

**TOWN OF NEWMARKET, NEW HAMPSHIRE  
REQUEST FOR PROPOSALS**

**PROFESSIONAL ENGINEERING SERVICES**

**Analysis of Options to Meet Discharge Capacity Requirements  
Macallen Dam, Newmarket, NH**

**A. Request for Proposals (RFP)**

The Town of Newmarket, NH (Newmarket) is requesting Proposals from professional engineering firms to conduct an analysis of the Macallen Dam to determine what modifications are necessary for the dam to meet the NH DES Dam Bureau's Discharge Capacity requirements under Section Env-Wr 303.12 of the New Hampshire Code of Administrative Rules.

Firms will be asked to provide documentation on the following: firm profile, project understanding, project approach and schedule, project team and resumes, project related experience and references, firm performance, and rate structure. The Town anticipates reviewing qualifications and experience statements submitted in response to this RFP, and possibly inviting up to three (3) selected firms to interview for the project.

**B. Introduction**

The Macallen Dam was constructed in 1887 (NH DES Dam Bureau database). The dam is 27 feet tall and 150 feet wide. It is constructed of granite blocks, faced on the upstream side with concrete. A fish ladder was added to the dam along the westerly bank of the river (river-right) in the late 1960's. There is a functional, but aging, gate system (circa 1925) on the northeasterly side (river-left) of the dam. The Macallen Dam is the last dam (head-of-tide) on the Lamprey River before the river discharges into Great Bay. The water below the dam is tidal and brackish. The dam was originally constructed to provide hydropower to the adjacent mill buildings, which have been or are being redeveloped for residential and mixed-use development. The channels through the buildings that were designed to accommodate hydropower generation have been removed or blocked off. The dam is not considered a flood control dam; however, the gates are currently manually operated by Town of Newmarket personnel before and during flood events. The Macallen Dam has been owned by the Town of Newmarket since 2004. Routinely, the NH DES Dam Bureau inspects the dam and issues its findings to the Town in the form of Letters of Deficiency (LOD).

In May 2008 and May 2010, the Town received Letters of Deficiency (LOD) from the New Hampshire Department of Environmental Services (NHDES) Dam Safety Bureau, requesting the Town to evaluate and determine whether the spillway capacity on the Macallen Dam is adequate to safely pass the peak flow during the design flood. For a general perspective, the following provides a brief summary of recent studies and events, but should in no way be considered a

comprehensive list of all existing information. Much of the recent reports can be found online at the Town's website.

- 1) In 2010, Wright-Pierce (W-P) undertook an overall assessment of the Macallen Dam, which included a structural evaluation/inspection, a hydraulic and breach analysis and identified several potential dam modification alternatives to potentially bring the dam into compliance with the spillway capacity safety requirements. None of the proposed dam modifications were considered feasible or would materially improve the spillway capacity.  
See <http://www.newmarketnh.gov/macallen-dam-study-committee>.
- 2) Also, the Dam was been classified as a high hazard dam (Class C Structure) as a result of the W-P study.
- 3) According to the Dam Safety Bureau's regulations at Env-Wr 300. 11, the discharge capacity of a high hazard dam must be sufficient to safely pass 250 percent of the peak flow of a 100-year flood event with one foot of freeboard and no manual operations or the site specific inflow design flood (IDF).
- 4) W-P conducted further hydraulic analyses and determined that the IDF for the Macallen Dam was equivalent to the 100 year flood design flow of 10,259 cfs (cubic feet per second).
- 5) Based on the analysis, it was estimated the dam would be overtopped by 10.8 feet during the 100-year flood event.
- 6) A warrant article was passed in 2010, in parallel with the W-P work, which authorized work for a dam removal feasibility study.
- 7) A dam removal feasibility study was conducted by Gomez and Sullivan (GSE) to assess the feasibility of dam removal and potential impacts on the Macallen Dam impoundment. As part of this study, an updated hydraulic model was developed that utilized updated bathymetry along with existing information from the previous W-P study.
- 8) The Town is exploring its options to meet dam safety criteria and wants to be able to compare the costs and benefits of two (2) different approaches:

**Alternative 1 - Stability Analysis** - One of the options to meet the dam safety requirements is to conduct a stability analysis. In accordance with ENV-Wr 303.12, the owner may submit this analysis to the Dam Safety Bureau to assess if the dam is safe against sliding, overturning and erosion in the event of overtopping during the design event, which corresponds to the 100 year flood event for the Macallen Dam. This analysis must be conducted using the methods outlined in "Engineering Guidelines for Evaluation Hydropower Projects", published by the Federal Energy Regulatory Commission (FERC), Chapter 3

dated 2002 and Chapter 4, dated 1991. If the study determines that the dam is not stable, then the consultant would be asked to identify options to stabilize the dam in-place and identify the costs of implementing those stabilization measures, which would allow the Macallen Dam, and its impoundment, to remain in place without major spillway capacity modifications.

**Alternative 2 - Increasing the height of adjacent abutments** – The second option the Town wishes to investigate involves improvements which will increase the capacity of the dam in order to pass the 100 year flood flow, with one foot of freeboard without manual operations. This option would involve preliminary engineering and design and looking at the feasibility of increasing the elevation walls on the east and west side of the dam which would channel the 10,259 cfs flood flow over the 70 foot wide spillway. The study would be conducted in accordance with the criteria used to evaluate Alternative 1 above and include data to show that both the walls and the dam would support the hydraulic forces during the 100-year flood event.

- 9) This engineering and stability analysis should also include any existing portions of the dam that are to remain and/or be incorporated into either alternative, but focus on only what is necessary to meet safety standards with minimal modifications to the dam and hence cost to the Town. The intent of the RFP is to not have an exhaustive a review of all options that have already been determined to be infeasible or too costly to implement.

### **C. Engineering Services Required**

The professional engineering services anticipated to be required by the Town of Newmarket during the project, and addressed in this RFP, generally include but may not be limited to:

#### **Anticipated Tasks/ Scope of Work**

While the Consultant is encouraged to develop a scope that is appropriate for addressing the Town's desires, we anticipate the following tasks will be included in any scope at a minimum.

##### **Task 1. Project Kick-Off Meeting/Initial Consultation**

The selected Consultant will meet with the Town and the NH DES Dam Safety Bureau to review the project and develop an appropriate work plan to meet the Town's needs and those of the NH DES Dam Safety Bureau before initiating the analysis of options. The work plan will be prepared, reviewed and approved by the NH DES Dam Safety Bureau prior to the start of work.

##### **Task 2. Feasibility Analysis**

The Consultant will conduct one of the two engineering analysis for alternatives, or both, as requested by the Macallen Dam Study Committee, including reviewing background

material and assessing design parameters. The analysis(es) must be performed in accordance with all applicable state and federal dam safety guide lines. The attached plan shows limits of the study area and abutting buildings and related infrastructure.

**Task 3. Submit Summary Report to Town and NH DES**

The Consultant will prepare a summary report that describes the analysis findings, including a detailed description of methods, assumptions, calculations and results. The consultant should identify various alternatives and methods for overcoming any deficiencies that would need to be addressed to meet the NH DES Dam Safety Bureau requirements.

**Task 4. Preliminary Engineering and Design of Most Feasible Alternative**

The Consultant shall identify and provide preliminary design and engineering and order-of-magnitude cost estimates for implementing each of the alternatives identified, with a recommendation for the most feasible and cost-effective method of achieving the desired results.

**Task 5. Follow-Up Meeting**

Upon conclusion of the analysis(es), the Consultant will meet with the Town and the NH DES Dam Safety Bureau to review the study results and discuss any potential revisions and/or recommend any follow-up analyses that may be necessary to meet NH dam spillway discharge requirements.

**Task 6. Action Plan**

Following the completion of the analysis(es), the follow-up meeting and after consultation with the Macallen Dam Study Committee, the Consultant will prepare an Action Plan on the Town's behalf of the selected alternative for submission to the New Hampshire Department of Environmental Services (NHDES) Dam Safety Bureau. The plan will specify the actions to be taken to address the deficiencies and a proposed timeframe for undertaking the actions. The plan will provide justification for the proposed actions showing that it will bring the dam into compliance with applicable regulations; will not endanger life or property downstream; or cause environmental losses that are not reversible, and provide a reasonable time frame for implementation.

**D. Consultant Selection**

It is the Town's intent to select a Consultant based on the proposed scope of work, project team experience, and project costs. Consistent with the Town of Newmarket Purchasing Policy, adopted by the Newmarket Town Council on August 5, 2009, the procurement of these professional services shall be negotiated by the affected departments (Public Works and

Planning) in consultation with the Macallen Dam Study Committee on the basis of demonstrated competency and qualifications at fair and reasonable fees. The NH Department of Environmental Services (NH DES) Dam Safety Bureau will be consulted to ensure that the proposed scope is adequate to satisfy dam safety regulations and requirements.

- 1) Proposals will be submitted in a two envelope system. Proposals must be submitted in a separate sealed envelope plainly marked, "**Macallen Dam Analysis of Options Consulting Services**". Consultants are required to submit eight (8) original hard copies and one (1) electronic copy as a PDF of their "Non-Price Proposal" package. PDFs will be submitted on CD. Double-sided copies are appreciated. The package shall include:
  - a. Technical Proposal, not to exceed twenty (20) typed, single-spaced pages.
  - b. Statement of Qualifications and directly relevant work experience, not to exceed seven (7) pages. The consultant shall clearly identify a primary contact for their proposal and clearly provide that person's phone number and email address.
  - c. List of references who may be contacted on the consultant's qualifications and work experience, not to exceed one (1) page.
  - d. Curriculum vitae or resumes for project team members, not to exceed two (2) pages per team member; and not to exceed a total page limit of fifteen (15) pages for the entire project team. A lead project engineer shall be identified who will oversee all technical aspects of the work and who meets the requirements outlined in Env-Wr 403.03(a)(1).
  - e. Timeline to complete individual tasks outlined in the RFP. The timeline will be in GANTT format.

In a separate sealed envelope, only one (1) cost proposal shall be submitted. This envelope shall be clearly marked "**Macallen Dam Analysis of Options Cost Proposal**".

- 2) The proposals will be opened at the Newmarket Town Hall in the Town Council Chambers located at 186 Main Street, Newmarket, NH at 3:00 pm on October 1, 2015. Only the consulting services envelopes will be opened and the cost proposal envelopes will remain sealed.
- 3) The Macallen Dam Study Committee will evaluate the proposals based on the following criteria:
  - a. Experience of firm and assigned staff;

- b. Water resource and structural engineering and design experience;
  - c. Clarity, presentation and quality of proposal;
  - d. Experience and success in completing similar projects in New Hampshire;
  - e. Demonstration of implementing creative solutions to complex structural/dam engineering issues;
  - f. Availability of applicable insurance and bonding;
  - g. Financial capability; and
  - h. Current and anticipated workload.
- 4) The Macallen Dam Study Committee will review all proposals and rank them according to the criteria outlined in Section 3 above. The Macallen Dam Study Committee will determine the top finalists based upon a review and ranking process. These top ranking firms will be asked to interview with the Study Committee. Those firms invited to interview will ensure that the anticipated project managers, individuals responsible for public presentations, and sub-consultants (if applicable) for this project will be present during the interview.
  - 5) Following the interviews, the Macallen Dam Study Committee will open and evaluate the cost proposals. The Macallen Dam Study Committee will rank the consultants in order of preference for hiring, based on qualifications, the proposal content, the interview and price.
  - 6) After the ranking is completed, the Macallen Dam Study Committee will proceed with negotiations with the first ranked consultant. If negotiations are unsuccessful, the Macallen Dam Study Committee will contact the second ranked consultant and proceed with contract negotiations with that firm, and so on.
  - 7) Once the Macallen Dam Study Committee completes negotiations, it shall present its recommendations to the Town Council, which will authorize the signing of the contract with the selected consultant at the negotiated price.

**E. Anticipated Schedule**

The following schedule is planned for retaining engineering services:

Issue RFP:	September 1, 2015
Pre-proposal Meeting/Site Visit:	September 10, 2015 2:00 p.m.

Receive Proposals:	October 1, 2015
Interviews:	October 5 - 8, 2015
Select Firm:	October 15, 2015
Contract Award:	November 4, 2015 (Town Council meeting)

**F. Other**

This RFP does not commit the Town of Newmarket to pay any costs incurred by engineering firms in the submission or presentation of a qualifications package, or in making the necessary studies for the preparation thereof. By submitting to this RFP, you are authorizing the Town to request any relevant information or ask any questions in order to make an informed decision. You further agree to release the Town from any liability in the review of the firm’s qualifications and references.

If the Macallen Dam Study Committee feels, at any time, that a firm’s Proposal contains false or misleading statements, references, or any other matter which does not support a function, attribute, capability, or condition as stated by the firm or firms submitting, the submittal shall be rejected, regardless of the status or the phase of the selection process.

All work undertaken under this contract shall comply with applicable laws, regulations and standards as set forth by the State of New Hampshire Dam Safety Bureau and other Agencies.

**G. Reservation of Rights**

The Town reserves the right to undertake such investigations as it deems necessary to evaluate the qualifications of the firm and to evaluate the qualifications of individual team members submitted.

Firms may be requested to execute releases for information. Failure to provide a release upon request will result in disqualification.

The Town of Newmarket reserves the right to negotiate additional work including, but not limited to studies, design work, construction engineering services, and other related work.

The Town of Newmarket reserves the right to reject any or all statements of qualifications/proposals, to waive technical or legal deficiencies, and to accept any proposal that it may deem to be in the best Interest of the Town and to negotiate the terms and conditions of any proposal leading to execution of a contract.

**H. Pre-proposal Site Visit**

A brief pre-proposal presentation on the project will occur at the Newmarket Town Hall in the Council Chambers on Thursday, September 10, at 2:00 p.m. and will be immediately followed by a visit to the dam site. The dam is located in the center of town in Newmarket, NH, just downstream from the Veteran’s Bridge on Main Street (NH Route 108.) Parking is available in

back of the Library at the corner of Main and Elm Streets. The pre-proposal meeting and site visit is not mandatory.

**I. Questions**

Town of Newmarket staff will not respond to telephone questions about the RFP. Questions concerning this RFP must be received at the pre-proposal site meeting or in writing to Town of Newmarket (see mailing address below) by September 10, 2015. Questions may also be submitted via e-mail to Diane Hardy, [dhardy@newmarketnh.gov](mailto:dhardy@newmarketnh.gov) (Subject Line: Macallen Dam Analysis of Options RFP Questions) or by facsimile machine to (603) 659-8508 (Attention: Diane Hardy). The Town of Newmarket will post responses to all submitted questions at [www.newmarketnh.gov](http://www.newmarketnh.gov).

**H. Due Date**

All proposals must be titled "Lamprey River Macallen Dam Analysis of Options RFP" and received by **Tuesday, October 1, 2015 at 3:00 pm.**

Newmarket Town Hall  
Town Council Chambers  
186 Main Street  
Newmarket, NH 03857

Any proposals received after this specified time will not be considered. There will be a scheduled proposal opening immediately following the submittal of proposals.