

Town of Canton, Connecticut
Preliminary Scope of Services for a Pre-Feasibility Study
for the
Canton Hydroelectric Project
Temporary Hydro Project Advisory Committee
June 17, 2009

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Location Map

Legal Notice
Town of Canton, CT
RFQ Professional Services
Canton Hydroelectric Project

The Town of Canton through its Chief Administrative Officer is seeking consulting engineering services for a pre-feasibility study of the Upper and Lower Collins Company Dams for the generation of hydroelectric power.

The study is being undertaken as a co-operative effort of the Towns of Avon, Burlington, and Canton, CT under the authority of a FERC Preliminary Permit No. 13273 issued on January 9, 2009 to the Town of Canton.

A Preliminary Scope of Services for the project is available on the Town's website at www.townofcantonct.org. Consultant engineers responding to this RFQ must address the items in the Preliminary Scope of Services to be considered a responsible submission.

Consulting engineering firms that are interested in being considered for this project should mail or deliver a letter of interest and such other information as may demonstrate qualifications and experience in the successful development of hydroelectric projects (one original and 10 copies) to:

Robert Skinner, Chief Administrative Officer
Town of Canton
4 Market Street PO Box 168
Collinsville, CT 06022-0168

To be considered for this project, the response to this RFQ must be received in the Office of the Chief Administrative Officer no later than 2:00 pm on July 14, 2009.

The Town of Canton is an equal opportunity – affirmative action employer.

For publication in the Hartford Courant on June 23, 2009 as a Zone 5 Legal Notice.

An affidavit of publication and tear sheet is requested.

Preliminary Scope of Services

A. Overview:

The Towns of Avon, Burlington, and Canton, CT are undertaking the determination of the feasibility of the re-activation of the Upper and Lower Collins Company Dams on the Farmington River for hydroelectric power generation.

As lead community in this effort, the Town of Canton applied for and has been granted a Preliminary Permit No. 13273 on January 9, 2009 by the Federal Energy Regulatory Commission (FERC) to undertake the necessary studies to determine if it is feasible and practical to undertake this project.

The Collins Company generated hydroelectric power at both facilities from the early 1900s until its closure in 1966. At that time, the facilities passed into the ownership of the Hartford Electric Light Company which removed or destroyed the electrical generation capability of both facilities. Shortly thereafter ownership was passed to the State of Connecticut where it remains to this day.

The Collins Company operated a single 373 kW Leffel Z Type 2 turbine at the Upper Dam powerhouse (1935 to 1966) and two Allis-Chalmers 500 HP turbines at the Lower Dam powerhouse (1914 to 1966). The three turbines are in-place, but of unknown condition.

The operation of the two powerhouses and nine smaller turbine generator sets within the Collins Company factory complex was to maximize the production of electricity during factory operations. Outside of time of factory operations, the units were shut down to allow the ponds to refill if water was not available for 24 hour operations.

The Canton Hydroelectric Project will be operated as Run of the River with no significant storage of water for power generation.

The Farmington River is scheduled by the ConnDEP for salmon restoration. The Lower and Upper Collins Company Dams will be retrofitted with fish passage as a part of the project.

The Upper and Lower Collins Company Dams have been the subject of several FERC applications for hydroelectric power generation over the years. Past applications were filed with FERC by Summit Hydro, LLC of Avon, CT, the Metropolitan District Commission of Hartford, CT, the Collinsville Company of Collinsville, CT, and the Town of Canton, CT.

The Town of Canton published a "Feasibility Study Canton Hydroelectric Project Final Report" prepared by Development and Resources Corporation of Sacramento, California June 1979.

B. Anticipated Project Phases:

Due to the nature of the Project, it is anticipated that several phases will be necessary prior to the actual development of hydroelectric power at the sites. Each phase prior to construction will have a “go” “no go” decision process to enable the Towns to consider the financial commitment that will be required as more detailed studies are undertaken by the selected consultant engineering firm.

Phase 1 - Pre-Feasibility Study (The subject of the RFQ and this Scope of Services):

Normally the Pre-Feasibility Study also known as a Reconnaissance Study (Study) is used to screen a number of locations for potential to develop hydroelectric power prior to investment in a particular site. In this case, the sites have been selected based on availability and the historic use for hydroelectric generation.

The Study will be focused on the Upper and Lower Collins Company Dams. This is the Study that will be undertaken by this Scope of Services.

It is the intent of the Study to provide the necessary preliminary data to the Towns to enable them to make a decision to proceed to the next Phase without the expenditure of the funds necessary to prepare a full Feasibility Study for project authorization.

Phase 2 - Feasibility Study:

The Feasibility Study (Study) will be focused on the development of the Upper and Lower Collins Company Dams for hydroelectric power. The Study will provide the necessary information and data short of Final Design to enable the Towns to make a decision to proceed to the next Phase in the project. This Study will require a substantial commitment of time, resources, and expense to complete. Much of the information gathered and created will become part of the operational license filing with FERC as well as the Final Design of the electrical – mechanical machinery. At the conclusion of the Feasibility Study the Towns will need to make a decision to proceed with the project or abandon it.

Phase 3 - Licensing and Permitting:

The Licensing and Permitting (Licensing) portion of the project is critical to a successful outcome as the terms and conditions issued with the License will be with the project for a 30 to 50 year period with limited opportunity to modify the conditions once issued. Of particular concern will be the development of the Final Environmental Assessment by FERC staff which will in addition to other issues speak to flows bypassing the powerhouse, fish passage, and recreational facilities all of which have a direct impact on the economic outcome of the project. In addition to the FERC Licensing efforts, a permit will need to be acquired from the US Army Corps of Engineers for any necessary dredging of the Farmington River under the 404 Permit program as well as the ConnDEP for a Water Quality Certificate under the EPA 401 Permit program. While it is

unlikely any permits or licenses (other than building permits) will be required to be obtained from the Towns as the project will be constructed on State lands, local regulatory agencies will need to be consulted as part of the Licensing and Permitting process and their comments incorporated into the project's Final Design.

Phase 4 – Final Design:

This Phase of the project will likely commence during the middle of the Licensing and Permitting portion of the project. This Phase will look at the detailed design and specification to create the contract documents consisting of the specifications and drawings necessary to construct the project. The outcome of the Licensing and Permitting will have a significant impact on the Final Design and may require several iterations before meeting the intent of the Licensing at the Federal and State level. Field surveys, subsurface investigations, and engineering design will be completed during this Phase so equipment may be bid as part of the construction process. Final Design shall also prepare documentation for the Historic American Engineering Record for submission to the US Department of the Interior.

Phase 5 – Bidding and Construction Contract Award:

This Phase of the project will commence upon the issue of the FERC License for power production. Public bids will be obtained by the Towns for the construction, modification, restoration, and installation of the Civil Works components of the project. This is the last practical opportunity for the Towns to look at the economics of the project and decide to “go” or “no go” to project completion. If the Towns decide to proceed, then short and long term bonding or other financing will be put in place and the contract will be awarded to the responsible low bidder.

Due to the long lead time for the manufacture and installation of mechanical equipment such as the fish ladders, flashboards, controls, generators, turbines, etc. this equipment may be acquired under separate bids and awards.

Phase 6 – Construction:

During this Phase, the selected contractor and mechanical equipment suppliers shall construct and install the necessary civil works and equipment to allow the project to generate hydroelectric power. The work shall proceed under the oversight of the consulting engineering firm to insure that the optimum outcome is obtained.

Phase 7 – Commissioning:

The civil works and the mechanical equipment are tested and calibrated to obtain the maximum power output for a given head and water flow in the system. Operations and maintenance manuals are prepared and operating personnel are instructed in the proper use of the equipment. The consulting engineer provides oversight and certifies the project meets design standards. The warranty period begins.

Phase 8 – Operation:

The operating personnel generate hydroelectric power and maintain the plant. The consulting engineering firm makes periodic visits to the plant to insure that operations and maintenance of the facilities meet design intent and the manufacturers' recommendations or warranty requirements.

C. Funding:

The project is not funded at this time. The Towns are in the process of making an application for funding to the Connecticut Clean Energy Fund for Phase 1. It is the purpose of the RFQ to obtain the necessary cost information to apply for the necessary funding to complete Phase 1.

It is anticipated that later Phases of the project will be funded by a combination of local funds, grants and/or loans from State and Federal Agencies and/or other funding sources.

D. Selection Committee:

The Chief Administrative Officer will appoint a Selection Committee to review the information received from the consultant engineering firms from the RFQ, rate and rank firms, conduct interviews, negotiate fees, and to make a recommendation to the Chief Administrative Officer which firm is best qualified to prepare the Pre-Feasibility Study for final decision and appointment of the project engineering consultant.

E. Temporary Hydro Power Study Committee:

The Temporary Hydro Power Study Committee (Committee) has been tasked by the Canton Board of Selectmen to oversee and co-operatively work with the selected engineering consultant firm during the Pre-Feasibility Study (Study). The consultant engineering firm shall report directly to the Committee and be under its direction and control in matters concerning the Study.

F. Requirements of the Pre-Feasibility Study:

The Preliminary Scope of Services outlines the minimum requirements that are anticipated to be required of the selected consultant engineering firm (Engineer) to successfully complete Phase 1 – Pre-Feasibility Study (Study).

It is the intent of the Town to retain the services of the Engineer for the life of the project assuming the various Phases are funded and the Engineer performs in a satisfactory manner the tasks assigned. While retaining the Engineer through the various Phases of the project is a desirable outcome for a number of reasons, it is in no way guaranteed or warranted that such will happen.

It is assumed that the selected Engineer will work with the Selection Committee in the development of the various items in the Final Scope of Services that will become the Study deliverables.

It is the intent of Phase 1 to provide the Towns with the necessary information to make an informed “go” “no go” decision to proceed to Phase 2 – Feasibility Study.

It is assumed that the Engineer may not have all the disciplines required for the Study in its direct employment and that outside consultants may be required for various parts of the Study. In the event that the Engineer will need to engage the services of outside consultants, the outside consultants shall be listed in the information supplied to the Selection Committee by way of the RFQ process. If the outside consultants change during the Study, the Engineer shall immediately bring this to the Temporary Hydro Power Study Committee’s attention for its consideration and approval.

The Engineer shall provide the following minimum consulting services in support of Phase 1 of the project:

Physical Evaluation of Civil Works:

1. Conduct a reconnaissance survey of the existing Civil Works that consist of the dams, flow control gates, power canals, gate house, headworks, powerhouses, and tailworks for the Upper and Lower Collins Company Dams. The reconnaissance survey will verify general dimensions of the Civil Works such that preliminary designs, equipment layouts, and preliminary cost estimates may be undertaken with a high degree of confidence.
2. Verify available head at the Upper and Lower Dam powerhouse for purposes of preliminary design and power computations.
3. Conduct a condition review of the existing Civil Works for the purposes of preliminary design and construction cost estimating and report on same.

Hydraulics and Hydrology:

1. Review the available USGS gage station records for the Farmington River at Unionville No. 01188090 and the USGS gage station records for the Farmington River at Collinsville No. 01187980 to develop a flow duration curve. The flow duration curve developed should reflect the anticipated flows that will be required to by-pass the turbines to provide river flow between the downstream face of the dams and the tailraces, provide water to the @Collinsville Company, and provide water for fish passage.
2. Determine anticipated long term changes to the flow of the Farmington River due to climate change and withdrawals by the Metropolitan District Commission of Hartford, CT for the service life of the project and impact on power generation and project

economics. Prepare a flow duration curve reflecting the anticipated changes to Farmington River flow.

3. Review USGS and US Army Corps of Engineers flood data for the Farmington River and the potential impact on the project. The review should address the impacts of the 10, 25, 50, 100, and 500 year return flood frequencies on the existing and proposed Civil Works along with the potential financial impacts on the project.

Historic Properties:

The Engineer shall review the Upper and Lower Collins Company Dams for potential documentation and inclusion into the Historic American Engineering Record of the US Department of the Interior. The cost of the preparation of the documentation as well as the impact of the Secretary of the Interior's Standards shall be considered in the estimates for construction. Additional information may be found on the National Park Service's website at www.nps.gov.

Pre-Historic Site Screening:

Due to the proximity of the Upper and Lower Collins Company Dams to water and fishery resources that may have been utilized by pre-historic native Americans, the sites shall be screened for potential pre-historic materials such as arrow heads, fire sites, etc. If the screening indicates such materials do or may exist on the project site, a budget shall be developed for the identification and preservation of such materials.

Technology – Equipment Evaluation:

1. Assess existing turbine generator systems that may be utilized at the Upper and Lower Collins Company Dams with or without the utilization of the existing powerhouses.
2. Provide an overview of the systems that are commercially available to generate power with the advantages and disadvantages, relative costs, output efficiency, and applicability to the sites.
3. Make a recommendation for the most appropriate generation system for each dam, provide the reasons for the recommendation, and specific equipment information and potential costs.

Consultation with Regulatory and Non-Regulatory Authorities:

During the preparation of the Study, the Engineer shall document consultation with Regulatory Authorities such as the US Fish & Wildlife Service, ConnDEP, US Army Corps of Engineers, State Historical Officer, FERC, USGS, NOAA, State Building Official, Local Building Official, Local Zoning Officer, etc.

Environmental Assessment:

1. Based upon a review of prior FERC applications for the Dams and the consultant's experience provide an assessment of the potential environmental impacts that will need to be mitigated for project licensing. These will likely include fish passage, minimum by pass flows in the River, protected & endangered species, and recreational facilities.
2. Develop potential options for fish passage, up and downstream, that will be the minimum acceptable for FERC licensing.
3. Develop economic impact on the project to mitigate anticipated environmental impacts.
4. Review and report upon the Wild and Scenic Farmington River Study and its potential impact on the project if adopted. Review legislative background of the Farmington River Wild and Scenic Study and the flaw in the existing Study authorization.
5. Develop a concept educational program and cost estimate as part of operation & maintenance of the project for hydroelectric power as generated by the Collins Company at the Upper and Lower Collins Company Dams.
6. Determine the impact of the restoration of the traditional impoundment areas by the installation of flashboards at the Upper and Lower Collins Company Dams to achieve historical heads for hydropower operations.

Preliminary Design Concept:

1. Develop a preliminary design concept for the Upper and Lower Collins Company Dams utilizing the most appropriate technology identified in the Study. The design shall be utilized to prepare the economic analysis for the project. The designs should maximize power generation and minimize operation and maintenance. To the extent practical the powerhouses should run automatically with a minimal operator attendance.

Economic Analysis:

1. Prepare a construction cost estimate of the proposed Civil Works required to produce hydroelectric power at the Upper and Lower Collins Company Dams. The cost estimate should address the turbine generator sets, flashboards, trash racks, gates, dam repairs, power canal repairs, insurance, automatic trash rack cleaners, powerhouse repairs, construction of access roads, construction of recreational facilities, installation of controls, connection to the Connecticut Light and Power Company power lines, transformers, switch gear, station power, lighting, controls, fish passage, and remote monitoring, etc.

2. Prepare a cost estimate for the operation and maintenance of the projects. This should include all occupancy costs including removal and disposal of debris collected at the dams and powerhouses.
3. Investigate and report on potential State & Federal grants, low interest loans, renewable energy credits, carbon offset trading, and other such programs as may benefit the project.
4. Prepare a life cycle cost analysis based upon the total projected construction cost, annual revenue, and operation & maintenance costs.
5. Prepare a sensitivity analysis of project return on investment based on an anticipated range of energy sales and costs to ISO-NE.
6. Provide an evaluation of possible project development and ownership options. It should be recognized that the existing land and civil works are owned by the State. The Towns will be able to construct and install the hydroelectric works under a license agreement with the State.

Permitting and Licensing:

1. Provide information on all anticipated Local, State, and Federal licensing and permitting that will be likely to be required to construct and operate the project.

Low Impact Hydropower Certification Program

1. Provide an analysis on the costs and benefits of Low Impact Hydropower certification by the Low Impact Hydropower Institute of Portland, Me.
2. Determine at what point an application should be made for Low Impact Hydropower certification to allow participation in the Connecticut Clean Energy Fund.
3. Research if other programs for "Green" energy certification are available and the costs and benefits to participate in the program. Are these programs recognized by the Connecticut Clean Energy Fund as meeting the requirements for Low Impact Hydropower required by Connecticut Public Act No. 07-242?

Report:

The Engineer shall prepare a minimum of ten copies of the final Phase 1 – Pre-Feasibility Study (Report) for the Committee in addition to an Adobe PDF electronic copy. The Report shall include an appendix with all information as may be developed in support of the Study.

The Engineer shall present the final Report to the Committee and the Board of Selectmen. The Engineer shall be prepared to respond to questions of the Committee, the Board of Selectmen, and interested citizens.

The Report shall provide the best judgment of the Engineer in regards its recommendation to proceed or not to proceed to a full Feasibility Study.

G. Ownership of Documents:

Any and all documents, records, sketches, drawings, models, renderings, field notes, and other such things prepared by or received by the Engineer for the project shall become the property of the Town of Canton. All such information shall be inventoried, indexed, and packaged for permanent storage in cardboard “bankers” boxes or if oversized maps or drawings, in cardboard tubes sealed with plastic caps on both ends. The outside of the boxes or tubes shall be labeled “Canton Hydroelectric Project” and numbered to reflect the inventory. The boxes and tubes shall be turned over to the Canton Town Engineer before final payment for services for Phase 1 – Pre-Feasibility Study.

H. Professional Licensing and Credentials:

The Engineer’s design team shall have personnel and outside consultants (if any) that demonstrate the following:

1. Current license to practice as a Professional Engineer in the State of Connecticut with degrees in Civil Engineering, Mechanical Engineering, and Electrical Engineering with a minimum of five (5) years of Connecticut experience.
2. Current license to practice Architecture in the State of Connecticut with a minimum of five (5) years of Connecticut experience.
3. Current license to practice Landscape Architecture in the State of Connecticut with a minimum of five (5) years of Connecticut experience.
4. Current license to practice Land Surveying in the State of Connecticut with a minimum of five (5) years of Connecticut experience.
5. Economist recognized by Board Certification with a minimum of five (5) years of Connecticut experience.
6. Historic consultant recognized by Board Certification with a minimum of five (5) years of Connecticut experience.
7. Soil Scientist, for Federal and Connecticut wetland delineation, recognized by Board Certification with a minimum of five (5) years of Connecticut experience.

8. Fresh Water Fisheries Scientist recognized by Board Certification with a minimum of five (5) years of Connecticut experience.

9. Biologist recognized by Board Certification with a minimum of five (5) years of Connecticut experience.

Other design professionals on the Engineer's design team shall be licensed to practice in the State of Connecticut or be Board Certified in their specialty by a recognized authority.

Certifications of the Engineer as a Small Business Enterprise, Woman Business Enterprise, Minority Business Enterprise, etc. while not required is desirable to aid the Town's outreach goals.

I. Minimum Submission Requirements:

The following minimum information shall be submitted in an original and ten (10) copies to the Canton Chief Administrative Officer:

1. Letter of Interest
2. Evidence of license or certification as required above for individuals and corporations
3. A notarized statement that the Engineer and its outside consultants (if any) has or will be able to obtain, as a condition of contract, the following insurance in the minimum amounts noted:
 - a. Automotive and Truck Public Liability, Bodily Injury, and Property Damage Insurance in the amount of \$1,000,000.
 - b. Commercial and Contractual General Liability Insurance in the amount of \$1,000,000.
 - c. Workmen's Compensation Insurance as may be required by Connecticut Law.
 - d. Professional Liability Insurance in the amount of \$500,000.
 - e. Umbrella Insurance in the amount of \$1,000,000
 - f. Professional Papers Insurance in the amount of \$50,000.

The Town of Canton shall be named as additional insured on a., b., & e.

Each insurance policy shall have a provision that the insurance company shall agree to investigate and defend the insured against all claims, even if groundless.

The issuing insurance company shall provide the Town of Canton a thirty (30) day written notice of cancellation or material change in the issued policy.

4. A notarized statement shall be provided by the Engineer and its outside consultants (if any) that they shall provide audit information, equal employment opportunity certifications, open their records for review of the grant agency, provide anti-kick back certification, and such other information as may be required to meet the requirements of the State or Federal government regarding contract monitoring of a professional services contract with the Town of Canton.

5. A notarized statement that the Engineer and its outside consultants (if any) shall be bound by the Town of Canton's Code of Ethics. The full text of the Town's Code of Ethics may be found on the Town's website at www.townofcantonct.org.

6. The Engineer may submit such other additional information as may allow the Selection Committee to make a fair judgment of the experience and abilities of the Engineer and its outside consultants (if any).

J. Start and Duration of the Work:

The Engineer is advised that the Work is anticipated to commence upon receipt of the grant award from the Connecticut Clean Energy Fund and the execution of a contract for the services associated with Phase 1 – Pre-Feasibility Study. The Engineer should be in a position to staff the project and immediately proceed with the Work. Unless a different completion date is agreed to in the contract, the Engineer shall complete the Work associated with Phase 1 within forty-five (45) calendar days of the execution of the contract.

K. Engineer Selection Process:

The following process shall be utilized for the selection of the Engineer. It is the intent of this process to secure the services of a qualified Engineer. The Selection Committee reserves the right to reject any and all proposals and to make recommendations in the best interest of the Town of Canton.

1. The Engineer responds to the Legal Notice for Request for Qualifications.

2. The Engineer submits a letter of interest and other supporting documentation required by the Legal Notice and the Preliminary Scope of Services for Phase 1 by the closing date and time noted in the Legal Notice.

3. The Selection Committee creates a rating and ranking system and reviews the submitted materials. The Selection Committee develops a short list of Engineers based upon the rating and ranking system for interviews.

4. The Selection Committee develops a rating and ranking system for interviews and interviews the short list of Engineers. The Selection Committee refines the Preliminary Scope of Services based upon the interview process.

5. The Selection Committee calls back the top rated and ranked Engineer for detailed refinement of the Preliminary Scope of Services to create a Final Scope of Services. The Selection Committee and the Engineer conduct negotiations for professional fees for the Final Scope of Services. If the Selection Committee and the Engineer can reach a mutually agreeable position on the Final Scope of Services and professional fees that concludes the negotiations.

6. If the top rated and ranked Engineer and the Selection Committee fail to reach a mutually agreeable position on the Final Scope of Services and professional fees, the process starts over again with the second rated and ranked Engineer and so on until an Engineer is engaged or the Selection Committee re-advertises the RFQ.

7. At the conclusion of mutually agreeable negotiations for Final Scope of Services and professional fees, the Selection Committee makes a positive recommendation to the Chief Administrative Officer to engage the services of the Engineer. If the selection is agreeable with the Chief Administrative Officer, a contract between the parties will be executed.

8. The Engineer proceeds with the Work under the supervision and oversight of the Temporary Hydro Power Committee to the conclusion of Phase 1.

L. Guidance Documents:

The Engineer is advised that the Selection Committee shall use the following as guidance during the selection process:

1. Town of Canton, CT Bidding and Purchasing Policies
2. American Society of Civil Engineers "Consulting Engineering A Guide for the Engagement of Engineering Services"
3. Institute for Municipal Engineering "Selection and Use of Engineering and Architectural Consultants"
4. Connecticut QBS Council "Qualifications Based Selection of Design Professionals - A Guide for Project Owners"

M. Continuing Services:

While it is the stated intent of the Town of Canton to retain the services of the selected Engineer to the completion of the project, it is conditioned upon successful completion of assignments within budget and on time, availability of funding, and mutually

agreeable negotiation of a Scope of Services and professional fee for the each of the various Phases of the project.