

**STATEMENT OF QUALIFICATIONS FOR  
PROFESSIONAL ENGINEERING SERVICES**  
PREPARED FOR THE  
**TOWN OF BARRINGTON, NH**

**QUANTUM CONSTRUCTION CONSULTANTS, LLC**

27 Locke Road, Concord, NH 03301

603-224-0859





# QUANTUM CONSTRUCTION CONSULTANTS, LLC

27 LOCKE ROAD, CONCORD, NH 03301 • WWW.QUANTUM-CC.COM • TEL: (603) 224-0859

February 1, 2020

Mr. Conner MacIver, Town Administrator  
333 Calef Highway  
PO Box 660  
Barrington, NH 03825

SUBJECT: Statement of Qualifications for Professional Engineering Services

Dear Mr. MacIver,

We at Quantum Construction Consultants, LLC (QCC) are thrilled to hear that the Town of Barrington is moving forward with plans to improve its infrastructure; congratulations on this step. In response to your request, we are pleased to offer this statement of qualifications for professional engineering services to the Town relating to its need to maintain the quality of life enjoyed by residents, and keep its essential services functioning. We cherish our clients and look forward to demonstrating how we will deliver streamlined services, from concept to completion.

Our goal for the municipal infrastructure mentioned in your request for qualifications is to create the most economical designs and strategies in the least amount of time. QCC's experience, resources, and commitment empower us to cater to municipalities and understand thoroughly how to partner with communities on Capital Improvement Projects (CIP) and be sensitive to financial constraints, particularly given our background with funding administration. As the current Engineers Of Record for the Town of Center Harbor, NH, we have a unique grasp on how to best work with New Hampshire's towns. Our team is proud to live and work in the Granite State, and welcomes opportunities to help keep our communities running.

We appreciate the opportunity to present this statement of qualifications to the Town of Barrington. If you have any questions, please do not hesitate to contact our office at (603) 224-0859.

Sincerely,

Anna Giraldi, PE  
Project Team Manager  
QUANTUM CONSTRUCTION CONSULTANTS, LLC



*Mallego Road, Barrington, NH*

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Quantum Construction Consultants, LLC (QCC) is a unique firm specializing in the infrastructure needs of municipalities. Located in Concord, NH, QCC also provides civil and structural engineering services to state and private clients throughout New England since 1999.

In addition to roadway infrastructure design, QCC is committed to providing quality engineering services including hydrologic and hydraulic analyses, drainage design, civil support services, structural design services, site design, environmental permitting and dam design services. QCC's engineering and design capabilities are complemented by our construction, engineering and administration services.

Our cross-trained staff empowers the QCC team as a whole to develop strong working relationships with towns, subconsultants, design review agents, and permitting authorities, while delivering high quality service on a diverse array of projects. QCC's key technical staff members are experienced in streamlining projects funded through a variety of means, including agencies such as the New Hampshire Department of Transportation (NHDOT), Federal Emergency Management Agency (FEMA), and Federal Highway Administration (FHWA).

QCC takes the responsibility as "keepers" of the project budget and schedule very seriously, and considers time and money to be the fourth and fifth dimension of design. We realize that in order to be truly successful, a project must work in every dimension.



## QCC'S CORPORATE VALUES

- **ETHICAL BUSINESS STANDARDS & PRACTICES**
- **INNOVATIVE, COST-EFFECTIVE SOLUTIONS**
- **TIMELY DELIVERABLES**
- **QUALITY DESIGN & PERFORMANCE**
- **WIN-WIN APPROACH WITH TOWNS, EMPLOYEES & AGENCIES**

QUANTUM CONSTRUCTION CONSULTANTS, LLC PRIDES ITSELF ON ITS STRONG  
REPUTATION FOR PRAGMATIC AND INNOVATIVE SOLUTIONS  
FOUNDED ON SOUND ENGINEERING PRINCIPALS.





**OUR REPRESENTATIVE MUNICIPAL CLIENT LIST INCLUDES:**

- ANTRIM
- JAFFREY
- EPPING
- DUBLIN
- TILTON
- LEE
- MERRIMACK
- NORTHFIELD
- RICHMOND
- WOLFEBORO
- DUMMER
- SALISBURY
- GOFFSTOWN
- PELHAM
- CENTER HARBOR
- SANBORNTON

**BUDGETING**

At critical project milestones - Conceptual, Preliminary and Final Design, QCC develops detailed construction cost estimates for the project based on New Hampshire Department of Transportation (NHDOT) Average Weighted Unit Prices and in-house historical construction cost data. Early in the project, QCC evaluates cost-benefit alternatives to determine the most cost effective appropriate design solutions. At each level of project development, the increased level of detail allows for project funding reconciliation prior to solicitation for construction bids. All of this information is presented to the Client and reviewed in detail prior to proceeding to the next design milestone.

**OUR TRACK RECORD**

QCC has a proven track record of working with municipalities dealing with infrastructure maintenance, asset management, and programming future capital improvements. We work with towns to develop project schedules that work within the confines of funding agencies and environmental permitting processes, while meeting the anticipated milestones of the town.

Our representative project experience section demonstrates our versatility and ability to react to the town's needs. We strongly recommend that you reach out to our references.



## QUALITY CONTROL

### *Planning*

In the Scoping/Conceptual Design phase, we coordinate the design approach with the Client to clearly define the project's scope and expected results. We continue to coordinate this effort through Preliminary and Final Design Phases and into the construction phase of the project. We maintain open lines of communication with you, the Client.

### *Implementation*

Once the project is clearly defined and agreed upon by all parties, only then does the project move into the design process. Project status reviews are held during each milestone along with scheduling and project cost review.

### *Quality Assurance*

QCC achieves quality assurance through the involvement of our qualified team members during all phases of your project, and in facilitating open lines of communication between the Client, QCC Design Team, Funding Sponsors, and Contractor.

## COST

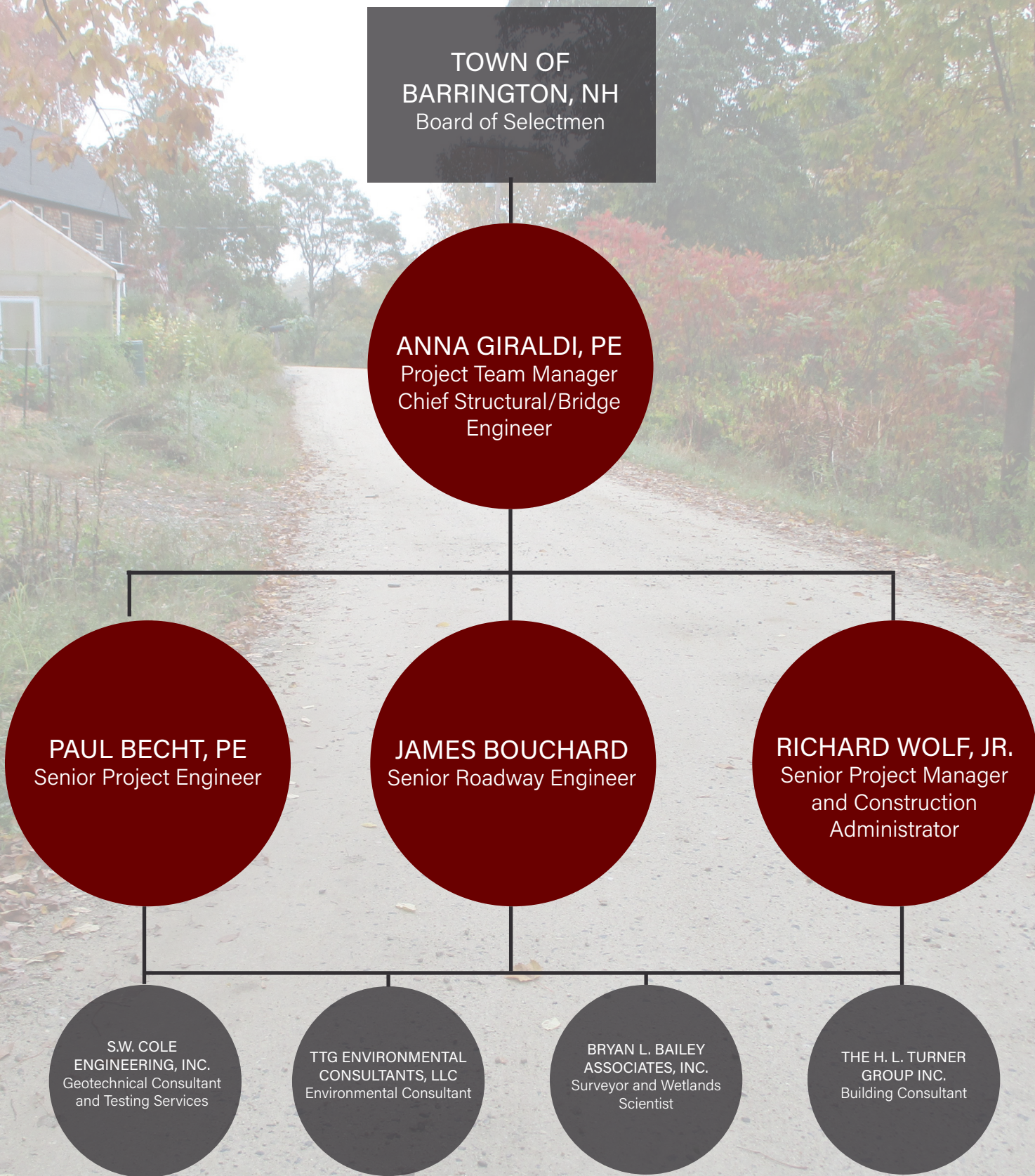
Cost control procedures begin with a thorough evaluation and preparation of the budget based upon market and site conditions.

Prior to beginning the Conceptual Design phase, the entire QCC project team is briefed on the project, the project budget, and schedule at an internal scoping session.

QCC monitors the work hours expended on the design of the project on a weekly basis and tracks the progress made towards each milestone.



# ORGANIZATIONAL CHART



**QUANTUM CONSTRUCTION CONSULTANTS, LLC PROPOSES TO UTILIZE THE FOLLOWING HIGHLY-QUALIFIED TEAM MEMBERS:**

**QUANTUM CONSTRUCTION CONSULTANTS, LLC OF CONCORD, NH**

Quantum Construction Consultants, LLC (QCC) will be the prime consultant responsible for project management, coordination with the Town, including the Planning Board, infrastructure engineering design services, bridge construction engineering and administration, and environmental permitting. QCC was originally formed in 1999 under the name Quantum Construction Company, LLC. The company name was changed to Quantum Construction Consultants, LLC in 2003, when QCC transitioned to infrastructure design and construction engineering services. QCC has also completed numerous Capital Improvement Plans (CIP) and designed multiple salt sheds for many municipalities. Several QCC staff are NHDOT LPA Certified.

**BRYAN L. BAILEY ASSOCIATES, INC OF GILFORD, NH**

Bryan L. Bailey Associates, Inc., (BBA) founded in 1978, will perform all wetland delineation, tree identification, topographical survey services, wetland permit application assistance, a cadastral and right-of-way research due to the site-specific information required for design and environmental permitting. QCC and BBA have developed municipal asset projects together successfully.

**S. W. COLE ENGINEERING, INC. OF SOMERSWORTH, NH**

S.W. Cole Engineering, Inc. (SWC), founded in 1979, will perform foundation investigations and geotechnical engineering services, if required. They also will undertake materials testing services during construction, including laboratory tests and field services for soil foundations, concrete construction, and steel fabrication, if needed. QCC has worked with SWC on numerous successful municipal roadway and bridge projects.

**TTG ENVIRONMENTAL CONSULTANTS, LLC OF CONCORD, NH**

QCC will utilize TTG Environmental Consultants, LLC (TEC) to evaluate and assist the Town of Barrington with their three dams. TEC is listed on the State of New Hampshire Department of Environmental Services' roster of prequalified consulting engineers for water supply including water treatment, pollution control and treatment, and water and sewer engineering. TEC was founded in 1999 and has undertaken many diverse dam projects throughout New England. QCC and TEC have teamed up and worked together on numerous successful projects and it is a professional relationship that is in-house which makes the design process streamlined.

**THE H. L. TURNER GROUP OF CONCORD, NH**

QCC will utilize The H.L. Turner Group, Inc. (TTG) for the Town of Barrington's municipal buildings. TTG has long and vast experience, since 1991, with many different kinds of buildings such as fire stations, police stations, schools, and libraries. This is an in-house relationship which makes the evaluation and design process smooth. QCC has worked with TTG on numerous successful projects.





Project Team Manager/Chief Structural/Bridge Engineer

**ANNA GIRALDI, PE**

AGIRALDI@QUANTUM-CC.COM

**PROFESSIONAL REGISTRATION**

NH #14411 Civil

**CERTIFICATION**

OSHA 10- hour card

**EDUCATION**

**Georgia Institute of Technology**  
*Civil Engineering*  
MS | 1992

**Georgia Institute of Technology**  
*Civil Engineering*  
BS | 1991

**CONTINUING EDUCATION**

- Precast and Prestressed Products•
- Element Level bridge Inspection, FHWA
- Accelerated Bridge Construction (ABC)

**EXPERIENCE**

Design and Construction | 25 years

**EXPERTISE**

- Bridge Design
- Bridge Rehabilitation
- Hydrologic and Hydraulic Studies
- Dam Rehabilitation
- Construction Inspection and Administration

**PREVIOUS EMPLOYMENT**

Quantum Construction Consultants, LLC  
2019- Present

Fuss & O' Neill  
2013-2019

Quantum Construction Consultants, LLC  
2005-2013

CLD Consulting Engineers, Inc.  
1997- 2005

State of New Hampshire, DOT  
1994-1995

**PROFESSIONAL PROFILE**

Ms. Giraldi has over 25 years of in-depth and diverse civil and structural engineering design and construction inspection/administration experience. Ms. Giraldi is knowledgeable in different bridge design phases such as bridge layout, grading, steel girder, precast/prestressed superstructures, various foundation, bridge rating, and cost estimation. She has bridge experience in New Hampshire and has also worked on several bridges and large culverts in Vermont, Maine and Massachusetts. Additionally, Ms.Giraldi has extensive experience in environmental permitting in New Hampshire.

**REPRESENTATIVE PROJECTS**

**SOUTH NEW BOSTON ROAD OVER PISCATAQUOG RIVER** | Francestown, NH  
Engineer performing the hydraulic analysis using HEC-RAS hydraulic modeling software, and the complete design of superstructure and substructures. The existing 43-foot steel girder bridge was replaced with an 85-foot span steel girder bridge on concrete integral abutments. Other services included wetlands permitting, cost estimating and utility coordination.

**CHARCOAL ROAD OVER CHARCOAL BROOK** | Dublin, NH  
Design and plan development for this bridge project involved replacing a 22-foot long jack arch bridge on cast-in-place concrete abutments. The new structure is a 70-foot span steel girder bridge on cast-in-place integral abutments.

**HIGH ROAD OVER NORTH RIVER** | Lee, NH  
Hydrology, hydraulics, bridge design, plan development, and environmental permitting to replace a steel I-beam bridge due to reoccurring flooding that had caused major roadway damage to the easterly approach. The existing bridge structure was a 31-foot span by 16-foot wide steel beam bridge with a corrugated metal deck founded on mortared stone masonry abutments. The new bridge is a 45-foot span precast/prestressed concrete butted deck beam bridge on cast-in-place footings.

**OLD NORTH BRANCH ROAD OVER NORTH BRANCH RIVER** | Antrim, NH  
Hydrology, hydraulics, bridge design, plan development, environmental permitting, and construction administration to replace a critically deficient steel I-beam bridge. Structural design of the bearing stiffeners, connection plates, cross frames, and camber for the 80-foot long replacement structure founded on cast-in-place concrete footings was performed.

**WHITE BIRCH POINT ROAD OVER GREAT BROOK** | Antrim, NH  
Design, plan development and construction administration of an emergency bridge replacement. Flooding in October 2005 caused failure of a municipal culvert and roadway just downstream of Gregg Lake Dam. The replacement bridge is a 20-foot precast concrete rigid frame bridge founded on concrete spread footings doweled into bedrock. A new alignment downstream of the existing pipe allowed for local use of the existing road during construction, as well as to accommodate proper hydraulic discharge from the dam spillway. The project required close coordination with the Town, NHDES, FEMA and NHDOT.

## **PEDESTRIAN BRIDGE OVER BABOOSIC BROOK, TWIN BRIDGE PARK** | Merrimack, NH

The project included hydrology, hydraulics, concrete footings design, plan preparation, environmental permitting, and construction administration services of a new single span, 70-foot, pre-engineered steel truss pedestrian bridge. The new bridge replaced a heavily damaged double concrete arch bridge that experienced severe undermining of its north abutment during the May 2006 flood, leaving no reasonable repair option. The new structure is founded on new concrete abutments located on the banks to provide greater waterway clearance and hydraulic capacity.

## **Fay Martin Road over Tully Brook** | Richmond, NH

Hydrology, wetlands permitting and design of abutments and wingwalls on spread footings for a 24-foot span precast concrete rigid frame.

## **Amherst Road over Unnamed Brook** | Merrimack, NH

Wetlands permitting, hydrology and hydraulic analysis, and construction administration for the replacement of four deteriorated culverts with a 10-foot wide by 6-foot tall precast box culvert with precast wingwalls.

## **DAM REHABILITATION**

### **Cummins Pond Dam** | Dorchester, NH

Design of repairs to the wood stoplog/stone masonry spillway, stone masonry training walls, an earthen dam to address leakage, seepage, sinkholes, and improve spillway capacity. The project included coordination with an adjacent hydroelectric project for a LEED-certified building and environmental permitting.

### **Knowles Pond Dam** | Northfield, NH

Design of improvements to the Knowles Pond Dam for the Knowles Pond Conservation Area included improving the downstream slopes of the earthen embankment dam and installing a toe drain to address dam stability seepage concerns. A new outlet pipe and emergency overflow channel were designed to increase the hydraulic capacity. The project also included environmental permitting and preparation of a Dam Operations Plan for the Town of Northfield.

### **Great Brook Cutler Shop Dam** | Antrim, NH

The Great Cutler Brook Shop Dam is a mortared fieldstone masonry dam, having a maximum height of 10 feet and an overall length of approximately 200 feet. Design of repairs addressed leakage, seepage, sinkholes, erosion of concrete piers and training wall, gate replacement, and improvements to address over topping of the dam. The project included coordination with adjacent bridge replacement project, water diversion plan, and preparation of a dam operations and maintenance plan.

## **BUILDING CONSTRUCTION & RENOVATIONS**

### **NH Department of Administrative Services, Division of Public Works Design & Construction** | NHDOT Salt Storage Buildings

Provided structural engineering services to assist the Division of Public Works with the design and construction of several salt storage buildings in different Towns. Construction administration services included the review of shop drawings, structural calculations, and material submittal.

### **NH Department of Administrative Services, Division of Public Works Design & Construction** | Legislative Office Building, Concord, NH

An evaluation and designs were prepared for repairs of the parking garage and west stairwell building access. The west stairwell interior finishes were damaged due to moisture intrusion. The cast-in-place concrete parking garage had settlement of the entrance and exit ramps, parapet wall coating failure, and drainage issues.

## **STORMWATER DESIGN**

### **Naticook Road Drainage Study** | Merrimack, NH

Performed hydrologic analyses to assist the Town in designing a new drainage system along Naticook Road. The drainage study area was approximately 65 acres of residential development on Naticook Road, plus three cul-de-sacs. The study area also included constructed drainage systems that gather and redirect flows.



# JAMES BOUCHARD

jbouchard@quantum-cc.com

## EDUCATION

**University of Maine**  
*Civil Engineering*  
BS | 1976

## CONTINUING EDUCATION

- FHWA UHPC Bridge Connections for Prefabricated Bridge Elements
- Project Management
- Water Supply & Treatment
- Water Utilization Policy
- Stormwater Management
- Traffic Calming Measures
- Transportation Planning
- Wastewater Treatment

## EXPERTISE

- Product Management
- Roadway Design
- Roadway Rehabilitation
- Roadway Assessment
- Drainage Studies
- Drainage Design
- Drainage Assessment
- Stormwater Treatment
- Bridge Design
- Hydrologic & Hydraulic Studies
- Municipal Wastewater Engineering
- Historic Masonry Bridges
- Site Development
- Construction Administration
- Client Development/ Project Management
- State and Federal Funding Procurement and Administration

## EXPERIENCE

Consulting & Construction  
40+ years

## CERTIFICATIONS

### NHDOT

- Local Public Agency (LPA) Parts 1 & 2
- Local Public Agency (LPA) Right-of-Way

### Maine DOT

- Local Project Administration

## PROFESSIONAL PROFILE

Mr. Bouchard has more than 40 years of engineering experience in the development and management of a diverse variety of projects related to the civil, transportation, and environmental disciplines. He has extensive experience in transportation research, planning and engineering; bridge planning and approach engineering; stormwater management studies and engineering; water supply, treatment, and distribution; wastewater collection and treatment including innovative and alternative systems; adaptive rehabilitation of buildings and lands; master planning for residential, educational, municipal and recreational facilities; site development and natural resource preservation and enhancement projects. In addition, Mr. Bouchard has assisted clients with the solicitation and administration of federal and state funding grant programs. He is responsible for all phases of marketing and client relationships, permit applications and approval acquisition, supervision of design teams, comprehensive engineering coordination, bid document and technical specification development, bid administration, construction administration, post-construction review and contract administration, including critical path scheduling from conceptualization of the project to construction administration.

## ROAD DESIGN

### **FOLLET ROAD** | Center Harbor, NH

Roadway and drainage improvements design, permitting and construction administration for municipal roadway. Project included in-place reclamation of pavements with additional crushed stone for increased structural integrity of the roadbed, and the hydraulic evaluations and replacement of seven culverts.

### **BEAN HILL ROAD** | Northfield, NH

Evaluation, design, permitting, and construction administration of 1.1 miles of roadway and drainage improvements. The project included pavement reclamation, gravel sub-base reinforcement, closed drainage systems with roadside drainage swales, and the application of an innovative pipe slip-lining in a large drainage culvert.

### **COLLEGE ROAD** | Center Harbor, NH

Evaluation, design, and construction administration for intersection realignment and short-term improvements for a local road intersecting US Route 3. The project reduced an excessively wide intersection apron in excess of 175 feet to standard design, realigned the intersection for improved turning movements, and provided new surface drainage facilities.

## ROAD MANAGEMENT PROGRAMS

### **ROADWAY CAPITAL IMPROVEMENT PLAN STUDY** | Center Harbor, NH

On the ground visual assessments of 17 miles of municipal roadways, evaluating surface deformations, subsurface degradation, traffic, drainage facilities, and local importance. The existing conditions data was incorporated into a proprietary roadway management program for the development of an existing conditions report. Categories of and budgets for roadway and drainage improvements were developed and assigned to the roadway segments. Roadways were prioritized for capital improvement planning. All phases of the study were coordinated with the Town so as to promote a working tool for the Town.

# JAMES BOUCHARD

## **GRAVEL ROAD CAPITAL IMPROVEMENT** | Northfield, NH

The Gravel Road CIP assisted the Town in evaluating 11 gravel-surfaced roads, and provided a planning tool for the Town's 10-year road program. Each road was evaluated for improvements, drainage, and widening; a project budget was developed to forecast funding requirements.

## **ROADWAY CAPITAL IMPROVEMENT PLANNING** | Northfield, NH

Evaluation, schematic program development, and project costs of five roadways for municipal capital improvement planning over a four-year period.

## **BRIDGES**

### **MCGAW BRIDGE ROAD OVER BABOOSIC BROOK** | Merrimack, NH

Design, permitting, and construction administration for replacement of a deteriorated jack arch bridge. The replacement structure is a 42-foot span steel beam bridge with an exposed concrete deck and stainless steel reinforcement. The concrete abutments are founded on bedrock. Due to its historic nature, the project demanded extensive coordination with cultural resource agencies for Section 106 mitigation.

### **WILLOW STREET OVER BEAVER BROOK** | Pelham, NH

Design, permitting, and construction administration for replacement of a 39-foot span steel beam bridge founded on stone masonry abutments. The roadway and bridge were constructed through a floodplain. The replacement structure was a 100-foot span steel girder bridge with integral abutments, founded on steel H-piles. Included widening roadway and sidewalks, and the extension of a 5-foot culvert. This project was located on prime wetlands home to rare and endangered species.

## **STORMWATER DESIGN AND TREATMENT**

### **ZION HILL DRAINAGE STUDY** | Northfield, NH

Hydrology and drainage analyses of a 70-acre watershed study; evaluation, engineering, and design of protective measures for a five-year Capital Improvements Program.

### **NATICOOK ROAD DRAINAGE STUDY** | Merrimack, NH

Hydrologic study of a 65-acre watershed area for a variety of storm intervals for development of collective treatment and outfall options for a 10-year Capital Improvements Program.

## **MUNICIPAL LAND USE ENGINEERING**

### **CROSS MILL VILLAGE** | Northfield, NH

Design reviews and construction observation for a 53-acre, 70-unit townhouse community, including on-site water supply, stormwater treatment, sanitary sewer extensions, roadways, and site development.

### **KLINE ROAD SUBDIVISION** | Center Harbor, NH

Design reviews for roadway realignment, drainage facilities, and R.O.W. impact minimizations to existing properties.

## **WATER SUPPLY DESIGN**

### **WATER TREATMENT SYSTEM, ROCKINGHAM COUNTY COMPLEX** | Brentwood, NH

New filtration and treatment including radon stripping, upgrade of water storage tank, and pipe network.

## **TRANSPORTATION PLANNING**

### **CITY PLAZA, HANNAFORD BROS., INC.** | Concord, NH

Traffic impact analysis and roadway improvements for 125,000-square-foot retail complex.

### **RIVER PLAZA, FPC, INC.** | Salem, NH

Traffic impact analysis, signal and roadway improvements for 55,000-square-foot shopping center.



Senior Project Manager/ Construction Administrator

**RICHARD WOLF, JR.**

RWOLF@QUANTUM-CC.COM

**EDUCATION**

**New Hampshire Technical Institute**  
*Architectural Engineering Technology*  
AS | 1992

**CERTIFICATIONS**

- NETTCP QA Technologist Certification #461
- Local Public Agency (LPA) Parts 1 & 2
- OSHA 10-Hour Card
- NHDOT 2-Day Construction Inspection Training

**EXPERIENCE**

**Design and Construction** | 30 years  
**Project Management** | 12 years

**EXPERTISE**

- Project Management
- Bridge Design & Construction
- Construction Administration
- Structural Observations
- Conditions Reports
- Building Construction
- Building Renovations
- IBC Special Inspections

**PREVIOUS EMPLOYMENT**

Quantum Construction Consultants, LLC  
2006-Present

The H.L. Turner Group Inc.  
1998-2006

SFC Engineering Partnership  
1992-1997

**PROFESSIONAL PROFILE**

Mr. Wolf has nearly 30 years of experience working on a variety of transportation, commercial, industrial, municipal and state projects. Projects have included new bridges and roadways, rehabilitation of bridges, new buildings, building renovations, and site work. Mr. Wolf has experience in working with a large variety of building materials. He has been responsible for the preparation of complete structural plans and contract documents. Mr. Wolf is proficient in project management and construction administration duties of buildings, site work, dams, bridges, roadways, and much more.

**PROFESSIONAL EXPERIENCE**

**DAM SAFETY AND HYDROELECTRIC PROJECTS**

**SLIDE BROOK DAM** | Benton, NH

Environmental permitting, preparation of design plans, and construction oversight of repairs to the existing concrete-capped stone masonry dam to address the unstable downstream training walls and instability of the pond embankments. The existing dam is an earthen embankment dam with a concrete core wall. The Glencliff Home currently draws nearly 30 percent of its electric power from the dam's hydroelectric system and uses water from the penstock to feed the campus fire protection system and laundry room. The project included improvements to raise the dam's concrete components, dredge the impoundments, and replace the unstable training walls and provide stabilization of the stream banks.

**Cummins Pond Dam** | Dorchester, NH

Design of repairs to the wood stop log/stone masonry spillway, stone masonry training walls, an earthen dam to address leakage, seepage, sinkholes, and improve spillway capacity. The project included close coordination with environmental permitting agencies, the New Hampshire Department of Environmental Services (NHDES) Dam Bureau, and the project geotechnical engineer.

**Gregg Lake Dam Capital Improvement Planning** | Antrim, NH

Coordination with the Town and NHDES Dam Bureau regarding the Letter of Deficiency issued for the dam. Performed existing document review, field observations, and development of a plan that identified deficiencies and maintenance items, prioritized repairs, provided photo documentation, and an opinion of construction cost of repairs, including related permitting and engineering costs.

**IBC STRUCTURAL SPECIAL INSPECTION AND CONDITION REPORTS**

**BLUEBIRD SELF STORAGE BUILDING NO.2** | Epping, NH

Provided review of design drawings and technical specifications for third-party construction observation services of the new 78,000 SF three-story climate-controlled storage building. Services included review of structural special inspection test results and reports, as well as inspection of structural components for compliance with project plans, specifications, and verification of quality assurance program implemented by the design professional per the requirements of the 2015 International Building Code (IBC). Coordinated closely with the Epping Code Enforcement Officer. Provided field observation reports and documentation of deficiencies.

## **EPPING REGIONAL HEALTH CENTER | Epping, NH**

Provided review of design drawings and technical specifications for third party construction observation services of the new 25,650 sf regional health center. Services included review of structural special inspection test results and inspection reports and inspection of structural components for compliance with project plans and specifications and verification of quality assurance program implemented by the design professional per the requirements of the 2009 IBC. Coordinated closely with the Epping Code Enforcement Officer. Provided field reports and documentation of deficiencies.

## **BUILDING CONSTRUCTION**

### **SALT STORAGE BUILDINGS | Department of Administrative Services | Division of Public Works | Franklin, Loudon, Belmont and Pinkham Notch, NH**

Provided structural engineering services associated with the design and construction of four NHDOT Salt Storage Buildings. Work for each building included assisting the DPW in preparing bid specifications, reviewing each site location and available data to determine structural design criteria per IBC, and review of the geotechnical reports. Construction administration services included the review of shop drawings, structural calculations, and material submittal. Site visits for construction observation were performed for each site to ensure buildings were constructed according to the project specifications and design drawings.

### **NH DOT PATROL SHED BUILDING | Department of Administrative Services | Division of Public Works | Colebrook & Dixville NH**

QCC assembled a project team and were the lead designer for a new highway maintenance facility to be utilized by the NHDOT. The 55'-0" x 70' 0" wood-framed structure will serve the NHDOT as an operation base to perform winter roadway maintenance in the area surrounding the Balsams Resort located in Colebrook, NH. The QCC team provided survey subdivision, full site and building design & services during the design progress.

## **BRIDGE PROJECTS & CONSTRUCTION ADMINISTRATION**

### **WILLOW STREET OVER BEAVER BROOK | Pelham, NH**

Replacement of a 39-foot span steel beam bridge originally constructed within a floodplain in 1955. The replacement structure is a 104-foot span steel beam superstructure with integral abutments consisting of cast-in-place concrete pile caps supported on steel H-piles and 12-foot travel lanes, 2-foot shoulders, and a 6-foot sidewalk for an out to out the width of 37.5 feet.

### **BEDFORD ROAD OVER BABOOSIC BROOK | Merrimack, NH**

A severely undersized and deteriorating 21-foot pipe arch bridge was replaced by a 90-foot span steel beam superstructure with integral abutments consisting of cast-in-place concrete pile caps supported on steel H-piles. The low point of the existing roadway was below the 50-year flood elevation and located approximately 375 feet west of the existing crossing. About 1,100 feet of Bedford Road was designed to be reconstructed and elevated to eliminate the over topping. A permanent steel sheet pile retaining wall with a concrete cap was designed to support the elevated roadway construction.

### **PLEASANT VALLEY ROAD OVER HEATH BROOK | Wolfeboro, NH**

Replacement of two heavily corroded and undermined corrugated metal pipe (CMP) arches constructed in 1960 that were located in designated prime wetlands. The replacement structure is a 25-foot span prestressed concrete deck slab founded on steel H-piles with a concrete pile cap and butterfly wingwalls. To protect the designated prime wetlands, the new road will have granite curbing to contain the runoff within the paved roadway. All of the roadway runoff in the vicinity of the bridge will be channeled to a stormwater treatment area off the site.

### **WEST STREET OVER GREAT BROOK | Antrim, NH**

Replacement of a 14-foot span corrugated aluminum box culvert structure installed in 1998. A pre-fabricated 7-foot wide pedestrian bridge installed immediately upstream of the existing bridge was relocated to another site in town as non-participatory work. The replacement structure is a 25-foot span prestressed concrete deck slab founded on steel H-piles with a concrete pile cap and butterfly wingwalls. This replacement structure handled the physical constraints of existing driveways located near the crossing and the existing stone wall constructed along the west side of Great Brook.



Senior Project Engineer

**PAUL BECHT, PE**

PBECHT@HLTURNER.COM

**PROFESSIONAL REGISTRATION**

Massachusetts #36059  
New Hampshire #5076  
Pennsylvania #PE037600R  
Rhode Island #8556  
Virginia #0402039095

**CERTIFICATION**

OSHA 10- hour card

**EDUCATION**

Tufts University  
*Structural Engineering*  
BSCE | 1973

ASDSO Course | 2010-Present

**PROFESSIONAL DEVELOPMENT**

American Society of Civil Engineer (ASCE)  
ANSI A92 Training- Aerial Work Platforms  
OSHA 10-Hour Training & Certification  
OSHA 29 CFR 1910.146  
Permit Required Confined Space Entry  
Structural Engineers of NH (SENH)

**EXPERTISE**

- Structural Design
- Building Assessment
- Project Management

**EXPERIENCE**

General: 40 + years

**PREVIOUS EMPLOYMENT**

Quantum Construction Consultants, LLC  
& The H.L. Turner Group Inc. | 2001 – Present

O.D. Hopkins Associates, Inc.  
1991 – 2001

Crandall Dry Dock Engineers, Inc.  
1976 – 1991

United Engineers & Constructors Inc.  
1973 – 1976

**PROFESSIONAL PROFILE**

Mr. Becht is a shared resource between QCC and The H.L. Turner Group; he has a wide range of experience designing structures utilizing various materials, such as reinforced concrete, structural steel, timber, aluminum, and stainless steel. Mr. Becht has performed numerous material condition surveys on various structures, including buildings, training walls, dams, and piers. Mr. Becht’s expertise is in open channel water flow, pump intake structure designs, cofferdams designs, and many “one-of-a-kind” unique structures.

**REPRESENTATIVE BRIDGE PROJECTS**

**JACKSON MILLS DAM** | Nashua, NH

New concrete spillway crest, pier and abutment for the installation of a new 140’ x 8’ high crest gate.

**LAWRENCE DAM ON THE MERRIMACK RIVER** | Lawrence, MA

New concrete spillway cap design and development of installation details for a 900’ long, 5’ high rubber dam for Enel N.A. 65’ deep cofferdam at powerhouse intake for equipment rehab.

**PAWTUCKET DAM** | Lowell, MA

Design for concrete spillway cap and 950’ inflatable crest gate to replace the existing wooden flashboards.

**ROYAL MILLS** | West Warwick, RI

Rehabilitation of the headgates at the entrance to the granite masonry power canal. Work consisted of designing a powerhouse, equipment foundations, penstock, and specifications for a new headgate for a small hydroelectric turbine generator.

**NORTH HARTLAND HYDROELECTRIC PROJECT** | North Hartland, VT

Installation of a minimum flow turbine including equipment supports, penstock, penstock supports and thrust blocks.

**RICE, WHITEWATER & DOLE RESERVOIR DAMS** | Claremont, NH

Provided dam inspections and corresponding reports to assist the City with the prioritization of repairs and rehabilitation plans. Design and specifications for modifications of the Dole Reservoir’s toe drain filter system and overflow spillways for Dole and Rice Reservoirs.

**NEWBURY HYDROELECTRIC FACILITY** | Wells River, VT

Design of upgrades to an existing facility including new penstock, supports for a new turbine generator, and repairs to stabilize the existing mill building.

**OLD NORTH BRANCH ROAD OVER NORTH BRANCH RIVER** | Antrim, NH

Design, permitting, and construction administration for an 80’ span by 30’ wide steel plate girder bridge, founded on cast-in-place concrete abutments. NHDOT/ARRA related funding.

**COLD RIVER BRIDGE** | Walpole, NH

Design of a three-span, steel girder bridge, as well as cofferdam design for bridge pier construction at Route 12 over the Cold River in Walpole, New Hampshire.

**RIVERWALK** | City of Nashua, NH

Structural design of promenade along the Nashua River, at the City's RiverWalk.

**GLENCLIFF HOME** | Glencliff, NH

Building renovation/design and construction administration for a project that included a 60' long pedestrian bridge.

**ROUTE 302** | Bartlett, NH

Design of supports for a temporary bridge over the Saco River. Design of sheet pile retaining walls for installation of bridge abutments for new Route 302 bridge.

**HISTORIC PRESERVATION** | Stonington, CT and Bristol, RI

Steel shoring designs during building reconstruction for the purpose of preserving historic building facades.

**GENERAL ELECTRIC HEALTHCARE** | Greenbush, NY

Design of intricate foundation for support of a 300,000 square foot manufacturing facility.

**TOWNS OF MERRIMACK, BEDFORD, JEFFREY, SALEM, NH**

Building audits and facility assessments of municipal buildings and schools, including condition reports, opinions of cost, and information for capital improvement plans.

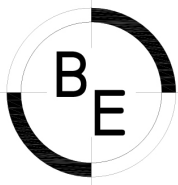


# Bryan L. Bailey Associates, Inc.

**Bryan L. Bailey Associates, Incorporated** has been a family owned and operated company since 1978. Originally from Derry, New Hampshire Bryan L. Bailey Associates, Inc. is now centrally located in Gilford, New Hampshire and is proudly serving the cities and towns of the Lakes Region. Incorporated in 1984, our two brands are described below ;



**Turning Point Land Surveyors and Land Planners** is a d.b.a. which was established in 1991, and has been a trusted name in Central New Hampshire for all aspects of residential, municipal, and light industrial surveying services including Boundary survey, Topographical surveys, and Septic Design.



**Bailey Engineering** is a d.b.a. which was established to bring Civil with Environmental Engineering and Environmental Planning to New Hampshire in 2006.

Bailey Engineering provides the typical services that a landowner would need during land and property improvements projects, land development projects, and other common engineering needs for the built environment and the natural environment.

Bryan L. Bailey Associates is a small firm specializing in Surveying and land use permitting. When a company principal is the primary project manager, designer, and client contact—you can rest assured the utmost of care will be taken with your project.

We will often partner with larger firms, so the project owner is 100% covered with both specialized services, as well as sufficient manpower to get the job done most efficiently. Bryan L. Bailey Associates specializes in surveying and environmental permitting, and can compete with much larger operators because we have fully adopted the industries most recent technology, and have the decades of legacy experience needed to verify that the technology is providing an answer you can trust.

Please review this package closely, and if you have any further questions, please do not hesitate to contact us. We would like to partner with you as you seek successful land planning and permitting projects. Let us be your Surveyor!

Sincerely,

A handwritten signature in black ink that reads "Craig T. Bailey".

Craig T. Bailey, PE, LLS, PSM

Contact us:

[ctbailey@bailey-associates.com](mailto:ctbailey@bailey-associates.com)  
603-528-3734

Bryan L. Bailey Associates, Inc.  
217 Cotton Hill Road  
Gilford, NH 03249  
[www.bailey-associates.com](http://www.bailey-associates.com)



Qualifications last  
revised 01/22/2021

# Principal Personnel

## **Bryan L. Bailey, LLS**

### **President**

Bryan is a graduate of the University of New Hampshire, where he earned his B.A. in Earth Sciences. Bryan started his career in 1971, in Derry, NH, where he was born and raised, and has been a NH Licensed Land Surveyor since 1978.

Bryan moved the family north to the Lakes Region in 1979, where the office has stayed and primarily served central New Hampshire. Since starting his career in 1971, Bryan has established a reputation of being a firm and trustworthy source and a leader in the industry.

Bryan was the 2011 President of the NH Land Surveyors Association. When not at the office, Bryan will be found with his four grandchildren fishing, biking, boating, or camping, while his children Craig and Jessica handle the day to day operations.

## **Craig T. Bailey, PE, LLS, PSM**

### **Corporate Director**

Craig holds a Professional Science Masters in Engineering and Business / Surveying Engineering concentration from the University of Maine, and a B.S. in Civil Engineering from the University of New Hampshire.

Being dually licensed as a Professional Engineer and Licensed Land Surveyor, Craig brings a unique perspective to any project... working on projects from the initial inceptions through the field work, and finally to the public hearing for approvals and as-builts thereafter.

Being a second generation Surveyor, Craig is adept at all aspects of the land development process, since his time began at a very young age as a summer helper on the field crew during high school, learning from his dad Bryan has been a lifelong pursuit.

Craig is on the faculty at New Hampshire Technical Institute, Concord NH's Community college, where he is a professor of Civil Engineering Technology and Architectural Engineering Technology courses including; surveying, structural, hydrology, and AutoCAD courses.

Craig was awarded the 2012 NH Young Engineer of the Year, by the NH Society of Professional Engineers. Craig and his wife Marcie live in Hudson, NH with their two daughters, Olivia and Elizabeth. When not at work, Craig enjoys RV camping, and as a licensed Extra Class Amateur radio operator can often be found "chasing DX."

## **Jessica J. Bailey, CWS**

### **Wetland Scientist & Crew Chief**

Jessica is a graduate of the University of New Hampshire, and holds a B.S. in Forestry with a concentration in Forest Management. Jessica is a NH State Certified Wetland Scientist and land surveyor, and as such applies a multi-disciplinary approach with environmental permitting and planning. Jessica performs wetland assessments, jurisdictional delineations, vernal pool determinations and assessments, function & value assessments and is responsible for all wetland and shoreland permits, and compliance inspections.

Jessica is the primary survey field crew chief, which allows for the most effective and efficient topographical surveys when engaging upon NH DES permitting for Shoreland, Wetlands dredge and fill, Subsurface, and Alteration of Terrain projects. Jessica, being a second generation surveyor or has been learning from her dad Bryan on a daily basis her whole life. She is continuing her natural science professionalism as she pursues certification as a Soil Scientist.

Jessica has served the Belknap County Conservation District as a volunteer board member. Jessica lives in Laconia, NH with her two sons Aaron and Travis, who are often found tagging along with 'Jess' on the ski slopes, or trying out new campgrounds, or in their beautiful vegetable garden .



Bryan L. Bailey



Craig T. Bailey



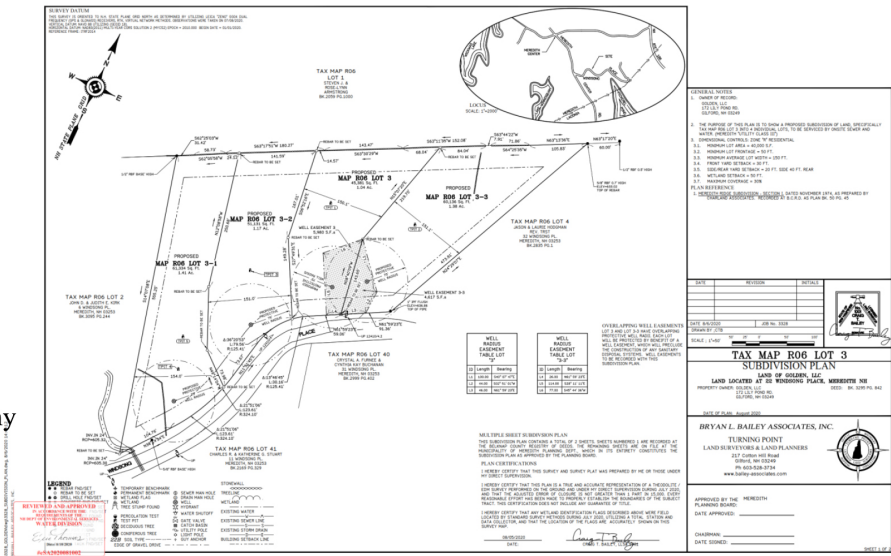
Jessica J. Bailey

# Land Surveying

**Turning Point Land Surveyors & Land Planners** provides expert land surveying services for private, corporate, and municipal owners. Land Surveying is the art, technique, profession, and science of accurately determining the location of land features. These land features take the form of (property) boundaries, in determining ownership, and physical features such as road ways, buildings, and water ways.

When considering your project, it is best to know where your property starts and stops, to ensure you can meet state and town set back requirements, your proposed building or structure is on your property (and not your neighbors). **Services Include:**

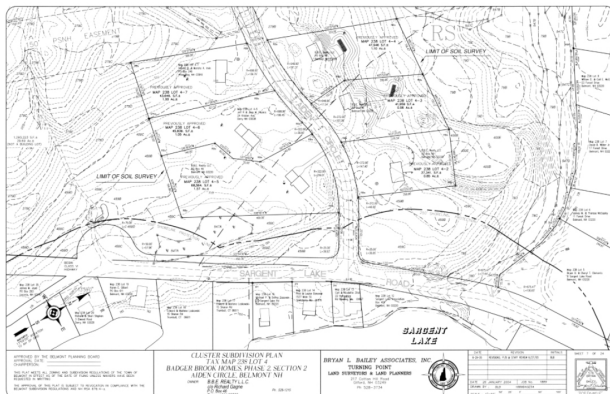
- Boundary Surveys
- Title Search Services
- Subdivision Plans
- Lot Stakeout
- Record Certified Plans
- Certified Plot Plans
- Deed Stakeout Services
- ALTA Surveys
- Construction Survey & Stakeout
- Topographic Mapping
- As-Built Road Surveys
- Construction Layout
- Town and State Regulation Hearings
- GPS Survey
- GPS Real Time Kinetic Survey
- Control Surveys for Aerial Topography
- FEMA:
- Flood Elevation Certificates
- e-LOMA (Electronic Letter of Map Amendment)
- Elevation Control



## Technological Surveying Excellence

Being specialists and Experts with AutoCAD and Civil 3D, we often provide technological help to other firms in the area to assist them in setting up *Field-to-Finish*, linear regression analysis using Least Squares reduction for field work, and baseplan development.

Craig has provided contracted Subject-matter-expertise directly to Autodesk of Manchester, NH to assist in the development of the Land Surveying modules of Civil 3D releases 2010 through 2014. Craig's time spent at Autodesk included working directly with very large Departments of Transportation around the U.S. as they sought to implement Civil 3D surveying workflows in their municipal and statewide transportation systems.



# Environmental Science

- Wetland Determinations and Delineations
- Wetland Function & Value Assessment
- Vernal Pool Survey, Identification & Monitoring
- Wetland Restoration & Mitigation
- Site Restoration Planning and Design
- State & Federal Natural Resource Identification
- Threatened & Endangered Species & Non-Game Species
- State, Federal and Local Environmental and Resource Permitting
- State and Federal Wetland and Shoreland Impact Permitting
- Water Quality and Certification, Section 401, of the CWA
- US Army Corps of Engineers, Section 404, of the CWA
- US Army Corps of Engineers, NH General Permit
- EPA, National Pollutant Discharge Elimination System

## State Agencies & Permits

- NHDES Standard Dredge & Fill Wetland Application
- NHDES Shoreland Water Quality Protection Act (Previously called the Comprehensive Shoreland Protection Act)
- Alteration of Terrain
- Groundwater Discharge Permits
- NH Natural Heritage Bureau; Threatened and Endangered Species

## Lead Federal Agencies & Permits

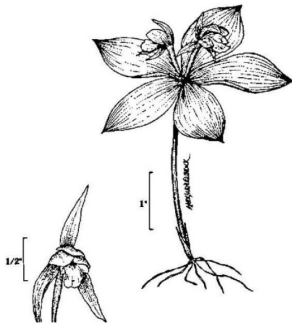
- Water Quality and Certification, Section 401, of the CWA
- US Army Corps of Engineers, Section 404, of the CWA
- US Army Corps of Engineers, NH General Permit
- NHDES Shoreland Water Quality Protection Act (Previously called the Comprehensive Shoreland Protection Act)
- NH Natural Heritage Bureau; Threatened and Endangered Species



Forested Wetland



Open water emergent wetland.



Small whorled pogonia  
(*Isotria medeoloides*)  
Federal Status: Threatened  
NH State Status: Endangered



Spotted Salamander  
(*Ambystoma maculatum*)  
Vernal Pool Indicator Species



Blanding's Turtle (*Emydoidea blandingii*)  
Federal Status: Watch List  
NH State Status: Endangered

# Highlighted Multi-Disciplinary Projects

Job 2783 Hutchins: Residential project in the hilly terrain of Gilford that required crossing a perennial stream of significant velocity. A custom designed box culvert with a natural bottom was designed, permitted, and installed for access.

Job 1504 Daniel Webster Council, BSA: A municipal and recreational camp project that we provided GPS control surveys to combine an additional 600 acres, resulting in 3,500 acres under conservation for “Camp Bell” and “Hidden Valley” scout camps at the Griswold Scout Reservation. Additional projects at the Reservation included wetland mapping and permitting to reconstruct twin 60 inch culverts under Places Mill Road, Gilmanton, NH.

Job 2841 Agostinelli: An earthen dam project in Gilmanton, NH required bathymetric survey of the farm pond for volume calculations, as well as topographical and wetland mapping of the project.

Job 3021 Cail: A significant shoreland project that required a complete wetlands permitted inlet reconstruction, to restore a natural inlet into Lake Winnepesaukee. Wetlands, Shoreland, and construction coordination, Alton, NH.

Job 1889 Badger Brook Enterprises: a 43-lot open space subdivision of land, collaborative effort with local engineering firm, Belmont, NH.

Job 3116 Petersen: A residential wetlands violation required after-the-fact dredge and fill permits and wetland restoration monitoring in Belmont, NH.

Job 3217 Faber: A 200-acre boundary survey done with GPS, Total Station, and Compass & tape to prepare boundary line adjustment to place 90 acres into conservation in Gilmanton, NH. Ancient boundary determination required during winter conditions.

Job 3363 Belmont Police Department: A municipal project where existing conditions base plan was developed to provide boundary control, construction control & stakeout for a collaborative project with H.L. Turner Group in Belmont, NH.



“Bottomless” Box Culvert



Frozen  
Bathymetric  
survey



Wetlands violation restoration monitoring



Winter GPS Control Survey



Restored inlet with natural Granite stone Weir



**S.W.COLE**  
ENGINEERING, INC.

Our Clients Make Better Decisions  
**From the Ground Up.**

## Providing Earth-Related Services for more than 40 Years

Established in 1979 in Bangor, Maine, S. W. Cole Engineering, Inc. is a geotechnical engineering, geo-environmental consulting and construction materials testing firm serving private and public sector clientele across New England from offices in Maine, New Hampshire, Massachusetts and Vermont. Our team of engineers, scientists and technicians provide services on more than 2,200 projects each year.

### WHAT WE DO:

#### GEOTECHNICAL ENGINEERING

*Subsurface Investigations, Foundations, Earthwork, Pavement*

Our licensed engineers provide sensible geotechnical solutions for foundations, earthwork and pavements associated with building, site development and infrastructure projects in New England. Our services include:

- Geotechnical Feasibility Studies
- Subsurface Investigations
- Spread Footing Design Parameters
- Deep Foundation Engineering and Design
- Ground Improvement Engineering
- Excavation and Dewatering Consulting
- Retaining Wall and Slope Stability Analyses
- MSE Retaining Wall Design
- Pavement Engineering and Design
- Geotechnical Laboratory Testing

#### CONSTRUCTION MATERIALS TESTING & SPECIAL INSPECTIONS

*Soil, Concrete, Grout, Asphalt, Masonry, Steel, Fireproofing*

Our certified technicians provide field and laboratory testing for soil, concrete, masonry, steel, fireproofing and asphalt construction materials, including:

- Construction QA / QC Programs and Monitoring
- Earthwork Observations and Compaction Testing
- Reinforced Concrete Testing and Special Inspections
- Soil / Aggregate Sampling and Testing
- Structural Masonry Testing and Special Inspections
- Structural Steel Testing and Special Inspections
- Spray-Applied Fireproofing Testing and Special Inspections
- Pavement Evaluation and Testing
- IBC Special Inspection Coordination
- Slab Flatness and Moisture Testing
- Certified Welding Inspector Testing



Sidney, ME • Bangor, ME • Caribou, ME • Gray, ME  
Londonderry, NH • Somersworth, NH • Taunton, MA • White River Junction, VT



**S.W. COLE**  
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**From the Ground Up.**

## Selected Projects Barrington, NH

### **Lower Central Avenue – Dover, NH**

In 2020, S.W. COLE was retained by the project engineer to provide explorations and geotechnical evaluation for reconstruction of a portion of Central Avenue. The proposed project consists of reconstruction of approximately 2,300 linear feet of Central Avenue between its intersections with Starks Avenue and Silver Street and upgrading of municipal utilities. The asphalt pavement on this area of Central Avenue is underlain by rigid concrete pavement. We provided an exploration program consisting of 10 test borings, provided soils laboratory testing, and made recommendations for construction of a new pavement section.

### **Culvert Replacements – Wentworth, NH**

In 2020, S.W. COLE was retained by the project engineer to provide explorations and geotechnical engineering for two culvert/bridge replacement projects. One site is located on Frescoln Road at the crossing of Rocky Branch and the second site is located on Cross Road at the crossing of Rocky Branch. Both existing crossing structures consists of a 15 to 20-foot culvert crossing. We performed two test borings at each crossing and performed bedrock coring. We evaluated the subsurface findings using Load Resistance Factored Design (LRFD) methodology and developed recommendations for spread footing foundations.

### **Municipal Roadways – Somersworth, NH**

In 2018, S.W. COLE was retained by the project engineer to provide explorations and geotechnical evaluation for reconstruction of several City roadways. The project consisted of reconstruction of a total about 7,700 linear feet of roadways and upgrading of municipal utilities. The roadways in this project included the entirety of Constitutional Way from High Street to Washington Street, Main Street from Johns Parsons Drive to Indigo Hill Road and the entirety of Cemetery Road from West High Street to Maple Street. We provided an exploration program consisting of 10 test borings and 28 ledge probes, provided soils laboratory testing, and made recommendations for construction of a new pavement section.

### **Province Road – Barrington, NH**

In 2020, S.W. COLE was retained by the Town of Barrington Highway Department to provide explorations and geotechnical evaluation conditions of the gravel portion of Province Road. About 2,500 linear feet of Province Road from about 500 feet east of Ham Road to the Madbury town line has historically had winter and spring seasonal issues comprised of mudding, rutting, and general road instability. We performed 6 test borings to assess the subsurface conditions and provide laboratory gradation and chloride and sodium testing to evaluation the road base conditions. We evaluated the conditions and provide reconstruction options with various risk and cost discussions.

### **Municipal Roadways – Concord, MA**

In 2020, S.W. COLE was retained by the project engineer to provide explorations and geotechnical evaluation for reconstruction of several City roadways. The project consisted of reconstruction of a total about 6,900 linear feet of roadways. The project involves five roads in a residential neighborhood including; Prescott Road, Peter Spring Road, Arrowhead Road, Cranefield Road, and Minuteman Drive. We provided an exploration program consisting of 13 test borings, provided soils laboratory testing, and made recommendations for construction of a new pavement section. Our evaluation included a reclaim blend analysis to assess the gradation of the resulting base product from grinding existing pavement into the existing base aggregate layer.



**S.W. COLE**  
ENGINEERING, INC.

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**From the Ground Up.**

## Selected References Barrington, NH

**Gregg M. Mikolaities, P.E.**  
**President**  
**August Consulting, PLLC**  
1 Willow Ln  
Rye, New Hampshire 03870  
(603) 475-3658  
Gregg@Augustpllc.com

**Joel C. Moulton**  
**Public Works Director**  
**Town of Eliot**  
476 H. L. Dow Highway  
Eliot, ME 03903  
207-439-9451  
jmoulton@eliotme.org

**Michael Bezanson, P.E.**  
**City Engineer**  
**City of Rochester**  
45 Old Dover Road  
Rochester, NH 03867  
603-332-4096  
michael.bezanson@rochesternh.net





**Chad B. Michaud, P.E.**

Executive Vice President  
Chief Operating Officer  
Principal Geotechnical Engineer

**Education:**

B.S., Civil Engineering,  
University of Maine  
GBA Fundamentals of  
Professional Practice Course

**Registrations:**

Professional Engineer (P.E.),  
New Hampshire, Maine,  
Connecticut, Massachusetts,  
Vermont and Rhode Island

**Affiliations:**

American Council of Engineering  
Companies (ACEC)  
GBA Professional Firms  
Practicing in the Geosciences

**Public Service:**

Board of Directors, Barrington  
Youth Association  
Environmental Technical  
Advisory Board, Creteau Career  
and Technical Center, Spaulding  
High School  
Youth Baseball, Softball, and  
Soccer Coach

**SOMERSWORTH OFFICE**

Chad Michaud went to Stearns High School in Millinockett, Maine before attending the University of Maine in Orono, Maine. Chad joined S. W. Cole Engineering, Inc. in 1999 as a Geotechnical Engineer. His duties progressed to a project manager and senior geotechnical engineer.

Chad has served on the Board of Directors since 2009. In 2014, he was named Executive Vice President and Chief Operating Officer of the firm. His responsibilities in these roles include corporate management, branch office management, project management training and mentoring, and corporate level oversight of operational functions such as health and safety, human resources and information technology.

Chad's responsibilities with the firm as a Senior Geotechnical Engineer are to manage projects, service clients, provide contract development, coordination of subcontractors and subconsultants, and oversee a staff of geotechnical engineers providing coordination of subsurface investigations and geotechnical design and specifications. Chad has experience providing soils engineering services on a variety of projects including multi-story mixed use commercial buildings, roadways, state and municipal bridges, airports, wastewater and water treatment facilities and lagoons, gas pipelines, municipal buildings, schools, towers, and large retail facilities and industrial structures in New Hampshire, Maine, Connecticut, Vermont, Massachusetts and Rhode Island.

Chad is known for his extensive experience with municipal and local public agency (LPA) funded bridge projects. Chad has worked on hundreds of bridge replacements and rehabilitations in the state of New Hampshire, as well as across New England.

Chad has significant experience providing geotechnical evaluation and global stability analyses for segmental mechanically stabilized earth (MSE) retaining walls and earth embankment slopes. Chad has been involved with many projects requiring a review of slope failures and the development of alternatives for reconstruction.

Chad has experience with field testing and evaluation of various stormwater infiltration testing techniques such as double-ring infiltrometer, Guelph permeameter, and borehole falling head methods.

## ENVIRONMENTAL ENGINEERING

TTG Environmental Consultants, LLC (TEC) is a group of engineers and planners focused on providing clients and customers with efficient, economical solutions to their projects.

TEC, a division of The H. L. Turner Group Inc., can move quickly on behalf of customers, yet rely on the depth of talent within its parent firm to bring multiple levels of expertise to any given project in the areas of civil, structural, mechanical, and architectural engineering disciplines.

Projects have included:

- Flood mitigation
- Wastewater engineering & design
- Water system evaluations & design
- Sanitary sewer system evaluation & design
- Municipal infrastructure
- Septage and sludge treatment & disposal solutions
- Erosion control plans
- Environmental permitting
- Phase II stormwater implementation
- Project funding applications
- Subdivision design review
- Plan review services
- Hazard identification & mitigation



# JOHN R. LAVIGNE JR., PE

SENIOR ASSOCIATE/SENIOR CIVIL ENGINEER

[JLAVIGNE@HLTURNER.COM](mailto:JLAVIGNE@HLTURNER.COM)



## PROFESSIONAL REGISTRATION

New Hampshire #4070  
New Jersey #24GE02527900

## EDUCATION

Lowell Technical Institute  
Civil Engineering  
BS | 1971

Northeastern University  
Civil/Water Resource Engineering

New Hampshire Technical Institute  
Certificate In Management

## PROFESSIONAL DEVELOPMENT

FERC Certified  
Independent Dam Safety Consultant  
Certified Floodplain Manager

## YEARS OF EXPERIENCE

Consulting: 40 + years  
Construction: 15+ years

## EXPERTISE

- Water Resources
- Civil Engineering
- Hydroelectric Engineering Analysis
- All Hazards Mitigation

## PROFESSIONAL EXPERIENCE

Mr. Lavigne has over 40 years of experience in a variety of water resources and civil engineering projects with a strong emphasis in flood, stormwater, riverine, dam, and hydroelectric engineering analysis and design, as well as all-hazards mitigation planning and engineering.

Major accomplishments include the application of new technologies to the development of residential and commercial flood hazard mitigation construction strategies, the creation of a simplified flood forecasting computer model for watershed basin management, the development of innovative powerhouse designs for the economic reinstatement of siphon hydro-turbine technology, the development of a "standardized" fish ladder design for small dam applications, and the adoption of renewable energy technologies into hydro plant upgrades/modernization.

## EXPERIENCE

### **Jackson Mills Hydroelectric Project, Nashua, NH**

Stability analysis, design, and construction administration for the removal of 8' from the top of the existing spillway crest in order to reduce flooding upstream. FERC jurisdiction.

### **Highgate Falls Hydroelectric Project, Highgate Falls, VT**

Design and construction administration for a new minimum flow turbine installation inside an existing powerhouse including emergency repairs to spillway toe. FERC jurisdiction.

### **Cadys Falls Hydroelectric Project, Morrisville, VT**

Design and construction administration for the replacement of two 10'x10' intake gates, two 10'x10' surge tank gates, and the rehabilitation of the double runner, horizontal Francis turbine/generator system. FERC jurisdiction.

### **Plant No. 2 Hydroelectric Project, Morrisville, VT**

Design of a 4' high x 200' long combination steel plate and pneumatic bladder crest gate system to control impoundments flows including site safety improvements. FERC jurisdiction.

### **Penacook Lower Falls Hydroelectric Project, Penacook, NH**

Concept design for new min/max flow turbine generator system including trashrack, headgate, 6' diameter steel penstock and draft tube. FERC jurisdiction.

TTG Environmental Consultants, LLC

27 LOCKE ROAD  
CONCORD, NEW HAMPSHIRE 03301  
T-(603)228-1122 / F-(603)228-1126



A Division of The H.L. Turner Group Inc., Concord, NH



**Mine Falls Hydroplant Condition & Evaluation Study, Nashua, NH**

Lead engineer and investigator for the examination, engineering, technical and cost analysis, and recommendations for a “due diligence” pre-ownership evaluation of the Mine Falls facility being considered by the City of Nashua.

**Free Flow Power, FERC Licensing Assistance, Multiple Locations**

Twenty new hydroelectric projects located for the Ohio, Allegheny, Mississippi, and Muskingum Rivers.

**Hydro FERC Re-Licensing Assistance, Gravity Renewables, Chittenden, NY**

Lead engineer for the preparation of the draft FERC license exhibits “A” and “F” supporting design report.

**PSE & G, Alewife and Blue Back Herring Restoration, Lower Delaware River Basin, New Jersey**

Lead engineer and project manager for the feasibility (in conjunction with Normandeau Association), engineering, design, permitting, and construction of five modular fish ladders to support dam passage of migratory fish at key habitat streams/ivers in the Lower Delaware Basin located in New Jersey and Delaware.

**Methuen Country Club, Golf Club Restoration, Methuen, MA**

Analyzed incremental compensatory flood storage requirements and volumes associated with proposed course regrading, as well as construction of three new holes and fairways. Results were included in State NOI Wetlands and ACOE Dredge and Fill Permit applications as well as presented to the Methuen Conservation Commission for concurrence.

**Cotton Mill Square Complex, Nashua River Flood Impact Study, Nashua, NH**

Analyzed alternative redevelopment concepts with regard to their impact on FEMA 100-year flood elevations, floodway encroachments, and compensatory flood storage requirements; using HEC-RAS river hydraulic model and FEMA Flood Insurance Study data. Provided remedial design recommendations for the selected redevelopment alternative that would limit the potential for flood damages for new civil/building infrastructure.

**Sewall’s Fall Bridge Scour, Concord, NH**

Project engineer responsible for detailed hydraulic analysis of existing and proposed scour of an existing “piled” granite block bridge pier. A HEC-2 river hydraulic model was developed from bathymetric surveys of bottom elevations and riverbed soils. “Free flow”, “ice flow”, and sediment transport analyses were conducted to determine the hydraulic integrity of the existing pile system and recommend protection measures to extend the life of the existing pier.

**Supply Pond Dam Spillway Improvements, Pennichuck Water Works, Nashua, NH**

Project engineer responsible for hydrologic and hydraulic design (HEC-RAS) for new sectional spillway crest gate modifications, plus dam and wetlands permits for a 25-foot, high hazard, masonry and earth embankment dam.

**IPC Upper and Lower Dam Repairs, NOK-Freudenberg, Bristol, NH**

Project engineer responsible for dam repair permitting design and flood hazard assessment for two timber crib/rock fill/concrete dams.

**Willow Pond Dam Repairs, Willow Pond, Development, LLC, Croyden, NH**

Project engineer responsible for dam repair permitting design for a 12-foot high earth embankment dam.



# ROBERT K. CARTER, CSS,CFM

CIVIL/ENVIRONMENTAL ENGINEER

RCARTER@HLTURNER.COM

## EDUCATION

University of New Hampshire  
Civil/Environmental Engineering  
MS |2008

University of New Hampshire  
Soil Science/Natural Resources  
BS| 2000

## PROFESSIONAL DEVELOPMENT

NH Association of Natural Resources  
Certified Floodplain Manager  
State of NH Certified Soil Scientists

## YEARS OF EXPERIENCE

General: 25 years  
Soils: 21 years  
Wetlands: 21 years

## EXPERTISE

- Hydrology Modeling
- Hydraulics Modeling
- Civil Construction Oversight

## PROFESSIONAL EXPERIENCE

Mr. Carter is experienced in the development and analysis of surface water hydrologic and hydraulic computer modeling as applied to natural rivers, streams, dams, bridges, and the assessment of floodplain developments. He has been a member of The H.L. Turner Group Inc. for 15 years. Projects of note include flood flow frequency, flood hydrograph, probable maximum flood determination, pond and channel flood routing, spillway discharge estimation, water surface profiling, dam failure simulation, and hazard inundation mapping.

## EXPERIENCE

Cotton Mill/Nashua River Floodplain, Nashua, NH

Performed river hydraulic modeling (HEC-RAS) in order to evaluate development impacts and provide site mitigation measures to protect against 100-year flooding for the re-adaptive use of the Cotton Mill building. The major result of the project was the reduction in the river floodplain "footprint" affecting over 70 properties and the revision to the City/FEMA flood maps.

Jackson Mills Dam Floodgate, Nashua, NH

Hydraulic modeling of a spillway crest gate retrofit for upstream flood relief and subsequent successful submission of a FEMA Letter of Map Amendment (LOMA), effectively reducing the size of the floodplain.

Broad Street Parkway Bridge, Nashua, NH

Performed river hydraulic analyses and modeling (HEC-RAS) of proposed parkway embankment and bridge crossing design in order to evaluate impacts to the 100-year flood upstream of the proposed project. Recommendations on alternative bridge orientation and pier design were offered to the parkway/bridge designers to minimize rises in upstream flood elevations with the proposed project.

Pennichuck Brook Dams and Floodplain, Nashua, NH

Performed dam failure and floodplain modeling (HEC-RAS) of four City owned dams to determine the appropriate hazard classification, recommend remedial modifications/repairs to meet State dam spillway requirements, and prepared new downstream hazard floodplain maps to reflect the risk areas resulting from potential dam failures.

Langer Place Parking Garage Flood Impacts, Manchester, NH

Performed detailed river hydraulics modeling (HEC-RAS) of the Merrimack River to determine the flood impacts of adding a new multi-story parking garage to the adjacent SNHU building. The outcome of the analysis was the design and construction of a new building floodwall to protect the building and not raise 100-year flood elevations through the river downtown area.

Berry Pond Dam Flood EAP, Pittsfield, NH

HEC-RAS modeling of dam failure simulation to verify the dam's flood hazard classification and to plot the downstream hazard zone in support of the dam's EAP notification in case of potential dam failure.

TTG Environmental Consultants, LLC

27 LOCKE ROAD  
CONCORD, NEW HAMPSHIRE 03301  
T-(603)228-1122 / F-(603)228-1126



A Division of The H.L. Turner Group Inc., Concord, NH



Bellamy Reservoir, Portsmouth, NH

H&H modeling of the City of Portsmouth water supply reservoir for dam failure analysis and inundation mapping. HEC-RAS modeling of dam failure simulation to verify the dam's hazard classification and to plot the downstream hazard zone in support of the dam's EAP. Output files provided to the City of Portsmouth in GIS format to be used by emergency response personnel.

Highgate Falls EAP, Swanton, VT

H&H analysis for use in specifications for a minimum flow turbine installation.

Missisquoi River EAP, Highgate, VT

H&H modeling of Missisquoi River included dam breach modeling to assess impacts of dam failure flood flows on property and structures in order to reclassify dam from high hazard to low.

Berry Brook Dam, Pittsfield, NH

H&H modeling used in the design of a stream restoration and dam removal project of the former water supply for the municipal water treatment facility. Construction oversight and long-term monitoring of the dam removal and stream restoration project.

Royal Mills, West Warwick, RI

H&H for dam failure modeling of a historic dam in West Warwick, RI. Determination of the probable maximum precipitation and probable maximum flood used in the dam failure and downstream hazard inundation assessment using the HEC-RAS computer model. Calculate dam stability under FERC loading conditions.

Hoosic Hydro, Pownal, VT

Calculated sediment removal of the impoundment required for the restoration of hydropower and dredge design required to prevent mobilization of contaminated sediments at the proposed plant design flow. Completed civil design of repairs required for hydropower restoration and the supporting design report for the application to the FERC.

The H. L. Turner Group Inc. (Turner Group) is a professional team of architects, engineers, and building scientists serving business, industry, and government. The company was founded in 1991.

The Turner Group staff work to advance the technology, art, and science of the built environment. Through sound, responsive management during the planning, design, and construction phases, they accomplish exceptional results for their clients. Their holistic approach achieves a superb balance of aesthetics, practicality, and permanence. The Turner Group encourages a culture of enthusiasm, diversity, and intellectual inquiry that results in first-class service and client satisfaction.

The Turner Group has undertaken numerous municipal projects throughout New England, particularly in its home state of New Hampshire. Among its recent municipal clients' projects are the Concord Community Center, the Concord Fire Department, the Nashua Riverwalk, the Belmont Police Department, and the Grafton County Department of Public Works. The Turner Group has also performed facility assessments for Bedford, Concord, Milford, Merrimack, and dozens of other municipalities in the Granite State.





# WILLIAM D. HICKEY

SENIOR VICE PRESIDENT / PROJECT MANAGER / STRUCTURAL ENGINEER

BHICKEY@HLTURNER.COM | (603) 228-1122 | HLTURNER.COM

## PROFESSIONAL EXPERIENCE

Mr. Hickey joined The H.L. Turner Group Inc. (TTG) 20 years ago as a structural engineer. Since then, he has taken on the responsibilities of lead structural engineer and vice president of the architectural and structural engineering groups. As a principal, Mr. Hickey is actively involved with the day-to-day management and operations of the firm. He is also responsible for all architectural workgroup functions, assisting with marketing, client relations, and business development activities.

Mr. Hickey's design background includes all aspects of structural engineering, from preliminary design and drafting to final design and contract documents. His projects have varied in scope from small residential and commercial evaluations to large scale industrial developments. His designs have involved a variety of materials, including masonry, concrete, shot crete, steel, and wood. As one of The Turner Group's most sought after project managers, Bill has managed projects ranging from \$10,000 to over \$10 million for both public and private clients.

## EXPERIENCE

### **New Hampshire Army National Guard, Lancaster, NH**

Provided project management and structural engineering design services for the renovation to the Lancaster Readiness Center. The new space serves as headquarters for an aviation support facility for the White Mountain Region.

### **State of New Hampshire, Department of Administrative Services, Hazen Drive, Concord, NH**

Building enclosure study resulted in a predicted savings of over \$2 million dollars in energy over a ten-year period.

### **New Hampshire Army National Guard Readiness Center, Rochester, NH**

Provided project management and structural engineering design services for the renovation to this 1950s New Hampshire Army National Guard Readiness Center.

### **Methuen City Hall, Methuen, MA**

Project manager for the facility assessment of the City Hall building. The assessment included identifying deficiencies concerning the building's roof, facade, windows, doors, interior finishes, major mechanical systems, and a site assessment.

### **New Hampshire Army National Guard Readiness Center, Portsmouth, NH**

Provided project management and structural engineering for the two-story, 5,000 sf addition, and a complete interior renovation, similar to the work that was completed in Portsmouth.

### **Hampton Academy, Hampton, NH**

Project manager for the addition and renovation of Hampton Academy. Design services included site reorganization, a 70,000 sf renovation, and a 50,000 sf addition to the existing school for town warrant article. The developed plans reorganized an urban site to provide needed program space, solved security issues, improved vehicular circulation, organized student circulation, provided better indoor air quality, and classroom access to power. The addition delivered new classroom space, STEM spaces, a gymnasium, and an auditorium.

## EDUCATION

New Hampshire Technical Institute  
*Architectural Engineering Technology*  
(NHTI) AS | 1987

## YEARS OF EXPERIENCE

General: 33 years  
Project: 33 years

Adjunct Professor  
Architectural Engineering Technology  
Program NHTI

## CERTIFICATIONS & MEMBERSHIPS

OSHA 10-Hour Training & Certification  
Construction Specifications Institute  
(CSI)

## EXPERTISE

- Structural Design
- Building Design Solutions
- Quality Control
- Project Documents
- Building Assessment
- Project Management



The H.L. Turner Group Inc.  
27 Locke Road  
Concord, NH 03301



**Holderness Ice Rink, Holderness, NH**

Project manager for the design and construction of a 30,000 sf outdoor ice rink. This was an emergency project to replace their existing rink that was structurally unsound.

**New Hampshire Army National Guard Dormitory, Center Strafford, NH**

Provided project management and structural engineering design services for the renovation of each of the 4,600 sf barracks.

**New Hampton Salt Shed, New Hampton, NH**

Structural design and project management services for the renovation of this 9,600 sf structure.

**FW Webb Facilities, Various Locations Throughout New England & New York**

Provided project management and structural design services for new warehouse/distribution facilities, ranging in size from 40,000 to 120,000 sf.

**Methuen Construction, Plaistow, NH**

Structural design and project management services for the renovation of an existing 180,000 sf manufacturing/warehouse facility, as well as an addition to the new headquarters building.

**New Public Safety Building, Bow, NH**

Provided the Town of Bow with structural engineering design and project management services for the proposed 30,000 sf new safety building.

**WATTS Foundry Building, Franklin, NH**

Full design services within Environmental Protection Agency (EPA) requirements for this new 30,000 sf, a lead-free foundry located at the WATTS facility in Franklin.

**Maine Department of Transportation, Augusta, ME**

\$12 million renovation of the four-story, 108,000 sf building.

**Dover Ice Arena, Dover, NH**

Renovation of the existing 25,000 sf skating rink as well as an addition of 37,000 sf of new skating rink, locker room facilities, and mechanical equipment.

**Concord Fire Department Headquarters, Concord, NH**

\$2 million award-winning historic restoration of 1894 buildings for fire headquarters, communications training, and museum.

**Douglas N. Everett Arena, Concord, NH**

Provided project management and oversight of the removal and replacement of the slab and cooling systems.

**Grafton County Maintenance Building, North Haverhill, NH**

Provided project management, structural engineering, and construction administration for the new 7,000 sf design/build project.

**Coastal Forest Products Distribution Warehouse, Bow, NH**

Structural engineer for the sustainable design of a new 200,000 sf distribution warehouse, as well as a 12,000 sf office.



# DOUG PROCTOR, AIA, NCARB, LEED® AP BD+C

SENIOR VICE PRESIDENT / SENIOR ARCHITECT

DPROCTOR@HLTUNER.COM | (603) 228-1122 | HLTURNER.COM

## PROFESSIONAL LICENSES

Connecticut	#ARI.0013434
Delaware	#S5-0005994
Maine	#ARC4343
Maryland	#18152
New Hampshire	#04034
New Jersey	#AI-02063500
North Carolina	#13725
Pennsylvania	#RA407314

## EDUCATION

Drexel University  
*Architecture*  
BA | 1993

## YEARS OF EXPERIENCE

General: 35 years  
Project : 35 years

## CERTIFICATIONS & MEMBERSHIPS

American Institute of Architects (AIA)  
Construction Specification Institute  
Green Business Certification  
International Code Council  
National Council of Architects Board  
(NCARB)  
National Fire Protection Association  
US Green Building Council

## EXPERTISE

- Master Planning
- Conceptual Design
- Construction Documents
- Construction Administration
- Project Management



The H.L. Turner Group Inc.  
27 Locke Road  
Concord, NH 03301

## PROFESSIONAL EXPERIENCE

Mr. Proctor is involved in all project development phases and has extensive educational experience, having designed or renovated more than a dozen school projects. Prior to joining The H.L. Turner Group Inc. (TTG), Doug was a partner at Warrenstreet Architects in Concord, New Hampshire, where his work focused on developing and managing educational, institutional, and healthcare projects. His innovative solutions to complex projects bring a unique design approach to TTG's ventures. He also brings a sharp eye for project development phases, ranging from master planning and conceptual design to construction documentation and administration. Mr. Proctor has project management experience and a background in developing and managing educational, religious, professional, assisted living, child care, institutional, and multi-family projects.

Mr. Proctor has received design awards, including an AIA New Hampshire Award for the Holderness School Ice Rink and an AIA Delaware Award for the design of the Grace United Methodist Church. He also received the Michael Pearson Thesis Prize and graduated Cum Laude from Drexel University in Philadelphia, Pennsylvania.

## EXPERIENCE

### Concord Community Center, Concord, NH

Project architect for the City of Concord Community Center. The project involved the renovation of an existing school building as well as an addition.

### Merrimack Department of Public Works, Merrimack, NH

The architect for the new public works building.

### New Hampshire Army National Guard Readiness Center, Portsmouth, NH

Served as architect for the two-story, 5,000 sf addition with complete interior renovation.

### New Hampshire Army National Guard Field Maintenance Office, Hillsboro, NH

Architect for the 5,600 sf renovation of the single-story maintenance building including system upgrades and improvements to the bathroom and locker room areas.

### Baker Free Library, Bow, NH

Provided architecture services for designing and constructing a 7,000 sf lower-level renovation of the library to double meeting and stack capacity.

### UNH Field House Academic Commons, Durham, NH\*

Project architect for the renovation of squash courts in the student study center.

### UNH New England Center Study, Durham, NH\*

Study for Center of Advancement relocation into the existing New England Center.

### UNH Stilling Hall Window and Door Replacement, Durham, NH\*

Replacement of existing window and door systems within the dining hall.

**UNH Chase Ocean Engineering Addition, Durham, NH**

Project architect and manager for the 12,000 sf addition to the Chase Ocean Engineering Lab. The addition included an 85 person lecture hall, computer lab, instructional lab, professional machine shop, research labs, and offices.

**Auburn Village School, Auburn, NH**

Architect for the addition and renovation of the Auburn Village K-8 School. Design services included site reorganization, complete renovation, and a 30,000 sf addition to the existing school. The developed plans included reconfiguration of the existing classrooms, relocation of the main entry, increased size and capacity of the cafeteria and kitchen, enhanced security precautions, and provided better indoor air quality. In addition, TTG provided support and information to the district and town prior to the warrant article vote.

**Hampton Academy, Hampton, NH**

Project architect for the addition and renovation of Hampton Academy. Design services included site reorganization, a 70,000 sf renovation, and 50,000 sf addition to the existing school for town warrant article. The developed plans reorganized an urban site to provide the needed program space, solved security issues, improved vehicular circulation, organized student circulation, provided better indoor air quality, and classroom access to power. The addition replaced a substandard wing of the school with new classroom space, STEM spaces, a gymnasium, and an auditorium.

**Holderness Ice Rink, Holderness, NH**

Project architect for the design and construction of a 30,000 sf outdoor ice rink. This was an emergency project to replace their existing rink that was structurally unsound.

**Littleton Elementary School, Littleton, NH\***

Project architect for schematic design of a 75,000 sf new elementary school.

**CATCH – Bow Highlands Phase 2, Bow, NH\***

Project architect for a 16 unit affordable townhouse housing complex.

**LACLT – Harriman Hill Phases 1 & 2, Wolfeboro, NH\***

Project architect for a 48 unit affordable housing complex.

**CATCH – Menino Place, Concord, NH\***

45 unit, five-story affordable housing complex.

**CATCH – Freidman Court II, Concord, NH\***

Project architect for a 41 unit affordable elderly housing complex.

**Healthcare Projects:****Breast Center Renovations, Concord, NH\***

Project architect for 1,000 sf renovation of exam suite.

**Concord Imaging Center, Concord, NH\***

Project architect for 6,000 sf renovation, complete with a MRI addition, ultrasound, and mammography suite.

**Health First Family Care Center, Laconia, NH\***

Project architect for a new 13 acre, 80,000 sf baseball training facility.

\*While with another firm

# REPRESENTATIVE PROJECT EXPERIENCE

## COMPLETED ROADWAY



PROJECT/LOCATION

Bean Hill Road  
Northfield, NH

DETAILS

Reclamation, reconstruction, realignment; closed drainage systems with roadside swales; paving. 6,300' in length

YEAR

2012



College Road/  
US Route 3  
Center Harbor, NH

Intersection realignment.  
250' in length

2015



Follett Road  
Center Harbor, NH

Reclamation with subgrade improvements; drainage swales and culverts; paving. 2,650' in length

2019



Upper Bay Road  
Sanbornton, NH

Reclamation, drainage swales and culverts; paving. 1,600' in length

2006



Fay Martin Road  
Richmond, NH

Reconstruction; realignment; drainage swales and culverts. 3,200' in length

2018



Oak Hill Road  
Northfield, NH

Reclamation with subgrade improvement; drainage swales and culverts; paving. 4,200' in length

2009

# REPRESENTATIVE PROJECT EXPERIENCE

## COMPLETED ROADWAY



PROJECT/LOCATION

Hunkins Pond Road  
Phases I, II, and III  
Sanbornton, NH

DETAILS

Reclamation; windrowing;  
subbase improvement;  
underdrains; drainage swales  
and culverts; paving.  
8,300' in length

YEAR

2006-  
2011



Piper Hill Road  
Center Harbor, NH

Reclamation with subgrade  
improvements; culvert  
replacements, paving.

2019



Coe Hill Road  
Center Harbor, NH

Drag shim and pavement  
overlay.  
3,150' in length

2018



Butterfield Road  
Center Harbor, NH

Pavement repair patches, drag  
shim and pavement overlay.  
2,520'

2020



College Road  
Center Harbor, NH

Drag shim and pavement  
overlay.  
2,230' in length

2020



Skywatch Road  
Center Harbor, NH

Pavement repair, patches, drag  
shim and paving.  
780' in length

2020

## REPRESENTATIVE PROJECT EXPERIENCE

### CAPITAL IMPROVEMENT PLANNING

PROJECT/LOCATION	DESCRIPTION	YEAR
Gravel Roadway Improvements Northfield, NH	Evaluation/Assessment of 11 roadways; Program Development; Cost Estimates; 5 -year Capital Improvement Planning	2009
Road Surface Management Center Harbor, NH	Evaluation/Existing Condition Assessment of 26 roadways; developed RMS database; Alternatives Actions; Program Development; Opinions of Program Cost; 10-year Capital Improvement Planning Options; Yearly updates and restructuring of program	2017 to present
Bridge Capital Improvement Program Antrim, NH	Evaluation/Assessment of 19 municipal bridges; Identification of rehabilitation/repair/replacement strategies for each; Develop 15 year CIP program; assisting in NHDOT SBA Funding	2006 to present
Bridge Capital Improvement Program Jaffrey, NH	Evaluation/Assessment of 11 municipal bridges including 3 historic stone arch bridges; Identification of rehabilitation/repair/replacement strategies for each; Develop 15 year CIP program; assisting in NHDOT SBA Funding	2016 to present
Bridge Capital Improvement Program Goffstown, NH	Evaluation/Assessment of 7 municipal bridges including 1 historic stone arch bridge; Identification of rehabilitation/repair/replacement strategies for each; Develop 15 year CIP program	2013
Transportation Improvement Program Northfield, NH	Numerous assignments for roadway infrastructure assessments, programming remedial actions, capital planning; design, bidding and construction administration	2005 to 2012

## REPRESENTATIVE PROJECT EXPERIENCE

### CAPITAL IMPROVEMENT PLANNING

PROJECT/LOCATION	DETAILS	YEAR
Bridge Maintenance Program Wolfeboro, NH	Evaluations and assessments of 6 municipal bridges; Development of program for short-term and long-term maintenance, rehabilitation and preservation; capital investment planning	2018
Capital Projects Wolfeboro, NH	EOR for numerous Capital Planning Projects including DPW Master Plan, DPW Fuel Depot; DPW Salt Shed; Public Safety Complex Structural Repairs; Public Safety Parking Lot expansion and drainage; Structural Assessment of municipal buildings; roadway surface management strategies; Public Safety antenna improvements – base stabilization	2010 to present
Road Capital Projects Antrim, NH	Evaluation of select municipal roadways; development of recommended improvement programs, development of opinions of program costs	2012 to 2020
Bridge Capital Improvements Program Winchester, NH	Evaluations and assessments of 12 municipal bridges/large culverts, development of repair/rehabilitation/replacement program; opinions of project costs; 10-year CIP programming.	2015

# REPRESENTATIVE PROJECT EXPERIENCE

## COMPLETED BRIDGE



PROJECT/LOCATION

Bedford Road over  
Baboosic Brook  
Merrimack, NH

BRIDGE TYPE/SPAN

Steel Girder Bridge  
90' Span

YEAR

2020



Old Route 110 over  
Upper Ammonoosuc  
River  
Dummer, NH

Steel Girder Bridge  
80' Span

2020



Pleasant Valley Road  
over Heath Brook  
Wolfeboro, NH

Precast Prestressed  
Concrete Deck Beams  
28' Span

2020



Willow Street over  
Beaver Brook  
Pelham, NH

Steel Girder Bridge  
104' Span

2019



Bean Road over  
Baboosic Brook  
Merrimack, NH

Steel Girder Bridge  
67' Span

2016



Depot Street over  
Contoocook River  
Antrim/  
Bennington, NH

Steel Girder Bridge  
70' Span

2014



# REPRESENTATIVE PROJECT EXPERIENCE, CONTINUED

## COMPLETED BRIDGE

	PROJECT/LOCATION	BRIDGE TYPE/SPAN	YEAR
	Depot Street over Relief - Arch Antrim, NH	Rehabilitation of Existing Historic Concrete Arch Bridge 12' Span	2013
	Wire Road over Baboosic Brook Merrimack, NH	Precast Prestressed Concrete NEXT Beams 61' Span	2013
	Fay Martin Road over Tully Brook Richmond, NH	Precast Concrete Rigid Frame 24' Span	2013
	High Road over North River Lee, NH	Precast Prestressed Concrete Deck Beams 45' Span	2011
	High Haith Road over Squam Lake Canal Center Harbor, NH	Precast Prestressed Concrete Deck Beams 24' Span	2010
	Water Street over Great Brook Antrim, NH	Precast Concrete Rigid Frame 20' Span	2010

# Bean Hill Road Northfield, NH

## ROADWAY IMPROVEMENT PROJECT

Contact: Town Administrator  
Town of Northfield  
21 Summer Street, Northfield, NH 03276  
(603) 286-7039

Bean Hill Road is an east-west rural roadway servicing mostly farm and residential properties east of I-93 and providing connection to I-93. The roadway serves as the main access route to Highlands Mountain Bike Park and was compromised in that it lacked adequate roadside drainage causing roadway flooding and was experiencing severe pavement displacement during the winter / spring freeze thaw cycles.

QCC designed drainage improvements for the roadway that included new closed drainage systems, replacement culverts, culvert slip lining and drainage outfall treatment measures. Roadway improvements included full width pavement reclamation, installation of base gravel reinforcement mesh, additional crushed gravels, and new bituminous pavements. Due to the constrictive nature of the right-of-way, roadway improvements for superelevation elements were designed as roadway box-out construction. The project was completed in 2012 and was funded by the Town of Northfield and the NHDOT Municipally-Managed State Highway Aid Program.



# Center Harbor, NH

## ROADWAY MANAGEMENT PLAN

Jeff Haines-Road Agent  
PO Box 140  
Center Harbor, NH 03226  
(603) 279-8689

The Town of Center Harbor maintains approximately 17 miles of roadway, nearly all of which are bituminous surfaced with numerous culvert crossings beneath the roadways. Throughout the municipal roadway network, the roadway surfaces are in various states of distress and deterioration. In recent years the Town has had a proactive policy of replacing ailing cross culverts with newer pipe culvert materials and is actively addressing the viability of roadside drainage swales.

The Town retained QCC to assist the Town in developing a comprehensive road management plan that provides for short term and long term goals for the community, and which serves to provide a yearly capitalization budget for the Town to address these needs. QCC and the Town undertook a detailed on the ground inventory of the Town's roadway assets for assessing the conditions of the facilities and to assist in developing the short term and long term goals so as to repair, upgrade and preserve the municipal assets. Utilizing electronic road management software, QCC developed the program with Town input and revises it yearly.



# Fay Martin Road over Tully Brook

NHDOT Br. 160/071  
Richmond, NH

## BRIDGE REPLACEMENT PROJECT

Susan Harrington | Town Administrator  
Town of Richmond  
105 Old Homestead Hwy.,  
Richmond, NH 03470  
(603) 239-4232

The existing bridge, constructed in 1930, was a 17-foot long, single lane, steel beam structure with a wooden deck. The beams were severely deteriorated and the abutments were cracked and spalling. The bridge was posted for 10 tons, and was listed on the NHDOT Municipal Redlist. Fay Martin Road is a dead end road and the bridge is the only access to residences and a school/religious center.

QCC proposed to realign the roadway to the north, which allowed the existing bridge to remain in service during construction to provide access to the properties on the east side of Tully Brook. The new bridge is a 24-foot span precast concrete rigid frame founded on cast-in-place concrete stem walls with spread footings.

QCC developed construction documents, provided bidding assistance and construction oversight for implementation.

This project was funded by the Town of Richmond, the Saint Benedict Center and the NHDOT Municipally-Managed Bridge Aid Program.



# Glenclyff Hydro Dam Repair

*Benton, NH*

## DAM ENGINEERING PROJECT

Mr. J. O. White, Jr. | Project Manager  
Glenclyff Home  
393 High Street  
Glenclyff, NH 03238  
603-989-3111 Ext. 1521

The Glenclyff Hydro Dam (Dam D023003) is located in the Town of Benton, NH and serves the Glenclyff Home as a source of water for a hydroelectric facility, fire protection system, and laundry facility. The existing 125-foot long dam consisted of a stone masonry spillway encased in cast-in-place concrete with concrete masonry block downstream training walls, a right earth embankment dam with a field stone masonry core wall and badly deteriorated upstream concrete training wall, and a left abutment consisting of a cast-in-place concrete intake structure.

QCC designed repairs to the spillway that improved the hydraulic capacity of the spillway, slip-lined and redirected the existing low level outlet, and replaced the training walls. The left abutment was reconstructed downstream of the intake structure, and the existing penstock was encased in concrete to protect it. The undermined and badly deteriorated spillway apron was replaced with a new apron including toe drains. The repairs also included protection of the right upstream core wall and stabilization of sloughing embankment slopes within the impoundment and downstream of the dam. QCC prepared applications and coordinated for environmental and dam reconstruction permits from the NHDES Wetlands Bureau and Dam Bureau. Repairs were completed in Fall 2016.



**KYLE FOX, PE, DIRECTOR**  
Department of Public Works  
Town of Merrimack  
6 Baboosic Lake Road  
Merrimack, NH 03054  
(603) 424-5137  
kfox@merrimacknh.gov

**JEFF HAINES, ROAD AGENT**  
Town of Center Harbor  
658 Dane Road  
Center Harbor, NH 03226  
(603) 279-8689  
chdpw@metrocast.net

**DAVID W. FORD, PE**  
**DIRECTOR OF PUBLIC WORKS,**  
**WATER & SEWER UTILITIES**  
Town of Wolfeboro  
9 Union Street, PO Box 629  
Wolfeboro, NH 03894  
(603) 569-8176  
pwdirector@wolfeboronh.us



*Bedford Road, Merrimack, NH*

QCC has positioned itself in the marketplace to provide professional consulting engineering services on a small or large-scale basis. QCC has also continued to develop its professional relationships with other firms to provide seamless design services, including most facets of municipal infrastructure and facility assessment, design and construction. QCC has proven with its diligent use of increased staff and professional relationships with other firms that we have the flexibility and ability to perform assignments in a timely and efficient manner to meet our client's needs.

The majority of QCC's current workload is civil and structural engineering services and construction administration services managed by in-house staff with back-up services provided on an as-needed basis by one or more of our professional relationships.

For this Professional Engineering Services

agreement, QCC has assembled a highly qualified Team to be able to perform full infrastructure design services for existing and proposed Town projects. These full infrastructure design services include site plan and subdivision review; review of drainage analysis and design; review of traffic reports; meeting with and providing to the Planning Board submission review reports; field observation of Planning Board approved projects that may exhibit road, drainage, and or water issues; provide field observation reports to the Planning Board; provide on-call services to the Planning Board to discuss projects being observed; attend pre-construction meetings and final inspections as requested; advise the Planning Board on estimate for performance guarantee and for bond releases; perform review of as-built plans; and to provide the Planning Board with general assistance and make other recommendations as deemed appropriate.

QCC and our entire Team is also prepared to offer environmental permitting assistance; grant and loan application and administration assistance; survey, right-of way research, and mapping assistance; construction observation with testing services when required; and perform Town owned building assessments as requested.

QCC has developed roadway management plans that assessed all roadways and drainage facilities, identified short and long term goals for the stabilization and and preservation of the roadway and drainage systems, and recommended prioritization of remedial actions in relation to roadway management. Our intent is to maximize expanse of road treatment within annual appropriation levels. QCC notes that these programs are of fluid nature and require yearly review and revision.

For each assignment, QCC will meet with the Town who will provide a general overview of the project. After the meeting, QCC will prepare a scope of work and proposed fee for development of a project plan and schedule that meets the needs of the Town. Pending Town review and acceptance or further negotiation, QCC will begin work only after authorization is granted by the Town. For each assignment, QCC will assign a separate project identification number to be utilized for purposes of tracking progress and invoicing.

QCC's current workload includes a variety of municipal roadway and drainage projects funded through local and New Hampshire Department of Transportation (NHDOT) funding sources; municipal bridges under design in the

NHDOT State Bridge Aid program; and dam CIP development, rehabilitation assessment and design.

For several years, QCC has assisted the New Hampshire Department of Administrative Services (NHDAS) Division of Public Works (DPW) with the design and construction of numerous projects including but not limited to salt storage facilities, master planning and design of existing and new municipal DPW site facilities, and site planning and design of NHDOT patrol shed sites and buildings.

It is QCC's goal and mission to provide the Town with well-organized projects that utilize traditional and emerging engineering technologies and approaches to produce economical solutions in a timely manner.

#### **CONFLICTS OF INTEREST**

QCC takes great pride in the fact that we have not had any claims and/or lawsuits filed against our professional liability insurance within the past ten years.

Quantum Construction Consultants, LLC prides itself on avoiding conflicts of interest to the highest possible extent. In order to avoid any potential or perceived conflicts of interest, QCC routinely manages projects in a public forum and does so with the greatest transparency.

Additionally, business relationships with town officials, town employees, and/or subcontractors will be fully disclosed.





**QUANTUM CONSTRUCTION CONSULTANTS, LLC**

27 Locke Road, Concord, NH 03301

603-224-0859