-13080
	Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation	None
	Area inside FERC project boundary, where appropriate	0.5 acres
<i>Hydrologic Setting</i>	Average annual flow at the dam	
	Average monthly flows	
	Location and name of relevant stream gauging stations above and below the facility	Putnam USGS 01125500
	Watershed area at the dam	289 square miles
<i>Designated Zones of Effect</i>	Number of zones of effect	One
	Upstream and downstream locations by river miles	Adjacent to project
	Type of waterbody (river, impoundment, by-passed reach, etc.)	River
	Delimiting structures	Dam and powerhouse
	Designated uses by state water quality agency	Unknown
<i>Additional Contact Information</i>	Names, addresses, phone numbers, and e-mail for local state and federal resource agencies	See Part V of this application.
	Names, addresses, phone numbers, and e-mail for local non-governmental stakeholders	See Part V

<i>Photographs and Maps</i>	Photographs of key features of the facility and each of the designated zones of effect	See below
	Maps, aerial photos, and/or plan view diagrams of facility area and river basin	See below

STANDARDS SELECTION

There is one zone of effect for this application. The zone is defined as extending from the intake of the powerhouse at the west end of the dam to its discharge immediately downstream. The zone is shown in Figure 1 below (circled in red). The standards selected to satisfy the LIHI certification criteria in this zone are shown on Table 1 below and are explained in the following section, “Supporting Information for Table 1.”

Figure 1: Red Area is Zone 1



Figure 2: Aerial Image of Facility



Table 1. LIHI standards selected for Zone 1

<i>Criterion</i>		<i>Alternative Standards Applied</i>				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Plus</i>
A	Ecological Flow Regimes		X			
B	Water Quality	X				
C	Upstream Fish Passage		X			
D	Downstream Fish Passage		X			
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection	X				
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources	X				

Supporting Information for Table 1

A. Ecological Flow Regimes: Standard A-2 (Agency Recommendation)

The project's flow regime is run-of-river. It is in compliance with the U.S. Fish and Wildlife Service's (USFWS) condition (February 8, 1982 letter; see Appendix A) requiring a release of 144 CFS or inflow to the project area. Water level is maintained at the flashboard crest and the project, in addition to regulatory compliance, is physically constrained to operate run-of-river by the negligible storage in the impoundment. The basis for the recommendation is to protect aquatic life. With no bypass reach no spillway discharge is required. There are de minimis effects to mitigate. Ramping would be very short and have minimal effect because equilibrium returns so quickly with the tiny pond.

Putnam Hydropower operates in a run-of-river mode. The head pond level is logged continuously by the programmable logic controller (PLC) based controls. There is no required spillway release and there is no flashboard management regime required. Flashboards are calculated to fail at three-foot overtopping but USACOE flood control operations upstream limit flows below this level. The impoundment zone is small and there is no formal program to evaluate or manage fish and wildlife habitats in the zone.

B. Water Quality: Standard B-1 (Not Applicable/ De Minimis)

Putnam Hydropower does not contribute to any water quality problems on the Quinebaug River. The river has been identified as impaired by the CT DEEP. From an August 29th, 2001 letter by Brian Emerick at the CT DEEP: "The Quinebaug River above and below the project has been identified and listed as water quality impaired under section 303(d). The Putnam Hydropower project does not contribute to this water quality impairment" (see Appendix A).

C. Upstream Fish Passage: Standard C-2 (Agency Recommendation)

The CT DEEP has determined that the historical extent of anadromous fish passage was Cargill Falls, a natural falls below the project. In order to protect catadromous fish, Putnam Hydropower has followed the CT DEEP's recommendations for fish passage. In an email dated March 1st, 2012, Steve Gephard of the CT DEEP recommended installation of a "Delaware style" eel pass, which has been done (Appendix A).

D. Downstream Fish Passage: Standard D-2 (Agency Recommendation)

Putnam Hydropower has adopted a voluntary operational regime from recommendations by Steve Gephard of the CT DEEP (Appendix A). These measures are designed to protect catadromous fish during migration.

List of Fish Species in Putnam Hydropower Zone 1

- There are no anadromous fish in Zone 1
- The Quinebaug River may contain the following fish
 - bluegill
 - American eel
 - largemouth bass
 - smallmouth bass
 - carp
 - chain pickerel
 - brook trout
 - brown trout
 - rainbow trout
 - golden shiner
 - pumpkinseed

- white sucker
- brown bullhead

E. Watershed and Shoreline Protection: Standard E-1 (Not Applicable/ De Minimis)

The small project area does not have lands of ecological value. The very small impoundment is in an urban area with steep, rocky, and walled sides. There is not and has never been a Shoreline Management Plan or other protection requirement associated with the project.

F. Threatened and Endangered Species Protection: Standard F- 1 (Not Applicable/ De Minimis)

It is possible that threatened and endangered species are transient through the project area but we are unaware of resident threatened and endangered species.

G. Cultural and Historic Resources Protection: G- 1 (Not Applicable/ De Minimis)

There are no cultural or historic resources affected by the project. Please see attached SHPO letter (Appendix A).

H. Recreational Resources: H-1 (Not Applicable/ De Minimis)

The facility does not occupy any public land. Casual fishing exists in the area below the tailrace.

PART IV. SWORN STATEMENT AND WAIVER

As an Authorized Representative of Putnam Hydropower, Inc., the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's Certification Program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The undersigned further acknowledges that if certification of the applying facility is issued, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified.

The undersigned Applicant further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's Certification Program.

Company Name: Putnam Hydropower, Inc.

Authorized Representative Name: Charles Rosenfield, Secretary-Treasurer

On this, the _____ day of _____, 2017, before me a notary public, the undersigned officer, personally appeared _____, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained. In witness hereof, I hereunto set my hand and official seal.

Notary Public _____

PART V. CONTACTS

1. Facility Contacts

Putnam Hydropower, FERC P-5645, LIHI #3	
Project Owner:	
Name and Title	Charles Rosenfield
Company	Putnam Hydropower, Inc.
Phone	(860) 928- 7100
Email Address	putnamhydro@charter.net
Mailing Address	87 Senexet Rd., Woodstock, CT, 06281
Project Operator (if different from Owner):	
Name and Title	Same as above
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	Same as above
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Same as above
Company	
Phone	
Email Address	
Mailing Address	
Party responsible for accounts payable:	
Name and Title	Same as above
Company	
Phone	
Email Address	
Mailing Address	

2. Current state, federal, provincial, and tribal resource agency contacts.

Agency Contact (Check area of responsibility: Flows_X_, Water Quality _X_, Fish/Wildlife Resources _X_, Watersheds _X_, T/E Spp. X_, Cultural/Historic Resources __, Recreation __):	
Agency Name	Connecticut Department of Energy and Environmental Protection (DEEP)
Name and Title	Brian Golembiewski
Phone	(860) 424- 3867
Email address	brian.golembiewski@ct.gov
Mailing Address	79 Elm St., Hartford, CT, 06106

Agency Contact (Check area of responsibility: Flows __, Water Quality __, Fish/Wildlife Resources <u>X</u> _, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Connecticut Department of Energy and Environmental Protection (DEEP)
Name and Title	Stephen Gephard
Phone	860-447-4316
Email address	steve.gephard@ct.gov
Mailing Address	79 Elm Street, Hartford, CT 06106-5127

Agency Contact (Check area of responsibility: Flows <u>X</u> _, Water Quality __, Fish/Wildlife Resources <u>X</u> _, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	US Fish and Wildlife Service
Name and Title	Melissa Grader
Phone	413-548-9138
Email address	Melissa_Grader@fws.gov
Mailing Address	300 Westgate Center Drive, Hadley, MA 01035

Agency Contact (Check area of responsibility: Flows __, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources <u>X</u> _, Recreation __):	
Agency Name	Connecticut State Historic Preservation Office (SHPO)
Name and Title	
Phone	Hartford, Connecticut 06103
Email address	860-256-2800
Mailing Address	One Constitution Plaza, 2nd Floor,

Agency Contact (Check area of responsibility: Flows __, Water Quality __, Fish/Wildlife Resources __, Watersheds <u>X</u> _, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Thames River Bain Partnership and Rivers Alliance of Connecticut
Name and Title	Jean Pillo
Phone	(860) 928- 4948
Email Address	jean.pillo@conservect.org
Mailing Address	

Agency Contact (Check area of responsibility: Flows __, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources <u>X</u> _, Recreation __):	
Agency Name	The Last Green Valley
Name and Title	Lois Bruinooge
Phone	(860) 774- 3300
Email Address	lois@tlgv.org
Mailing Address	

APPENDIX A

2012 Certification and Letters



December 5, 2012

Charles Rosenfield
Putnam Hydropower (owner/operator)
87 Senexet Road
Woodstock, CT 06281

Subject: Putnam Project (FERC No. 5645)
Re-Certification Decision Letter
LIHI Certificate No. 3

Dear Mr. Rosenfield:

I am delighted to report that the Low Impact Hydropower Institute has determined that the Putnam Project continues to meet the LIHI Certification Criteria. This letter summarizes our review process and reasons for LIHI's Re-Certification decision. A letter report by Patricia B. McIlvaine, our Application Reviewer, is attached (pdf entitled "*Recertification Recommendation for the Putnam Project Hydroelectric Project – July 20, 2012*").

An original LIHI certificate will be forwarded to you once the Governing Board Chair and Secretary have executed it.

A review of the Federal Energy Regulatory Commission (FERC) website found that there were no unresolved issues found over the term of the last certificate. In reaching the decision to re-certify Putnam Project, I reviewed the application for certification, supporting documents and communicated with stakeholders.

LIHI's Certification Handbook explains the review process regarding Applications for Recertification. The handbook describes how a request for renewal of a previously-issued LIHI certification ("re-certification") will be granted at the conclusion of the term of the existing certification if re-certification is desired by the certificate holder, and so long as:

- (1.) There have been no "material changes" at the facility that would affect the certification and
- (2.) LIHI's certification criteria have not been revised since the previous certification was issued by LIHI."

Based on the submitted application materials, a review of the LIHI file containing the past certification decision, and any limited reviewer-initiated questioning by LIHI of the applicant and/or third parties, I have concluded that the answer to both questions above is "no," and there will be no further application review. The LIHI re-certification for the Putnam

Hydroelectric Project is granted for a five-year term beginning on April 10, 2012 and expires on April 10, 2017 with the following two conditions to address current agency interest in providing for American eel passage:

- The Project shall initiate discussions with the USFWS and CTDEEP in 2012 to develop a plan to initiate voluntary nightly (dusk to dawn) shutdown of the units on rainy days between the dates of September 1 and November 15. If necessary to provide safe eel passage, and if consistent with other protection measures required for other facilities on the River, the plan shall also investigate the need for an additional "plus two days" of nightly unit shutdown after the rain event. Annual reports documenting these shutdown periods shall be submitted to the CTDEEP and LIHI.
- Within year three of receiving LIHI recertification, the Project shall enter into discussions with CTDEEP and USFWS to review the potential need for additional eel passage protection measures beyond those already established. This review would take into consideration the existence of downstream passage on dams upstream and downstream of the Putnam Project to ensure that any additional eel passage requirements would be consistent with measures required of other dams on the Quinebaug River. LIHI shall be provided a copy of any final agreements established to either remain with the existing measures or to add additional measures.

During the time the Putnam Hydroelectric Project is certified, you may market the Project as a LIHI certified facility. It is your responsibility to maintain compliance with the certification criteria and to notify us of any changed conditions relevant to the certification. This could include changes in agency recommendations or changes in operations. You will also be asked to fill out a short form each year to confirm compliance during the preceding year. The Institute may also conduct occasional follow-up checks with you and/or relevant resource agencies to ensure that the Putnam Hydroelectric Project remains in compliance.

I strongly recommend you to review LIHI's Certification Use Requirements (addressing the language to be used for describing a LIHI Certified Facility for marketing purposes), our Compliance standards and the penalties for non-compliance, as well as current information about renewing your certification. That information, as you know, is available at the LIHI website (www.lowimpacthydro.org). If you have any questions about any of those materials, please call.

If the Institute identifies a problem with Putnam Hydroelectric Project's compliance with the certification criteria, it will evaluate the situation and take any necessary actions. In the case of non-compliance, possible responses include the suspension or revocation of the certification. Factors to be considered would include the scope, duration, and intensity of any non-compliance, its effects on the environment, whether the violation was intentional or not, and whether or not there was a valid reason (e.g., public safety) for the non-compliance.

All applicants for certification that have been filed an initial LIHI application after November 7, 2007 will be invoiced an Annual Fee on the first anniversary of their certification date. All existing certificate holders filing for recertification after November 7, 2007 will be billed the recertification processing fee and, after the first anniversary of their re-certification date will

be invoiced an Annual Fee. The certificate holder will not be charged an Annual Fee during the year the Recertification Processing Fee has been invoiced.

The Annual Fee will be 15% of the original Application Processing Fee and the Annual Fee invoicing will be coordinated with the Annual Compliance mailing sent to all certificate holders on their first and subsequent anniversaries.

Thank you for your continued interest in the LIHI Certification Program, and congratulations on securing LIHI Certification for the Falls Creek Hydroelectric Project. Please contact me at 207-798-3785 if you have any questions, or if I can be of any assistance.

Sincerely,

A handwritten signature in cursive script, appearing to read "Patricia McIlvaine".

Patricia McIlvaine
Acting Executive Director

July 20, 2012

Fred Ayer
Executive Director
Low Impact Hydropower Institute
34 Providence Street
Portland, ME 04103

Subject: Recertification Recommendation for the Putnam Hydroelectric Project

Dear Fred:

This letter contains my recommendation for recertification of the Putnam Hydroelectric Project (the "Project").

I. Recertification Standards

Part V of the Low Impact Hydropower Institute (LIHI)'s Certification Handbook (Updated December 2011) regarding Applications for Recertification ("Recertification Standards") provides that a "request for renewal of a previously-issued LIHI certification ("re-certification") will be granted at the conclusion of the term of the existing certification if re-certification is desired by the certificate holder, and so long as (1) there have been no "material changes" at the facility that would affect the certification and (2) LIHI's certification criteria have not been revised since the previous certification was issued by LIHI."

The Recertification review criteria also provide that "[i]f the Application Reviewer can definitively determine from the submitted application materials, a review of the LIHI file containing the past certification decision(s), any public comments received during the application process, and any limited reviewer-initiated questioning by LIHI of the applicant and/or third parties, that the answer to both questions above is "no," the Application Reviewer will recommend re-certification approval to LIHI's Executive Director, and there will be no further application review.

II. No further application review is recommended.

The Putnam Hydroelectric Project (the "Project") received a license exemption (P-5645) from the Federal Energy Regulatory Commission on July 6, 1982. The project was initially certified by LIHI as "low impact" in 2002 and was re-certified in May 2007.

I have reviewed the materials submitted for recertification of the Project by Putnam Hydropower (Applicant) in support of its August 2011 application and the LIHI file containing the past certification and recertification decisions and FERC's public information file on the Project. As a result of that review, I requested additional information, which was supplied by the Applicant. I also solicited comments from the individuals listed below who are knowledgeable of the Project, none of which reported any changes in the project or known compliance issues associated with the Project. Interest in providing for American eel passage was identified by both the CTDEEP and USFWS. A copy of their email or a telephone record is attached as Attachment 1. In some cases, the emails were between the agencies and Applicant rather than the Application Reviewer.

- Ms. Melissa Grader - US Fish & Wildlife Service
- Mr. Brian Golembiewski - CTDEEP, Office of Environmental Review

Offices Throughout New England | www.wright-pierce.com

99 Main Street
Topsham, ME 04086 USA
Phone 207.725.8721 | Fax 207.729.8414

Mr. Fred Ayer
July 20, 2012
Page 2 of 2



- Mr. Steve Gephard - CTDEEP, Fisheries Division
- Ms. Jean Pillo - Thames River Basin Partnership and Rivers Alliance of Connecticut
- Ms. Lois Bruinooge - The Last Green Valley

This Project was not public noticed.

In my opinion, the materials provided are sufficient to make a recertification recommendation, with a condition as noted below, and no further application review is needed.

III. There have been no "material changes" at the facility that would affect the certification.

In accordance with the Recertification Standards, "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. Based on my review of materials provided, review of FERC's public records, and consultation with the noted individuals, I found that there are no instances of non-compliance or new or renewed issues of concern.

IV. LIHI's certification criteria have not been revised since the previous certification was issued by LIHI in 2007.

It is my understanding that LIHI's criteria, or the Board's interpretation of one or more criteria, that are applicable to the circumstances of the Putnam Hydroelectric Project have not changed in meaningful ways since the date of the original certification.

V. Conclusion

In light of the above, I recommend recertification of the Putnam Hydroelectric Project with the following condition to address current agency interest in providing for American eel passage:

- The Project shall initiate discussions with the USFWS and CTDEEP in 2012 to develop a plan to initiate voluntary nightly (dusk to dawn) shutdown of the units on rainy days between the dates of September 1 and November 15. If necessary to provide safe eel passage, and if consistent with other protection measures required for other facilities on the River, the plan shall also investigate the need for an additional "plus two days" of nightly unit shutdown after the rain event. Annual reports documenting these shutdown periods shall be submitted to the CTDEEP and LIHI.
- Within year three of receiving LIHI recertification, the Project shall enter into discussions with CTDEEP and USFWS to review the potential need for additional eel passage protection measures beyond those already established. This review would take into consideration the existence of downstream passage on dams upstream and downstream of the Putnam Project to ensure that any additional eel passage requirements would be consistent with measures required of other dams on the Quinebaug River. LIHI shall be provided a copy of any final agreements established to either remain with the existing measures or to add additional measures.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Patricia B. McIlvaine".
Patricia B McIlvaine

Attachment 1
Putnam Agency Communications

Telephone Conversations

Date: July 11, 2012 - Telephone conversation and emails
Contact Person: Ms. Melissa Grader
Agency: US Fish & Wildlife Service
Contact Information: 413-548-9138; Melissa_grader@fws.gov
Area of Expertise: Fisheries

Ms. Grader confirmed that there are still no requirements for riverine or anadromous fish passage at this Project. She supports the implementation of measures to enhance the downstream and upstream passage of American eel as illustrated in the attached emails. She also reaffirmed that as a run-of-river facility, it meets their criteria for ABF or inflow, whichever is less.

Date: July 11 and 19, 2012 - Telephone conversation and emails
Contact Person: Mr. Brian Golembiewski
Agency: CTDEEP
Office of Environmental Review
Contact Information: 860-424-367; brian.golembiewski@ct.gov
Area of Expertise: Overall environmental review

Mr. Golembiewski stated he is attempting to coordinate a single response on behalf of CTDEEP regarding all LIHI criteria. To expedite his response he agreed he may send a simple email to me in lieu of a formal letter. He reaffirmed that the Project appears to be in compliance with its license requirements, no new requirements have been issued, no complaints have been received, but that there are concerns about the passage of American eel at the Project, as expressed by Stephen Gephard to Brian. Eel passage is a focus for many CT rivers systems. I informed him that I do have copies of the emails between C. Rosenfield, S. Gephard and M. Grader on this issue. As of the 19th, he still had not heard from Eric Thomas of the water quality group, despite the fact that his initial requests to this group occurred over three months ago. Brian stated that in his opinion, he does not see how such a small project that is run-of-river could cause any water quality problems.

Date: July 17, 2012 - Telephone message; emails
Contact Person: Mr. Steve Gephard
Agency: CTDEEP
Fisheries Division
Contact Information: 860-447-4316; steve.gephard@ct.gov
Area of Expertise: Fisheries

Mr. Gephard could not be reached by telephone as he was out of the office for several weeks. His concerns regarding eel passage however are noted in attached emails between he, M. Grader and C. Rosenfield.

Date: July 18, 2012 - Telephone conversation
Contact Person: Ms. Jean Pillo, Watershed Conservation Coordinator
Organization: Thames River basin Partnership and Rivers Alliance of Connecticut
Contact Information: 860-928-4948; jean.pillo@conservect.org
Area of Expertise: Water quality and recreation.

Ms. Pillo confirmed that the river stretch and lands at the Project are not used for paddling or trails due to its urban setting and close proximity to dams immediately upstream and downstream. She is not aware of any new issues or problems at the project. She is pleased that it is a run-of-river facility. She suggested that I contact Lisa Bruinooge as the Project is located within the Quinebaug River National Heritage Corridor.

LOIS
Date: July 19, 2012 - Telephone conversation
Contact Person: Ms. ~~Lisa~~ Bruinooge
Organization: The Last Green Valley
Contact Information: 860-774-3300; lois@tlgv.org
Area of Expertise: Water quality and recreation.

Ms. Bruinooge stated that while the Project is within the National Heritage Corridor, which was established in the early 1990's, there are no National Recreational Trail segments located at the Project due to its developed nature. She stated there is no significant interest in trails or paddling in the Project area.

Patricia B. McIlvaine

From: Golembiewski, Brian <Brian.Golembiewski@ct.gov>
Sent: Tuesday, July 24, 2012 10:00 AM
To: 'Pat.McIlvaine@wright-pierce.com'
Cc: Thomas, Eric; Hannon, Robert; 'Charles Rosenfield'
Subject: Request for review for recertification of the Putnam Hydropower Project

Hey Pat,

At this time, the only comments the CTDEEP have regarding the LIHI recertification of the Putnam Hydropower Project concern the upstream and downstream passage of American eels through the project site and are similar to those detailed in the 6/26/12 USFWS email below.

Thanks,

Brian Golembiewski
Environmental Analyst 3
Office of Environmental Review
Planning & Program Development
Office of the Commissioner
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3867 | F: 860.424.4053 | E: brian.golembiewski@ct.gov



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*Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.*

From: Melissa_Grader@fws.gov [mailto:Melissa_Grader@fws.gov]
Sent: Tuesday, June 26, 2012 4:50 PM
To: Thomas, Eric; Golembiewski, Brian; Gephard, Steve
Subject: Fw: Request for review for recertification of the Putnam Hydropower Project

These are the comments I had sent to Charlie Rosenfield a while back when he was asking for feedback on his recertification (I don't believe I ever received a response from him):

Melissa
Grader/R5/FWS/DOI To: Charles Rosenfield
04/02/2012 03:09 PM cc: steve.gephard@ct.gov

Patricia B. McIlvaine

From: Charles Rosenfield <putnamhydro@charter.net>
Sent: Tuesday, July 17, 2012 8:20 PM
To: Patricia B. McIlvaine
Subject: Re: Fw: Putnam LIHI certification: eel protection

I was out this afternoon and got your message late; will try to speak with you tomorrow
Charlie

----- Original Message -----

From: Patricia B. McIlvaine
To: 'Charles Rosenfield'
Sent: Monday, July 16, 2012 12:17 PM
Subject: RE: Fw: Putnam LIHI certification: eel protection

Ok..got these now.

Pat

From: Charles Rosenfield [mailto:putnamhydro@charter.net]
Sent: Monday, July 16, 2012 12:16 PM
To: pbm@wright-pierce.com
Subject: Fw: Fw: Putnam LIHI certification: eel protection

Pat-

Per your phone message, yes, I neglected to send email below with earlier ones
Charlie Rosenfield

----- Original Message -----

From: [Melissa Grader@fws.gov](mailto:Melissa_Grader@fws.gov)
To: putnamhydro@charter.net
Cc: steve.gephard@ct.gov
Sent: Monday, April 02, 2012 3:30 PM
Subject: Re: Fw: Putnam LIHI certification: eel protection

▼ Melissa Grader/R5/FWS/DOI

Melissa
Grader/R5/FWS/DOI To: Charles Rosenfield
04/02/2012 03:09 PM cc: steve.gephard@ct.gov

Subject: Fw: Putnam LIHI certification: eel protection

Hi Charlie,

This responds to your email of March 5th.

Steve and I have discussed it, and this is what we understand the situation to be:

1. Putnam Hydro is seeking LIHI certification. As part of that process, you are soliciting agency comments/recommendations on the LIHI environmental criteria.
2. At other hydro sites undergoing a similar process, where eels are known to occur in the watershed, the agencies have been recommending that a condition of LIHI certification be that the project implements

upstream and downstream eel passage. The actual requirements have varied somewhat among states. In CT, projects have been conditioned to require nightly shutdowns (dusk to dawn) from Sept. 1 through Nov. 15. On the Quinebaug drainage, the Mechanicsville Project has agreed to nightly shutdowns, and the recently exempted Cargill Falls Project will install exclusionary screening and a bypass system to move eels safely past the project.

3. You have indicated (email message below) that you would agree to nightly shutdowns on rainy nights (+2) during the eel outmigration season, but would not agree to nightly shutdowns during the entire 9/1-11/15 period or to install exclusionary screening.

4. At projects where the FWS has recommended the rainy night shutdown protocol, it was only as an interim measure, until a formal passage/protection plan could be developed (in consultation with the resource agencies) - for a defined period of time (within the timeframe of the LIHI certification period). In this case, Putnam has indicated that it would not agree to any of our standard permanent passage/protection measures.

5. The agencies do not have enough data to be confident that a rainy-night (+2) only shutdown protocol would be protective to outmigrating silver eels (as a permanent measure). For example, there could be a situation where a rain event occurs in the upper watershed but not the lower watershed. This would trigger shutdowns at upper hydro projects but not at lower ones (because there was no rain event at those sites) - but the increased flows caused by the rains upstream likely would motivate eels downstream to move also. In this case, those eels lower in the system (and in fact, eels from upstream moving downstream past the lower projects) would not be protected from turbine entrainment. Even using a different metric (e.g., rising limb of a hydrograph) may not solve the problem, because we do not know at what point on that rising limb eels initiate movement. Also, using metrics like that would require keen attention to what is going on at the project, which may not be feasible for stations that are remotely operated/unmanned.

Given the above, the FWS recommends that Putnam implement nightly shutdowns (dusk to dawn) from 9/1-11/15 annually, OR offer an alternative that would be equally protective of outmigrating eels (e.g., seasonal overlays on the trashrack with reduced generation from dusk to dawn from 9/1-11/15 in conjunction with a surface bypass; turbine entrainment study showing units do not injure or kill eels; behavioral measures such as lighting the intake in conjunction with a bypass operated during the outmigration season, etc.).

Regards,
Melissa

"Charles Rosenfield"	To	"Gephard, Steve"
< putnamhydro@charter.net >		< Steve.Gephard@
03/05/2012 08:44 AM	cc	< Melissa_Grader
		"Golembiewski, I
		< Brian.Golembie
		SubjectRe: Putnam

Melissa and Steve-

So, if Putnam (which is a genuinely low impact hydro project and has been LIHI certified twice before) shuts down on rainy fall nights, or the rainy nights themselves and a bit more (two nights? or if the river is rising?) will that be satisfactory for you to support its LIHI recertification? We would be willing to voluntarily do that to meet LIHI criteria but could not install very narrow trash racks or shut down nights for ten weeks. Installing the upstream passage would not be an issue.

Putnam has a very small pond and equilibrium flow restores over the spillway in seconds or minutes depending on river flow, so disruption from stop/start cycles would be small.

Charlie Rosenfield
Putnam Hydropower

----- Original Message -----

From: Gephard, Steve
To: 'Charles Rosenfield'
Cc: 'Melissa Grader@fws.gov' ; Golembiewski, Brian
Sent: Thursday, March 01, 2012 12:54 PM
Subject: FW: Putnam

Sorry, I sent this without copying Melissa and Brian, which I now have done.

Steve

From: Gephard, Steve
Sent: Thursday, March 01, 2012 12:53 PM
To: 'Charles Rosenfield'
Subject: RE: Putnam

Hi Charlie,

I spoke to Melissa last week about this and we are pretty much on the same page. For us to endorse LIHI certification for a project upstream of any anadromous fish runs, we look for the following:

1. Upstream eel passage, when recommended by the state agency. In the case of the Quinebaug River, we are recommending that for all projects above and including Cargill Falls. We discussed the option of installing "Delaware-style" eel pass through your flashboards.
2. Protection of downrunning eels in the fall—keeping them out of the turbines
 - a. Either, an effective exclusion rack
 - b. Or, shutdown of generation from dusk to dawn, September 1 to November 15.

In regard to item 2b, Melissa and the USFWS has allowed in some states the shutdown to be limited to rainy nights. In CT, I have recommended it be ALL nights due to the uncertainty of when the eels will react. It could rain Monday night and clear up before Tuesday night. But the river might not come up until Tuesday morning and stay up Tuesday and Wednesday night, which is when the eels might move. If an operator shuts down only Monday night, he might miss protecting the run. Another issue is enforcement/accountability. If LIHI requests my input, I will

suggest nightly shutdowns. If it decides to go with the USFWS's recommendations of only rainy nights, I would suggest that be for "rainy nights plus 2" and submitted year-end reports for accountability, as a compromise.

Steve

Stephen Gephard

Supervisor

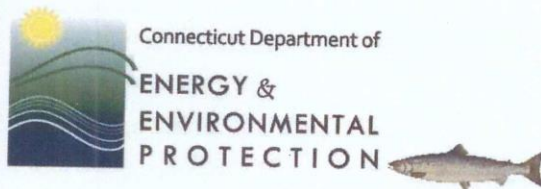
Diadromous Fish Program *and* Habitat and Conservation
Enhancement Program

Inland Fisheries Division

Dept. Energy and Environmental Protection

P.O. Box 719, Old Lyme, CT 06371

860-447-4316



From: Charles Rosenfield [<mailto:putnamhydro@charter.net>]

Sent: Wednesday, February 29, 2012 4:29 PM

To: Gephard, Steve

Subject: Putnam

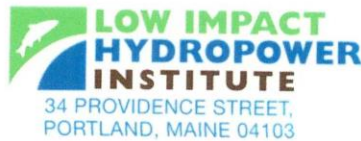
Steve-

I sent you an email inquiry December 28, 2011 about Putnam Hydropower's LIHI recertification and followed up with an telephone inquiry as to its status on January 31, 2012

I just wanted to follow up again to find out the status of this.

Charlie Rosenfield
Putnam Hydropower

2012 Ayer Letter



August 9, 2012

Charles Rosenfield
Putnam Hydropower
87 Senexet Road
Woodstock, CT 06281

Subject: LIHI Re-Certification Decision
Putnam Hydroelectric Project (LIHI Certificate No. 03)

Charlie:

This letter confirms and contains LIHI's decision to Re-Certify Putnam Hydro's ("Applicant") Putnam Hydroelectric Project ("Project") for a new five-year term. My decision as Executive Director to Re-Certify Putnam is based on the research and recommendations of the Application Reviewer, Pat Mcilvaine and my review of her report and documents provided by the Applicant and other stakeholders with an interest in this re-certification.

Accordingly, the Putnam Hydroelectric Project is hereby re-certified as a Low Impact Hydropower Facility. This re-certification is valid for five years, and will expire on April 10, 2017 unless revoked.

An Annual Fee for 15% of the Application Processing Fee will be coordinated with the Annual Compliance mailing sent to all certificate holders on their first and subsequent anniversaries. An Annual Fee of \$375 is due on April 10, 2013

I. Re-Certification Standards

Part V of the Low Impact Hydropower Institute (LIHI)'s Certification Handbook (Updated December 2011) regarding Applications for Recertification ("Recertification Standards") provides that a "request for renewal of a previously-issued LIHI certification ("re-certification") will be granted at the conclusion of the term of the existing certification if re-certification is desired by the certificate holder, and so long as (1) there have been no "material changes" at the facility that would affect the certification and (2) LIHI's certification criteria have not been revised since the previous certification was issued by LIHI."

The Recertification review criteria also provide that "[i]f the Application Reviewer can definitively determine from the submitted application materials, a review of the LIHI file containing the past certification decision(s), any public comments received during the application process, and any limited reviewer-initiated questioning by LIHI of the applicant and/or third parties, that the answer to both questions above is "no," the Application Reviewer will recommend re-certification approval to LIHI's Executive Director, and there will be no further application review.

II. Application Reviewer's Report

The following italicized text is an excerpt from Pat McIlvaine's Report :

This Project's public comment period closed on February 2, 2011.

In my opinion, the materials provided are sufficient to make a recertification recommendation and no further application review is needed.

III. No further application review is recommended.

The Putnam Hydroelectric Project (the "Project") received a license exemption (P-5645) from the Federal Energy Regulatory Commission on July 6, 1982. The project was initially certified by LIHI as "low impact" in 2002 and was re-certified in April 2007.

I have reviewed the materials submitted for recertification of the Project by Putnam Hydropower (Applicant) in support of its August 2011 application and the LIHI file containing the past certification and recertification decisions and FERC's public information file on the Project. As a result of that review, I requested additional information, which was supplied by the Applicant. I also solicited comments from the individuals listed below who are knowledgeable of the Project, none of which reported any changes in the project or known compliance issues associated with the Project. Interest in providing for American eel passage was identified by both the CTDEEP and USFWS. A copy of their email or a telephone record is attached as Attachment 1. In some cases, the emails were between the agencies and Applicant rather than the Application Reviewer.

- Ms. Melissa Grader - US Fish & Wildlife Service
- Mr. Brian Golembiewski - CTDEEP, Office of Environmental Review
- Mr. Steve Gephard - CTDEEP, Fisheries Division
- Ms. Jean Pillo - Thames River Basin Partnership and Rivers Alliance of Connecticut
- Ms. Lois Bruinooge - The Last Green Valley

This Project was not public noticed.

IV. There have been no "material changes" at the facility that would affect the certification.

In accordance with the Recertification Standards, "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. Based on my review of materials provided, review of FERC's public records, and consultation with the noted individuals, I found that there are no instances of non-compliance or new or renewed issues of concern.

V. LIHI's certification criteria have not been revised since the previous certification was issued by LIHI in 2007.

It is my understanding that LIHI's criteria, or the Board's interpretation of one or more criteria, that are applicable to the circumstances of the Putnam Hydroelectric Project have not changed in meaningful ways since the date of the original certification.

VI Conclusion

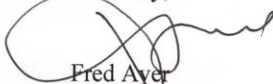
In light of the above, I recommend recertification of the Putnam Hydroelectric Project with the following condition to address current agency interest in providing for American eel passage:

- *The Project shall initiate discussions with the USFWS and CTDEEP in 2012 to develop a plan to initiate voluntary nightly (dusk to dawn) shutdown of the units on rainy days between the dates of September 1 and November 15. If necessary to provide safe eel passage, and if consistent with other protection measures required for other facilities on the River, the plan shall also investigate the need for an additional "plus two days" of nightly unit shut-down after the rain event. Annual reports documenting these shutdown periods shall be submitted to the CTDEEP and LIHI.*
- *Within year three of receiving LIHI recertification, the Project shall enter into discussions with CTDEEP and USFWS to review the potential need for additional eel passage protection measures beyond those already established. This review would take into consideration the existence of downstream passage on dams upstream and downstream of the Putnam Project to ensure that any additional eel passage requirements would be consistent with measures required of other dams on the Quinebaug River. LIHI shall be provided a copy of any final agreements established to either remain with the existing measures or to add additional measures.*

Executive Director's Conclusions – I agree with the Application Reviewer's findings and non-standard condition offerings. Furthermore, the Project owner has been a long-term supporter of LIHI's Low Impact Hydropower Certification program, and I have received a number of positive and supportive anecdotal and informal comments in conversation with resource agency and NGO staffers familiar with the Project. I am not aware of any compliance violations or significant issues that may challenge the ability of the Project to meet LIHI criteria's as a "low impact facility."

Should you have any questions feel free to contact me fayer@lowimpacthydro.org

Sincerely,



Fred Ayer
Executive Director



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



August 29, 2001

Mr. Charles Rosenfield
Putnam Hydropower, Inc.
87 Senexet Road
Woodstock, Connecticut 06281

Dear Mr. Rosenfield:

I am responding to your August 9, 2001 request seeking the Department's review of Putnam Hydropower's consistency with specific criteria established by the Low Impact Hydropower Institute. Your request was provided directly to the Water Planning & Standards and Fisheries Divisions of the Department and was placed on a project notification list that is distributed to all disciplines throughout the agency. This is a coordinated reply.

The following information responds to the criteria that you identified.

- A2. The project is operated in a run-of-river mode (inflow = outflow on an instantaneous basis). Given this operational characteristic, the evaluation of this project with respect to a habitat flow standard is not appropriate.
- B1b. The project is in compliance with the water quality standards administered by the Department pursuant to the federal Clean Water Act.
- B2. The Quinebaug River above and below the project has been identified and listed as water quality impaired under Section 303(d). This impairment is due to the regulation of flow above the Putnam Hydropower site by others.
- B3. The Putnam Hydropower project does not contribute to this water quality impairment.
- C3. No. Although not required by the questionnaire, an explanation of diadromous fish species in the Quinebaug River and the Department's restoration efforts is necessary in order to fully address this issue. Cargill Falls, which is located below the Putnam Hydropower site, historically blocked the migration of all diadromous fish species except Atlantic salmon and American eel. The Atlantic salmon is extinct from the Quinebaug River watershed, and the Department has no plans to initiate a restoration effort. Our Diadromous Fish Restoration Plan targets clupeids and eel and only identifies actions at dams downstream of Cargill Falls. The American eel, in very low numbers, probably still ascends these falls and an associated dam with a portion of these individuals being able to pass over the Putnam Hydropower Dam.

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The Department's Inland Fisheries Division has plans to augment eel passage (upstream and downstream) throughout the Quinebaug River watershed. However, imposing such a requirement at the Putnam Hydropower Dam in advance of implementation actions at downstream projects would be inappropriate. There are not a sufficient number of eels reaching this project from either the upstream or downstream side to merit such an approach. Currently, there is eel passage only at the Greeneville Dam on the Shetucket River in Norwich, which is the first barrier. We expect to have functional eel passage at the Tunnel Dam by 2007. A timetable for passage at the other downstream dams (Aspinook, Rojak, Rogers and Hale) will have to be implemented. Eel passage at the Putnam Hydropower Dam would not be an issue for at least 25 years.

There is no need for resident fish passage at the Putnam Hydropower Dam.

- E. The July 31, 2001 letter from Dawn McKay concerning protected species is fully responsive to this criterion.

I hope this response is helpful in obtaining a low impact designation for the Putnam Hydropower facility and if I can be of further assistance, please give me a call (860/424-4109). Also, I will give Lydia Grimm a call to convey my thoughts regarding the complexity and clarity of the Low Impact Hydropower Questionnaire.

Sincerely,



Brian J. Emerick
Supervising Environmental Analyst
Office of Environmental Review

cc: Arthur J. Rocque, Jr., DEP/COMM
Steve Gephard, DEP/FD
Art Mauger, DEP/WPSD

USFWS Conditions



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. Box 1518
Concord, New Hampshire 03301

Mr. Raymond Rosenfield
New England Chemical Works
P. O. Box 471
Putnam, Connecticut 06260

FEB 8 1982

Dear Mr. Rosenfield:

We have reviewed your application for exemption for the New England Chemical Works project, FERC No. 5645, located on the Quinebaug River in Putnam, Connecticut, as requested in your January 19, 1982, letter. Based on the information in your application and on our knowledge of the project area, we have no objections to the proposed project. However, to prevent loss of, or damage to, fish and wildlife resources, the following terms and conditions are provided for inclusion in their entirety in the exemption, consistent with our responsibilities and the Commission's, pursuant to Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act:

1. The Exemptee shall provide fish-passage facilities at this project when the Connecticut Department of Environmental Protection (Fisheries Unit) implements a plan to restore anadromous fish through the project area.
2. The Exemptee shall release from the project an instantaneous discharge of 144 cfs or inflow to the project area, which-ever is less to maintain downstream aquatic habitat.
3. The Exemptee shall provide access for anglers to project waters where practical, taking into consideration any limitations due to personal safety and liability.

We hope these comments will help you in planning for this project. Let us know if you need further assistance.

Sincerely yours,

Gordon E. Beckett
Supervisor

SHPO Letter



STATE OF CONNECTICUT
CONNECTICUT HISTORICAL COMMISSION

March 7, 2002

Ms. Kathy Eickenberg
Land & Water Associates
9 Union Street
Hollowell, ME 04347

Subject: Low Impact Hydro Institute Certification
Putnam Hydropower
Putnam, CT

Dear Ms. Eickenberg:

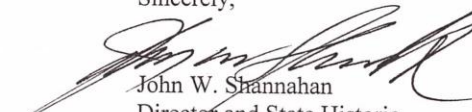
The State Historic Preservation Office has reviewed the above-named project. This office expects that the proposed undertaking will have no effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places.

This office appreciates the opportunity to have reviewed and commented upon the proposed undertaking.

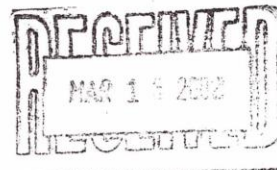
We recommend that the responsible agency provide concerned citizens with the opportunity to review and comment upon the proposed undertaking in accordance with the National Historic Preservation Act of 1966 and the Connecticut Environmental Policy Act.

For further information please contact Dr. David A. Poirier, Staff Archaeologist.

Sincerely,



John W. Shannahan
Director and State Historic
Preservation Officer



TEL: (860) 566-3005 e-mail: cthist@neca.com FAX: (860) 566-5078
59 SOUTH PROSPECT ST. - HARTFORD, CONN 06106 - 1901
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