

December 28, 2012

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, D.C. 20426

**RE: Proposed Eagleville Dam Hydroelectric Project;  
Coventry and Mansfield, CT**

Dear Secretary Bose:

Enclosed please find for filing the original and eight copies of the Preliminary Permit Application for the Proposed Eagleville Dam Hydroelectric Project.

Please do not hesitate to contact me at (339) 293-3157 or at [carol@nehypower.com](mailto:carol@nehypower.com) if you have any questions or require additional information.

Sincerely,

*Carol Wasserman*

Carol Wasserman  
Regulatory Affairs and Compliance  
***New England Hydropower Company, LLC***

Cc: Division of Hydropower Administration, Mail Code DHAC, PJ-12

**FEDERAL ENERGY REGULATORY COMMISSION  
PRELIMINARY PERMIT APPLICATION**

**NEW ENGLAND HYDROPOWER COMPANY, LLC**

**EAGLEVILLE LAKE DAM SMALL HYDROPOWER PROJECT  
COVENTRY AND MANSFIELD, CONNECTICUT**

**APPLICANT:** New England Hydropower Company, LLC  
P.O. Box 5524  
Beverly Farms, MA 01915

**DATE:** December 28, 2012



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**VERIFICATION STATEMENT**

This application is executed in the Commonwealth of Massachusetts, County of Essex, by Michael C. Kerr and states that he is authorized to act on behalf of the Applicant. The undersigned Applicant has signed the application this 28th day of December 2012.

BY:           MCKerr            
Michael C. Kerr  
Agent for New England Hydropower, LLC

**COMMONWEALTH OF MASSACHUSETTS**

**ESSEX, ss.**

**DATE: 12/28/12**

Michael C. Kerr, being duly identified by MA Driver's License, states that he is the authorized agent for New England Hydropower Company, LLC, the Applicant for preliminary permit, and is authorized to execute the application on the behalf of New England Hydropower Company, LLC; that he has read the foregoing application and knows the contents thereof; that the same are true to the best of his knowledge and belief.

Subscribed and sworn to before me this 28th day of December 2012.

Notary Public: *Carol R. Wasserman*  
Carol R. Wasserman

My Commission Expires: March 18, 2016

**UNITED STATES OF AMERICA  
BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION**

**APPLICATION FOR PRELIMINARY PERMIT**

**NEW ENGLAND HYDROPOWER COMPANY, LLC  
EAGLEVILLE LAKE DAM SMALL HYDROPOWER PROJECT  
COVENTRY AND MANSFIELD, CONNECTICUT**

**INITIAL STATEMENT**

**18 C.F.R § 4.81(a)**

- (1) New England Hydropower Company, LLC (Applicant), hereby applies to the Federal Energy Regulatory Commission (“the Commission”) for a Preliminary Permit for a small hydropower project at the Eagleville Lake Dam Project (“Proposed Project” or “Project”), as further described in the attached exhibits.

This Application is made in order that the Applicant may secure and maintain priority of application for the submission of a license for the Project under Part I of the Federal Power Act, while obtaining the data and performing the acts required to determine the feasibility of the Project and to support a license application.

The Applicant intends to obtain and maintain only those rights and interests necessary to construct, operate, and maintain the Project for hydropower development and energy production.

- (2) The location of the Project:

As shown on Figure 1, the Eagleville Lake Dam (“Dam”) is listed in the National Inventory of Dams maintained by the U.S. Army Corps of Engineers as being located on the Willimantic River in the Towns of Coventry and Mansfield, Connecticut.

The Dam is situated on the Willimantic River in the Towns of Mansfield and Coventry. It spans the Town Line approximately 200 feet north of Route 275 (a.k.a. South Eagleville Road in Mansfield and Stonehouse Road in Coventry) near the village of Eagleville in Mansfield. It is an earth embankment dam with a stone masonry spillway.

The Dam impounds water for recreational use from the Willimantic River. The general orientation of the impoundment is northwest southeast with the Dam at the southeast extremity as marked on the USGS Coventry, CT 7.5 minute topographic quadrangle (see Figure 2). The Project will be located on the East side of the Dam. The Dam is located at Latitude 41.785 N and Longitude 72.2816 W.

State: Connecticut  
County: Tolland  
Nearest Towns: Coventry and Mansfield  
River/Body of Water: Willimantic River

- (3) The exact name, business address, telephone number, and e-mail of the Applicant are:

New England Hydropower Company, LLC  
P.O. Box 5524  
Beverly Farms, MA 01915  
(978) 360-2547  
[michael@nehydropower.com](mailto:michael@nehydropower.com)

The exact names and business addresses of each person authorized by the Applicant to act as agents for this Application are:

Michael C. Kerr\*  
[Michael@nehydropower.com](mailto:Michael@nehydropower.com)

Carol Wasserman  
[Carol@nehydropower.com](mailto:Carol@nehydropower.com)

New England Hydropower Company, LLC  
P.O. Box 5524  
Beverly Farms, MA 01915  
<http://www.nehydropower.com>

All communications and correspondence should be directed to Mr. Kerr.  
\* Mr. Kerr is the designee for service.

- (4) The Applicant is a domestic limited liability corporation and is not claiming preference under section 7(a) of the Federal Power Act.
- (5) The proposed term of the requested permit is ***thirty-six (36) months***.
- (6) The Dam and appurtenant works, including the former powerhouse and intake structures, are owned and operated by the State of Connecticut Department of Energy and Environmental Protection (“DEEP”), Office of

Environmental Review, Planning and Program Development and the DEEP Office of Dam Safety, 79 Elm Street, Hartford, CT 06106-5127. The DEEP Dam Caretaker is Ted Rybeck, 79 Elm Street, Hartford, CT 06106-5127.

## EXHIBIT 1

### Project Description

#### 18 C.F.R. § 4.81(b)

##### (1) Existing Conditions and Proposed Project Works and Facilities<sup>1</sup>

###### *Existing Conditions:*

The Willimantic River flows over the Eagleville Dam from North to South. The Dam and Proposed Project are on the boundary of Mansfield, Connecticut and Coventry, Connecticut. According to state and federal records, the Dam is located in Mansfield. The spillway is bounded on both sides by a small park, which also covers the earthen portions of the Dam. On the east side of the spillway there are iron railings, stairs and a viewing area overlooking the Dam. On the west side, the spillway is bounded by a small viewing area. The Dam has been classified as High Hazard by the Connecticut office of Dam Safety and Compliance.

The Eagleville Dam is a combination earthen berm dam with a masonry block spillway. The entire length of the Dam is 520 feet and it measures 22 feet high. The spillway is a broad crested weir which measures 173 feet long. At the eastern end of the spillway, between the end of the spillway and the edge of the viewing area, there is an existing structure that is used to support a penstock for hydropower. The footings of the penstock can still be seen in the river. This structure was partially rebuilt by the State in 1992 as part of a general upgrade to the property. There is an existing sluice gate controlling a low level outlet built into the face of this structure. The structure is approximately 22 feet wide. Abutting this structure on the eastern side is the training wall and a viewing area. See Figure 4 for existing conditions.

*Proposed Project Works and Facilities:* The Proposed Project would implement a new Archimedes Screw Generator that would be mounted on to the existing low level outlet foundation. This structure would need to be partially rebuilt to accommodate the Archimedes screw. The Proposed Project would utilize the existing head, which is typically 11.5 feet between the upstream and downstream water levels.

The Archimedes Screw Generator would be contained within a self-supporting steel trough, which would be mounted onto a concrete pad at the bottom, and onto a modified version of the existing dam structure at the top. A small concrete powerhouse would be constructed above the 100-year flood level to house the Project gearbox, generator, and electrical controls.

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<sup>1</sup> The dimensions of all relevant structures are summarized in Table 1.

The intake would be controlled by a hydraulically powered sluice gate. This system would maintain a true run of river flow consumption. The intake sluice gate would be guarded by a trash rack, with bars spaced every 6 inches to allow fish and small debris to safely pass through the Generator, an advantage of the Archimedes Screw Generator design. The Proposed Project Boundary is shown on Figure 3. Proposed Project Features are depicted in Figure 5.

**Table 1  
Dimensions of Existing/Proposed Structures**

<b>Structure</b>	<b>Existing/Proposed</b>	<b>Dimensions (Feet)</b>
Dam	Existing	Height: 22 Length: 520 Top Width: 8 Bottom Width: unknown Spillway Length: 173
Foundation	Existing	Length: 27 Width: 22
Powerhouse	Proposed	Height: 10 Length: 19 Width: 22
Archimedes Screw Generator	Proposed	Length: 60 Diameter: 11.25
Screw Generator Concrete Foundation	Proposed	Length: 70 Width: 14.5
Sluice Gate	Proposed	Height: 10 Width: 16
Trash Rack	Existing	Height: 10 Width: 7 x 2
Head Box/Intake Channel	Existing	Length: 12 Width: 16 Depth: 10

Source: USACE National Dam Inspection Program  
Phase I Inspection Report (June 1979)  
NEHC Field Observations

**(2) Reservoir**

The Dam impounds a reservoir with a normal storage capacity of 900 acre-feet. No new impoundment will be created, as the Dam presently channels the waterway within the existing embankments. The portion of the impoundment within the Proposed Project boundary has an area of approximately 0.27 acres. Elevations of key elements of the Dam are reported in Table 2.

**Table 2  
NGVD Elevations**

Impoundment	277.0	Ft
Top of Training Walls	284.0	Ft
Tailrace	261.9	Ft
Spillway Crest	276.9	Ft
Bottom Stop Log	270.0	Ft

**(3) Transmission Line(s)**

The Applicant will request interconnection of a new 215 linear-foot, 13.8 kV rated transmission line from the Proposed Project into the existing distribution system on South Eagleville Road in Mansfield, subject to the requirements of the distribution system owner, Connecticut Light & Power, Eastern Division, P.O. Box 270, Hartford, CT, 06141-0270.

**(4) Generating Equipment**

The Applicant proposes to install one new Archimedes Screw Generator with a peak power output of 133 kW, operating with a maximum hydraulic capacity of 195 cfs and an estimated 11.5-foot hydraulic head.

The total estimated average annual energy production is 630,000 kWh, resulting in a capacity factor of 53.8%.

**Table 3**

**Generation Equipment Summary**

Drainage Area	square miles
Design Head	11.5 feet
Number of Proposed Generators	1
Generator Peak Flow Capacity	195 cfs
Total Spillway Design Flood (SDF) Flow Rate	11,560 cfs
Generator Peak Power Output	133 kW
Average Annual Energy Production	630,000 kWh
Generator Type	Induction

**(5) No Federal Lands or Tribal Lands are known to exist within the Project boundaries.**

## **(6) Utilization of Water Resources in the Public Interest**

The Proposed Project will develop, conserve, and use, in the public interest, the water resources of the region. The Proposed Project will be located at an existing dam and will use the maximum amount of water available in a manner that will comply with the terms and conditions of any new license issued by the Commission to protect and enhance non-power resources.

The Proposed Project is expected to have *de minimis* negative effects on land, water, and other resources within the Project area. Environmental and/or cultural/historical impacts, if any, will be identified during the proposed studies described in Exhibit 2, and appropriate plans will be developed to minimize and/or mitigate impacts.

The Proposed Project will be developed in accordance with all applicable federal, state, and local requirements and guidelines.

Project benefits will include:

***Economic Benefits.*** The cost of electricity in Connecticut is approximately 0.1739/kWh, approximately 7.5 cents higher than the national average. With few endemic energy resources and imminent, mandatory Renewable Energy Portfolio Standard goals, the Proposed Project will provide a new source of emission-free, renewable energy, at a levelized cost of approximately \$ 0.09/kWh.

***Technological Reliability.*** The Archimedes Screw Generator is of extremely durable design and offers low impact, reliable operations. The slow rotation speed (30 – 40 rpm) of the screw results in little maintenance and, based on successful installations in the United Kingdom and Europe, offers a 30-year plus useful life. The unit is debris tolerant and operates as a true run-of-river installation.

### ***Environmental Benefits.***

***Fish Passage:*** Unlike traditional generators, the Archimedes Screw Generator is truly “fish friendly.” The slow rotation speed and large pockets of water generated by the Screw allow even large fish to safely pass through the Screw.

***Water Quality/ Stream Channel Integrity:*** The Screw generates little to no turbidity, maintains dissolved oxygen content, and does not precipitate erosion, which preserves the integrity of the stream channel as well as water quality.

***Air Quality:*** Locally generated, emission free renewable energy will displace emissions generated by conventional fossil fuel powered generation units. This aspect of the Proposed Project is of particular benefit during the Ozone Season

(May – October), when increased demand and weather conditions may result in deterioration of overall air quality.

**(7) Additional Information**

The Proposed Project is not located within a river reach designated under the Wild and Scenic Rivers Act.

There are no areas within the Proposed Project Boundary that are governed by the Wilderness Act. Therefore, the Project area is not considered to be a Wilderness Area, recommended for designation as a Wilderness Area, or designated as a Wilderness Study Area.

## **EXHIBIT 2**

### **Study Plans**

#### **18 C.F.R. § 4.81(c)**

#### **(1) Study Plans**

##### **A. Previous Studies**

A Phase I Dam Safety Inspection was performed on April 17, 1979 for the United States Army Corps of Engineers (USACE), New England Division, by C-E Maguire, Inc., in accordance with the USACE Recommended Guidelines for Safety Inspection of Dams. The Dam has been classified as a “High Hazard Structure” by the Connecticut Office of Dam Safety.

##### **B. Proposed Engineering Studies**

1. Complete public records research and survey for the Project Site to confirm rights and interests necessary to support the filing of a license application with the Commission utilizing the existing dam.
2. Develop drawings for Project features.
3. Finalize a development plan that optimizes Project features and power generation while minimizing environmental impacts.
4. Prepare plans depicting the optimal development scheme.
5. Develop net metering configuration and interconnection drawings and studies.
6. Prepare preliminary estimates of construction and overall Project costs of the preferred development scheme.

##### **C. Proposed Environmental Studies**

1. Perform a visual Site inspection to determine environmental characteristics of the Project Site.
2. Determine and perform relevant in-stream studies to assess existing aquatic habitat that could be affected by the Proposed Project.
3. Meet with federal and state natural resource agencies, including but not limited to U.S. Fish and Wildlife, U.S. Army Corps of Engineers, and CT DEEP Division of Inland Fisheries, to engage in consultations concerning potential environmental impacts, if any, of the Proposed Project, in accordance with Section 10(j) of the Federal Power Act and the Fish and Wildlife Coordination Act.
4. Meet with Coventry, CT and Mansfield, CT Conservation Commissions to engage in consultations concerning specific local requirements, if any.
5. Consult with the Willimantic River Alliance concerning potential, notable water quality and/or stormwater conditions.

6. Confirm results of pre-application agency consultations concerning potential (non-federal) licenses, permits, or other authorizations that may be required.
7. Prepare documentation and studies required for the Project Description (FERC Exhibit A), Environmental Report (FERC Exhibit E), General Design Drawings (FERC Exhibit F), and Project Map (FERC Exhibit G) necessary to support Commission licensing.
8. Consult with all agencies having review responsibilities under local, state, and federal regulations.

#### **D. Proposed Socioeconomic Studies**

1. Consult with Connecticut State Historic Preservation Office (SHPO) to identify cultural resources that may be affected by the Project and assess and minimize impacts to significant resources, if any, to achieve compliance with Section 106 of the National Historic Preservation Act.
2. Develop an inventory of nearby recreational areas and activities to determine, assess, and mitigate impacts, if any.
3. Convene public hearing(s) to present and discuss the Project with the community.

#### **E. Proposed Economic Studies**

1. Determine internal/external electric load demand and future requirements.
2. Establish an economic model for the use and sale of the power produced by the Project.

#### **F. Proposed Financial Studies**

1. Investigate financing methods and estimate the cost of money at the time of construction.
2. Determine the cost benefit and risks of the Project, based on Project costs, financing costs, and the value of the power produced.

#### **G. Consultations**

The Applicant will consult with the following agencies and stakeholders during the study period. Other agencies and stakeholders may also be consulted.

- FERC Consultations List
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- NOAA/NMFS

- U.S. Environmental Protection Agency Region One
- Advisory Council on Historic Preservation
- Connecticut Department of Energy and Environmental Protection
- Connecticut Division of Inland Fisheries and Water Resources
- Connecticut Department of Transportation
- Connecticut State Office of Historic Preservation
- Connecticut Office of Dam Safety
- Connecticut Office of Policy and Management/Bureau of Assets Management
- Willimantic River Alliance
- Town of Coventry
- Town of Mansfield
- Ducks Unlimited
- Trout Unlimited

**(2) New Roads**

No new roads will be required to be constructed for the purpose of conducting studies. Existing roads will be used for Project Site access.

**(3) New Dam Construction**

No new dam construction will be necessary for the Proposed Project.

**(4) Waivers**

Because no new dams are proposed, no waiver is being sought as part of this Preliminary Permit Application.

**EXHIBIT 3**

**18 C.F.R. § 4.81(d)**

**Statement of Costs and Financing**

**(1) Estimated Costs of Studies**

The estimated costs for performing the studies herein described are as follows:

Engineering:	\$15,000 – \$ 30,000
Environmental:	\$ 20,000 - \$ 25,000
Socioeconomic:	\$ 5,000 - \$ 10,000
Economic:	\$ 5,000 - \$ 10,000
Financial:	\$ 10,000 - \$ 12,000

**Total Estimated Cost of Studies: \$ 55,000 – \$ 87,000**

**(2) Sources of Financing**

The expected source of financing to conduct the studies identified in Exhibit 2 will be the Applicant, who has sufficient sources of capital to complete the identified studies.

**(3) Proposed Market for Power**

The proposed market for the power generated by the Project will be private parties, the Towns of Coventry and Mansfield, and the State of Connecticut, with any excess power to be sold to Connecticut Light & Power, the local electric service provider for the Towns of Coventry and Mansfield. Connecticut net metering rules will apply.

**18 C.F.R. § 4.32 – INFORMATION**

**(a)(1)** The Applicant is the only entity that has or intends to obtain and will maintain any proprietary right(s) necessary to construct, operate, and maintain the Project.

**(a)(2)(i)** Tolland County is the only county in which any part of the Project would be located. Tolland does not have any form of county government.

**(a)(2)(ii)** The cities/towns within 15 miles of the Dam with a population of approximately 5,000 or more are as follows:

<b>Municipality</b>	<b>Street Address</b>	<b>P.O. Box</b>	<b>City</b>	<b>State</b>	<b>Zip Code</b>
Town of Ashford	5 Town Hall Rd.		Ashford	CT	06278
Town of Bolton	222 Bolton Center Rd.		Bolton	CT	06043
Town of Brooklyn	4 Wolf Den Rd.	P.O. Box 356	Brooklyn	CT	06234
Town of Canterbury	1 Municipal Drive		Canterbury	CT	06331
Town of Chaplin	495 Phoenixville Rd.		Chaplin	CT	06235
Town of Colchester	127 Norwich Avenue		Colchester	CT	06415
Town of Columbia	323 Route 87		Columbia	CT	06237
Town of Coventry	1670 Flat River Rd.		Coventry	CT	02816
Town of East Hampton	20 East High St.		East Hampton	CT	06424
Town of Ellington	55 Main St.	P.O. Box 187	Ellington	CT	06029
Town of Glastonbury	2155 Main St	P.O. Box 6523	Glastonbury	CT	06033
Town of Hebron	15 Gilead St.		Hebron	CT	06231
Town of Lebanon	579 Exeter Rd.		Lebanon	CT	06249
Town of Mansfield	South Eagleville Rd.		Mansfield	CT	06268
Town of Manchester	41 Center St.		Manchester	CT	06040
Town of Marlborough	26 North Main St.	P.O. Box 29	Marlborough	CT	06447
Town of Pomfret	5 Haven Rd.		Pomfret Center	CT	06259
Town of Somers	600 Main St.	P.O. Box 308	Somers	CT	06071
Town of Stafford	1 Main St.		Stafford Springs	CT	06076
Town of Tolland	21 Tolland Green		Tolland	CT	06084

Town of Willington	40 Old Farms Road		Willington	CT	06279
Town of Windsor	275 Broad St.		Windsor	CT	06095
Town of Woodstock	415 Route 169		Woodstock	CT	06281

**(a)(iii)(A)** Every irrigation district, drainage district, or similar special purpose political subdivision:

- (A) In which any part of the Project, and any Federal Facility(ies) that would be used by the Project, would be located; or
- (B) That owns, operates, maintains, or uses any Project Facilities or any Federal Facility(ies) that would be used by the Project;

**None**

**(a)(iv)** Every other political subdivision in the general area of the Project that there is reason to believe would be interested in, or likely be interested in, or affected by the Application; and

**None**

**(a)(v)** All Indian Tribes that may be affected by the Project.

**None**

## EXHIBIT 4

### PROJECT MAPS AND DRAWINGS

#### 18 C.F.R § 4.81(d)

**(1) Project Maps**

This Exhibit includes the following preliminary maps, drawings, and photographs:

Figure 1: Location of Proposed Project within Connecticut

Figure 2: Proposed Project Location on USGS 7.5-minute Quadrangle

Figure 3: Proposed Project Boundary

Figure 4: Existing Conditions

Figure 5: Proposed Project Features

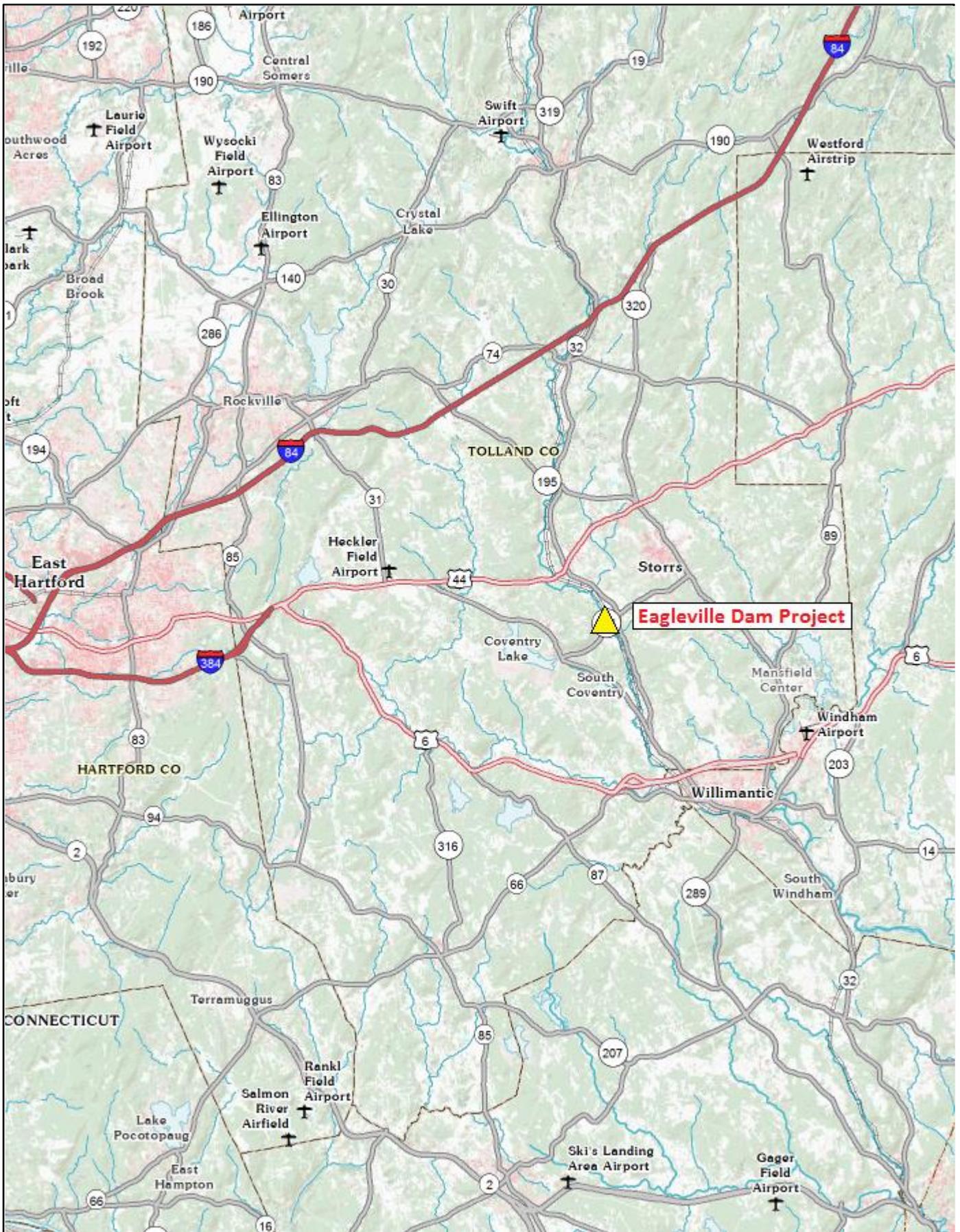
**(2) Proposed Hydroelectric Development Project Boundary**

The Proposed Project Boundary is depicted on Figure 3.

**(3)** No areas within the Proposed Project Boundary are subject to the Wilderness Act (i.e. designated, recommended for designation, or are under study for designation).

**(4)** No areas within the Proposed Project Boundary are included in or designated for study inclusion under the National Wild and Scenic Rivers System Program.

No areas within the Proposed Project Boundary are Federal lands or part of Reservations of the United States.



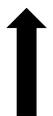
New England  
Hydropower  
Company, LLC

**FIG. 1: Location of Project within Connecticut**

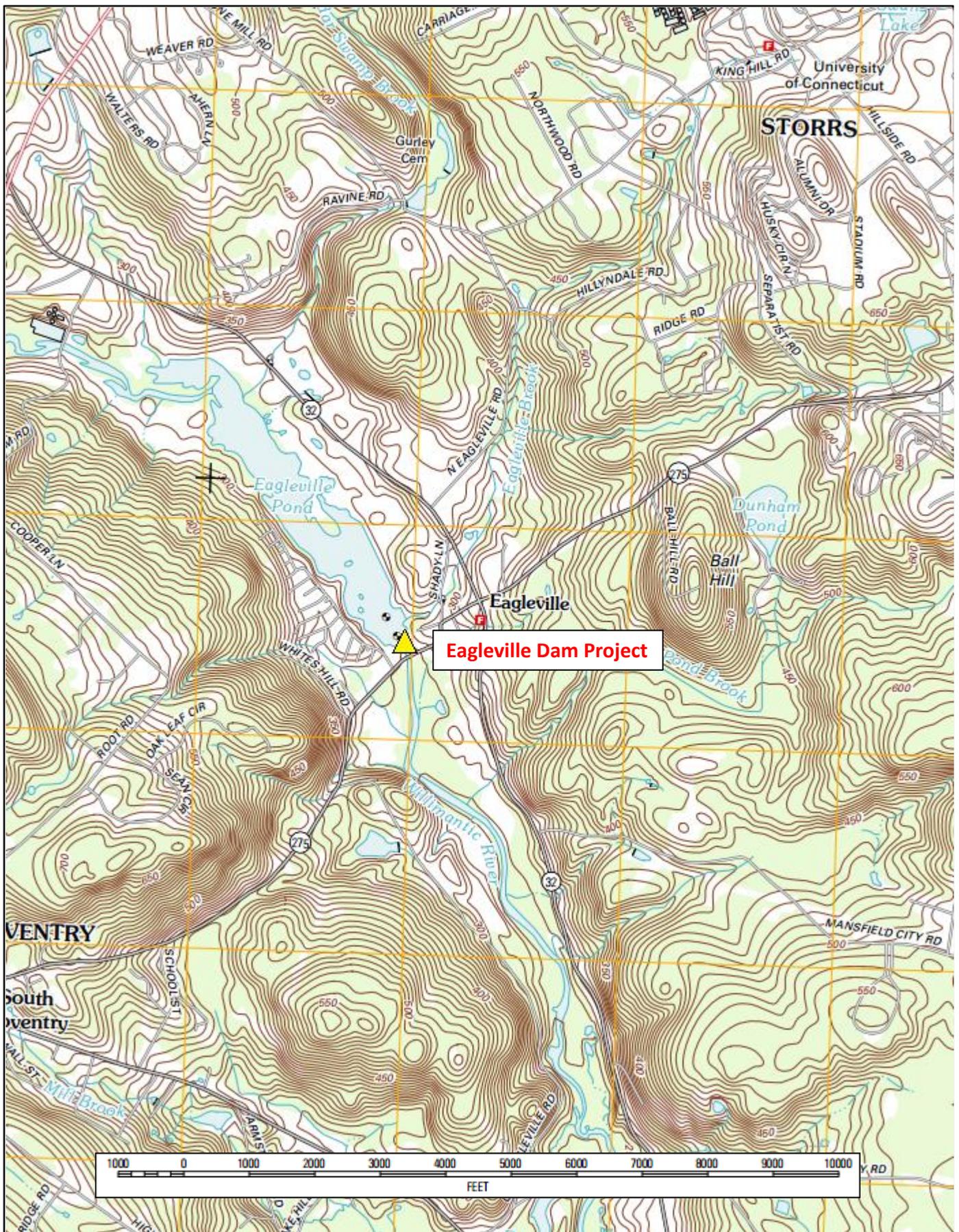
Eagleville Dam, Coventry/Mansfield, CT

Source: USGS The National Map

North



December 28, 2012



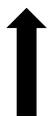
New England  
Hydropower  
Company, LLC

**FIG. 2: Proposed Project Location on USGS 7.5-minute Quadrangle**

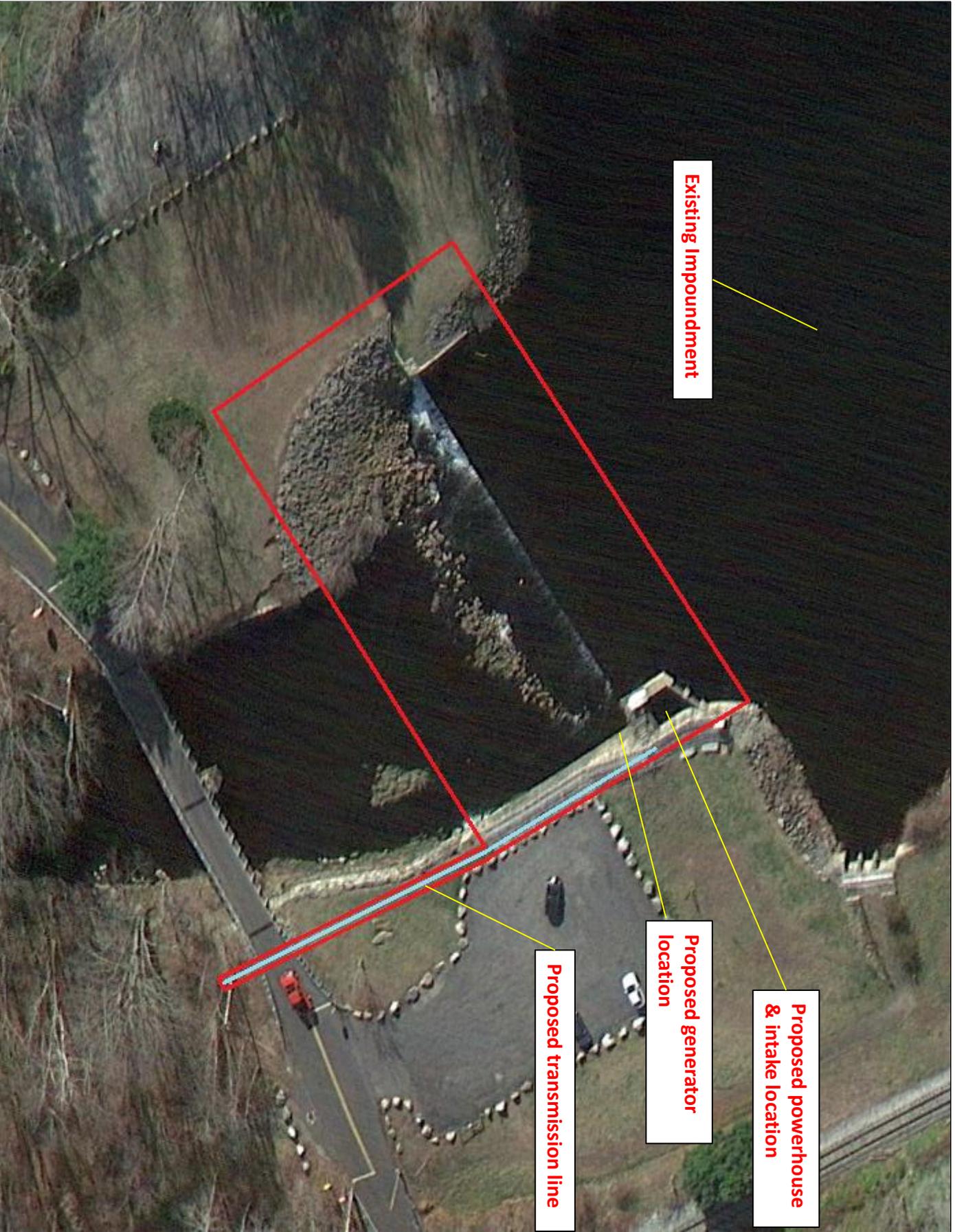
Eagleville Dam, Coventry/Mansfield, CT

Source: USGS Topographic Quadrangles

North



December 28, 2012



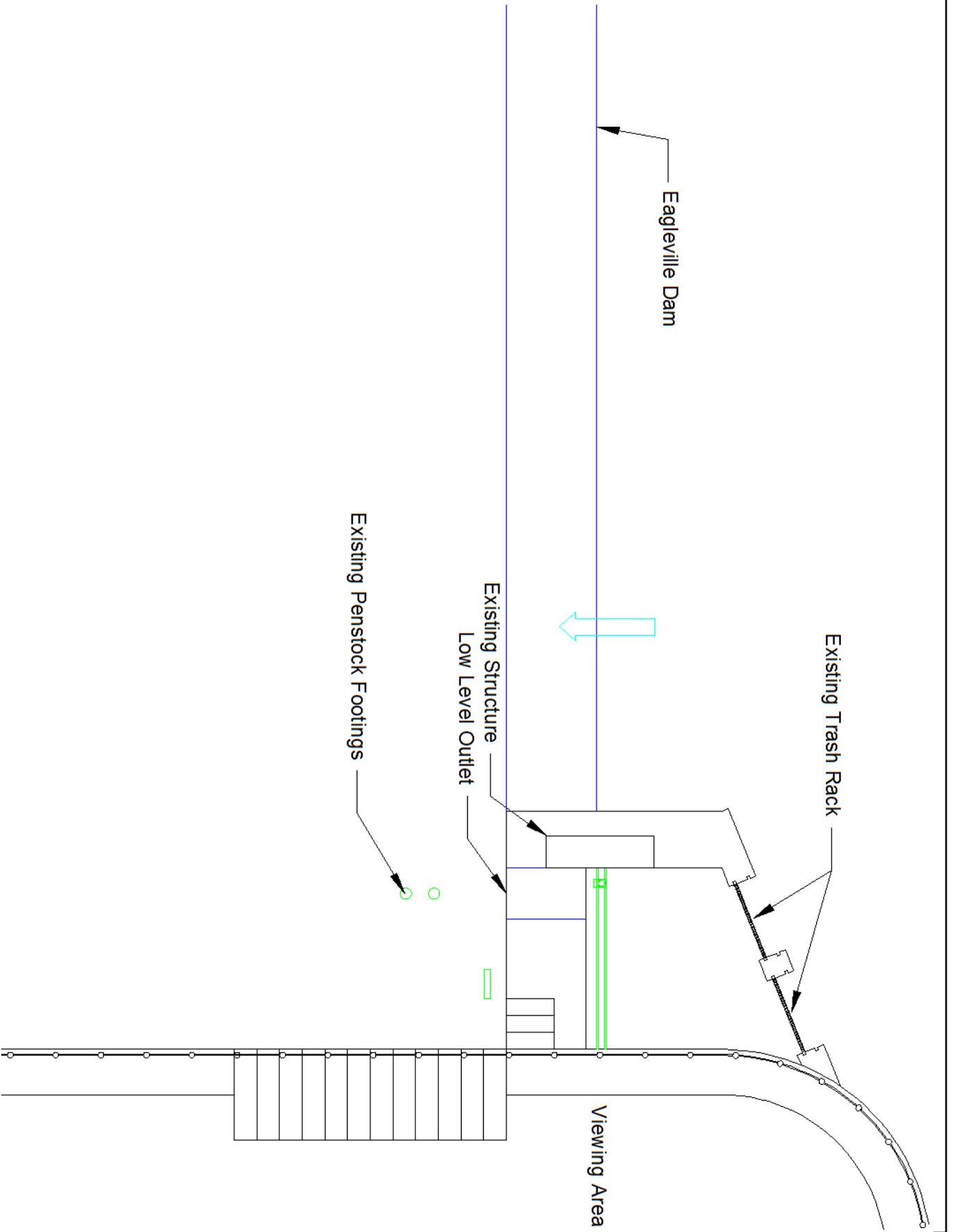
Existing Impoundment

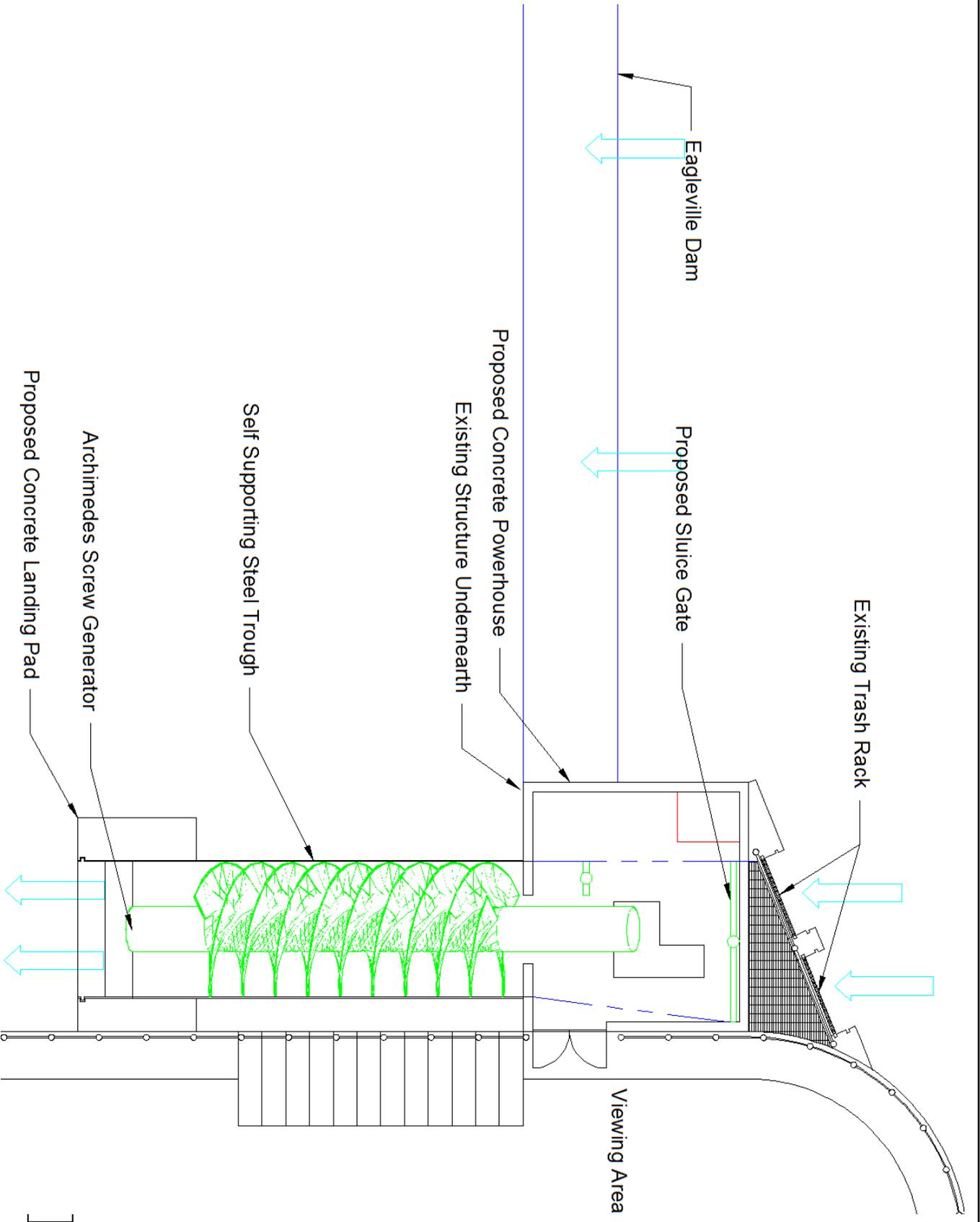
Proposed powerhouse & intake location

Proposed generator location

Proposed transmission line

**FIG. 3: Proposed Project Boundary**  
Eagleville Dam, Coventry/Mansfield, CT  
Source: Google





December 28, 2012



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Hydropower  
Company, LLC

**FIG. 5: Proposed Project Features**  
Eagleville Dam, Coventry/Mansfield, CT  
Source: NEHC

