



# COUNCIL of GOVERNMENTS CENTRAL NAUGATUCK VALLEY

49 Leavenworth Street, Suite 303, Waterbury, CT 06702 • 203-757-0535 • cogcnv.org

## Qualification Statement Submittal Form for Regulatory Dam Inspection Services and Other Dam Safety Related Engineering Services

Please save this document locally, fill in all applicable fields, and attach to your submittal e-mail.

### A. Company Contact Information:

|                 |                           |                  |                             |
|-----------------|---------------------------|------------------|-----------------------------|
| Company Name:   | Milone & MacBroom, Inc.   |                  |                             |
| Street Address: | 99 Realty Drive           | City:            | Cheshire                    |
|                 |                           | State:           | CT                          |
|                 |                           | Zip Code:        | 06410                       |
|                 |                           | Phone:           | 203-271-1773                |
|                 |                           | E-Mail:          | davem@miloneandmacbroom.com |
| Web Address:    | www.miloneandmacbroom.com | Primary Contact: | David Murphy, P.E., CFM     |

Is this company registered to practice as a Professional Engineering Corporation in the State of Connecticut?  YES  NO

CT Registration#: JPC.0000074

### B. Company Description:

Milone & MacBroom, Inc. is a privately-owned multidisciplinary firm that has been offering consulting services in water resource and civil engineering, environmental science, landscape architecture, transportation engineering, community planning, land surveying, and construction inspection since 1984. Our firm supports a staff of approximately 135 people, representing previous employment in government, academia, and private industry, as well as professional experience in the various design disciplines.

Dam safety has been one of the cornerstone services of the firm since it was founded. Our firm credentials include licensed professional engineers and scientists with extensive experience in dam safety, dam inspection, dam repair, and dam removal as well as hydrology and hydraulic modeling, civil engineering, and structural engineering. For 30 years, we have been working with private landowners, municipalities, county and regional planning agencies, state and federal government, and non-profit organizations conducting an array of dam-related water resources projects throughout New England, the eastern seaboard, and the Midwest. Dam-related services typically fall within three broad categories, all of which include dam inspections:

**Dam Repair** - We have designed and supervised the repair of many dams over the years, with the most recent repair completed in 2014 for the Manchester Water Department. Services in this category include dam inspection, survey, hydrologic and hydraulic studies, design of repairs, preparation of specifications and plans, bid assistance, and construction observation.

**Dam Safety and Emergency Action Planning** - The firm is on the forefront in working with the State of Connecticut on implementation of its new dam safety legislation. We have recently completed eight Emergency Action Plans (EAPs), formerly known as Emergency Operations Plans, to assist the Connecticut Department of Energy and Environmental Protection (DEEP) with drafting new regulations and guidance. Services in this category include dam inspection, dam breach analysis, hydrologic and hydraulic modeling to delineate detailed inundation areas, and development of EAPs that can be easily used by community emergency management officials.

**Dam Removal** - The firm has been a leader in dam removal feasibility study and design long before many other firms, and we continue to provide this expertise to a variety of clients. Services in this category include dam inspection, sediment testing, hydraulic modeling, preparation of plans and specifications, and construction (dam removal) observation. For example, we are currently overseeing the construction of a bypass channel for the Tingue Dam on the Naugatuck River.

## C. Staff Information

For key staff members that may be assigned dam safety related tasks, please provide the following information. For each staff member listed, attach a current resume to the submittal e-mail.

|                 |  |                             |  |
|-----------------|--|-----------------------------|--|
| Staff 1 Name:   | Edward A. Hart, P.E.                               | Title:                      | Department Manager                                     |
| Primary Duties: | Oversees dam inspection and dam repair contri<br>+ | Connecticut P.E. License #: | 0015502  |
|                 |  | Relevant Years Experience:  | 32 Resume Attached <input checked="" type="checkbox"/> |
| Staff 2 Name:   | W. Andrew Greene, P.E.                             | Title:                      | Senior Project Manager, Water Resources Engineering    |
| Primary Duties: | Manages and conducts dam inspections.              | Connecticut P.E. License #: | 19408  |
|                 |  | Relevant Years Experience:  | 23 Resume Attached <input checked="" type="checkbox"/> |
| Staff 3 Name:   | David Murphy, P.E., CFM                            | Title:                      | Senior Project Manager, Water Resources Engineering    |
| Primary Duties: | Manages dam failure analysis, inundation mapp<br>+ | Connecticut P.E. License #: | 22876  |
|                 |  | Relevant Years Experience:  | 22 Resume Attached <input checked="" type="checkbox"/> |
| Staff 4 Name:   | Roy Schiff, P.E., Ph.D.                            | Title:                      | Senior Project Manager, Water Resources Engineering    |
| Primary Duties: | Manages and conducts dam breach modeling           | Connecticut P.E. License #: |  |
|                 |  | Relevant Years Experience:  | 14 Resume Attached <input checked="" type="checkbox"/> |
| Staff 5 Name:   | Elsa Loehmann, P.E.                                | Title:                      | Project Engineer, Water Resources                      |
| Primary Duties: | Conducts dam inspections; manages dam remo<br>+    | Connecticut P.E. License #: | 0028475  |
|                 |  | Relevant Years Experience:  | 14 Resume Attached <input checked="" type="checkbox"/> |

## D. Services:

Please check the box next to any service your firm is qualified to undertake and interested in providing. If your firm offers other specialized dam-related services, please list them in the space provided. In following sections you will be asked to explain qualifications and provide examples of previous work and references for each service you check or list.

|  |  |   |
|--|--|---|
| Dam Inspection <input checked="" type="checkbox"/>                                 | Inundation Modeling and Mapping <input checked="" type="checkbox"/>        | Other Specialized Dam Safety Related Services:<br>Incorporation of dam safety information and Emergency Action Plans into municipal hazard mitigation plans and other emergency response and planning documents; Water supply planning and water system emergency response planning; Modifications to comply with Connecticut's Streamflow Standards and Regulations. |
| Dam Emergency Action Plan Preparation <input checked="" type="checkbox"/>          | Hydrologic and Hydraulic Studies <input checked="" type="checkbox"/>       |   |
| Dam Operations and Management Plan Preparation <input checked="" type="checkbox"/> | Stability Analysis <input checked="" type="checkbox"/>                     |   |
| Dam Repair Plan Preparation <input checked="" type="checkbox"/>                    | Underwater Investigation <input type="checkbox"/>                          |   |
| Dam Removal Plan Preparation <input checked="" type="checkbox"/>                   | Dam Repair and Construction Monitoring <input checked="" type="checkbox"/> |   |

## E. Qualifications:

Please explain your firm's qualifications for each service checked or listed in section D.

Milone & MacBroom is on the forefront in working with the State of Connecticut on implementation of the new dam safety legislation passed in 2013. We were responsible for describing this legislation in the Connecticut Hazard Mitigation Plan, approved by FEMA and adopted in January 2014; and we routinely describe the legislation in local hazard mitigation plans. We have recently completed eight Emergency Action Plans (EAPs), formerly known as Emergency Operations Plans, to assist the Connecticut Department of Energy and Environmental Protection (DEEP) with drafting new regulations and guidance. Individual services are described below.

**Dam Inspection** - Milone & MacBroom's personnel have conducted hundreds of dam inspections in numerous states for clients that are interested in dam repairs, dam removals, development of Emergency Action Plans (EAPs), or simply to understand the status of a dam. We have utilized inspection forms provided by regulatory agencies, as well as our own inspection forms. We have inspected all parts of dams including embankments, spillways, inlet and outlet structures, and downstream channels. We check vegetation and look for evidence of scour, animal burrows, cracks, etc.

**Dam Emergency Action Plan Preparation** - Milone & MacBroom has conducted dam failure analysis and prepared EAPs for a diverse group of clients ranging from non-profit organizations and municipalities to dam owners and operators. Our in-house staff have used HEC-RAS and dam breach analysis programs to conduct failure analysis to prepare inundation mapping and support EAPs. When possible, we link EAPs to community hazard mitigation planning to ensure that local emergency management directors understand how emergency action plans can be used to protect people and property in dam failure inundation areas.

**Dam Operations and Management Plan Preparation** - We typically work with clients to prepare operations and management plans for specific purposes, for example working with water utilities to ensure that their water supply dams are maintained and managed appropriately. Sometimes we develop operations and management plans in connection with dam repairs or EAPs.

**Dam Repair Design and Plan Preparation** - Milone & MacBroom has extensive experience in the planning, design, and construction of improvements for dams consisting of earth, masonry, and concrete structures. Our in-house staff includes the necessary civil and structural engineers. Typical improvements include seepage control, spillway capacity increases, concrete and masonry repair, erosion control, gate house repairs, and blow-off improvements. Our staff also has experience in procuring the necessary permits, preparing cost estimates, and providing construction administration and inspection services.

**Dam Removal Design and Plan Preparation** - Milone & MacBroom has unique experience in the area of dam removal and modifications and has been involved in over 50 projects in over ten states with the completed removal of nearly 25 dams. Our staff have conducted feasibility analyses and dam removal and fish passage studies, created preliminary and final designs, and provided construction administration services during the dam removal. We have aided the removal of concrete, masonry, earth, and timber dams for safety, fish passage, habitat improvements, and river restoration. Staff members are frequently invited to speak at regional and national conferences ranging from specific case studies to general river restoration techniques. The firm has planned and designed fish ladders and bypass channels around dams, as well as fish passage ramps at dams that must remain in place. The firm is a recipient of the "Outstanding Organization Award" from the Southern New England Chapter of the American Fisheries Society in recognition of our commitment to restoring fishery resources.

**Inundation Modeling and Mapping** - We typically conduct inundation modeling and mapping using HEC-RAS and other programs for the support of EAPs, although inundation modeling and mapping have also been conducted in support of dam repair and dam removal designs and regulatory permitting. The firm has several staff who are well versed in the use of HEC-RAS for dam breach analysis and inundation mapping, and some have attended the Army Corps of Engineer training for dam breach analysis.

**Hydrologic and Hydraulic Studies** - Like the inundation modeling and mapping described above, we typically conduct hydrologic and hydraulic studies for the support of EAPs, although hydrologic and hydraulic studies have also been conducted in support of dam repair and dam removal designs and regulatory permitting. We have utilized probable maximum precipitation (PMP) analysis to develop the probable maximum flood (PMF) when designing spillway capacities or modeling dam breaches, and have analyzed stream gauge data to estimate the 1,000-year flood for dams that are not evaluated per the PMF.

**Stability Analysis** - Stability analysis is typically provided in connection with other services described here, such as dam repair or dam removal planning and designs. When necessary, we can subcontract boring contractors to collect subsurface information.

**Dam Repair and Construction Monitoring** - Milone & MacBroom routinely provides construction administration, observation, and/or inspection services for dam repair, dam construction, and dam removal projects. We recently completed inspection services for a dam repair in Manchester, and are currently providing limited inspection services for a bypass channel at the Tingue Dam on the Naugatuck River.

## F. Examples of Previous Work:

For each service checked or listed in section D, provide at least one comparable project completed by your firm within the past 10 years. Provide a brief description of the service rendered, the project name and location (Town and State), dam class, and a customer reference name and contact information (phone and/or e-mail)

| Service Provided   | Dam Name and Location                  | Dam Class | Customer Reference Name                         | Customer Reference E-mail/ Phone          |
|--|--|-----------|---|---|
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Stony Brook Reservoir, Montville       | B         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Deep River Reservoir, Colchester       | C         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Bog Meadow Reservoir, Norwich          | B         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Fairview Reservoir, Norwich            | C         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Taftville #1, Norwich                  | B         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Taftville #3, Norwich                  | B         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Occum, Norwich                         | BB        | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection, inundation modeling and mapping, and Emergency Action Plan | Greenville, Norwich                    | C         | Mark Decker<br>Norwich Public Utilities         | MarkDecker@npumail.com, 860-823-4168      |
| Dam inspection and Emergency Action Plan                                   | Mixville Dam, Cheshire                 | C         | Don Nolte, Cheshire Dept. of Public Works       | rdnolte@chshirect.org, 203-271-6650       |
| Dam inspection and Emergency Action Plan                                   | Lake Hitchcock Dam, Wolcott            | B         | Chet Sergey, Wolcott Emergency Mgmt. Dir.       | chet.sergey@snet.net                      |
| Dam inspection, dam repair plan preparation, and construction supervision  | Lydall Reservoir Dam, Manchester       | BB        | Scott Simard, Manchester Water Department       | ssimard@manchesterct.gov, 860-647-3115    |
| Dam inspection, dam repair plan preparation, and construction supervision  | Towantic Pond Dam, Oxford              | B         | John Sweeney, Masonic Health Care               | jsweeney@masonicare.org, 203-678-7503     |
| Dam inspection, dam repair plan preparation, and construction supervision  | Terry Pond Dam, Colebrook              | A         | Tom White                                       | 860-379-3346                              |
| Dam inspection, dam repair plan preparation, and construction supervision  | Sasco Pond Dam, Westport and Fairfield | BB        | Alicia Mozian, Town Conservation Director       | amozian@westportct.gov, 203-341-1089      |
| Dam inspection, dam repair plan preparation, and construction supervision  | Ravenswood Dam, Cheshire               | BB        | Dean Fiske                                      | 203-272-3574                              |
| Dam inspection, dam repair plan preparation, and construction supervision  | Wooster Pond Dam, Stratford            | A         | Brian Carey, Town Conservation Admin.           | bcarey@townofstratford.com, 203-385-4006  |
| Dam inspection, dam repair plan preparation, and construction supervision  | YMCA Camp Farnam Dam, Durham           | B         | Mike Doyle                                      | mfdoyle@aol.com                           |
| Dam inspection, dam removal plan preparation, and construction supervision | Tingue Dam, Seymour                    | BB        | Chuck Lee, CT Dept. of Energy & Env. Protection | charles.lee@ct.gov, 860-424-3716          |
| Dam inspection, dam removal plan preparation, and construction supervision | Pond Lily, New Haven                   | A         | John Champion, Connecticut Fund for Env.        | jchampion@ctenvironment.org, 203-787-0646 |
| Dam inspection, dam removal plan preparation, and construction supervision | Ed Bills Pond, East Lyme               | BB        | Sally Harold, The Nature Conservancy            | sharold@tnc.org, 203-226-4991             |