**RFP # 42-06**

# Consulting Services for Shelton Canal Locks Park and Riverwalk

Shelton, CT

**QUALIFICATIONS FOR TECHNICAL AND PROFESSIONAL SERVICES**

August 27, 2021


HALVORSON

Tighe&Bond STUDIO

HALVORSON
Tighe&Bond STUDIO

August 27, 2021

Gene Sullivan
City of Shelton Purchasing Department
54 Hill Street
Shelton, CT 06484

**Re: Response to RFQ# 42-06 – Consulting Services for the Environmental Restoration of the Shelton Canal, Historic Preservation of the Shelton Canal Locks, and Establishment of Public Access to the Shelton Canal Locks Park and Riverwalk**

Dear Mr. Sullivan:

Tighe & Bond Studio, Inc. (Halvorson | Tighe & Bond Studio or "Halvorson") is delighted to submit our qualifications for the Shelton Canal Locks Park and Riverwalk Master Plan. We recognize a successful Master Plan must respect and preserve the City's rich, unique history and its relationship to the river while simultaneously offering a vision for an active, vibrant, and accessible riverfront for the 21st century. We are committed to a collaborative process that engages and drives community support while providing an inspirational vision and implementable roadmap for a more vibrant future. In presenting our qualifications, we believe there are several aspects of our team that distinguish our candidacy.

**WE BELIEVE NO TWO PROJECTS ARE ALIKE**

Ask our clients: the Halvorson | Tighe & Bond team prides itself on our reputation for finding and defining the unique qualities of each place and project. We will work with you to create a vision for the presentation and historic preservation of the canal lock and design a vibrant riverfront park that will make it a destination to be appreciated by residents and visitors and will enhance the city's economic vitality for decades into the future.

**WE HAVE A TRACK RECORD OF DELIVERING COMPLEX URBAN WATERFRONT PROJECTS**

Halvorson | Tighe & Bond Studio has extensive experience in urban and waterfront planning with notable project examples in Norwalk, CT, Nashua, NH, and Boston, MA. Our team of professionals is nationally recognized as leaders in design, memorable parks and open space, innovative stormwater solutions, and brownfields redevelopment.

**WE CREATE A VISION WITH IMPLEMENTABLE STRATEGIES**

We recognize the importance of creating a compelling vision that achieves and sustains public support and is both fundable and implementable. Our experience has proven the maxim that "money follows good ideas." This approach is what drives us forward.

LANDSCAPE ARCHITECTURE, PLANNING + URBAN DESIGN

25 KINGSTON STREET, 5TH FLOOR, BOSTON, MA 02111-2200
P 617.536.0380 HALVORSONDESIGN.COM

**LOCAL PRESENCE AND FAMILIARITY**

Our team has a strong working relationship with the City of Shelton and have been involved in a number of brownfield sites and mills in the area, including along Canal Street. In addition, Tighe & Bond Studio's Shelton, CT office geographically positions our team to quickly respond to project needs.

**WHOLE ASSET APPROACH**

Our extensive experience on waterfront projects throughout the Northeast reinforces the notion that waterfront projects are rarely one-dimensional and benefit from having allied design professionals available as internal resources to soundboard design strategies or provide peripheral technical support at this early conceptual stage of the project. To this end, Tighe & Bond Studio includes a broad suite of technical services, including Civil Engineering, Stormwater Management, Environmental, Permitting services, and Geotechnical Engineering. Our Whole Asset Approach™ ensures that our project team brings the design vision and technical breadth to create a compelling Master Plan vision for the project and to support the implementation of the project's future phases.

It would be our privilege to collaborate with the City of Shelton to create an inspired vision for the riverfront and to highlight the City's history in a meaningful and tangible way through the restoration of its historic canal and lock system. If you have any questions, please contact either Bob Uhlig at mobile #978-270-4876 or bobu@halvorsondesign.com or Sean Ragan at mobile #203-240-5835 or sean@halvorsondesign.com.

We look forward to continuing our work with you on this exciting and important project

Please note our signed acknowledgment of Addendum #1 at the conclusion of this proposal.

Sincerely,

**Tighe & Bond Studio, Inc.**

Robert Uhlig, FASLA, LEED AP BD&C
Vice President of Landscape Architecture & Urban Design

Sean Ragan, PLA ASLA
Senior Landscape Architect

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## DESIGN PHILOSOPHY

*Halvorson | Tighe & Bond Studio creates timeless, engaging landscapes that are rooted in fundamental design principles and inspired by the dynamics of nature. Working within a variety of scales and uses, we connect the natural and built environment though design that is adaptive, resilient, and responsive to its unique context.*

*Our goal is to foster connections: between ourselves and our clients, projects and their context, and most importantly, between individuals and the beauty, color, and ever-changing qualities of nature that shape our daily lives.*

# STUDIO INFORMATION

**YEARS IN BOSTON**

**40+**

**DESIGN AWARDS**

**100+**

**CLIPPERSHIP WHARF EAST BOSTON**

**2020 EBC CLIMATE CHANGE PROJECT OF THE YEAR**

**HANCOCK ADAMS COMMON, QUINCY**

**2018 APA-MA PLANNING PROJECT AWARD**

## HALVORSON | TIGHE & BOND STUDIO

Halvorson | Tighe & Bond Studio (Halvorson) provides professional landscape architecture, site planning and urban design services throughout the Northeast. Since 1980, Halvorson has helped municipalities, institutions, public agencies and private organizations realize their goals for exemplary landscapes and open spaces.

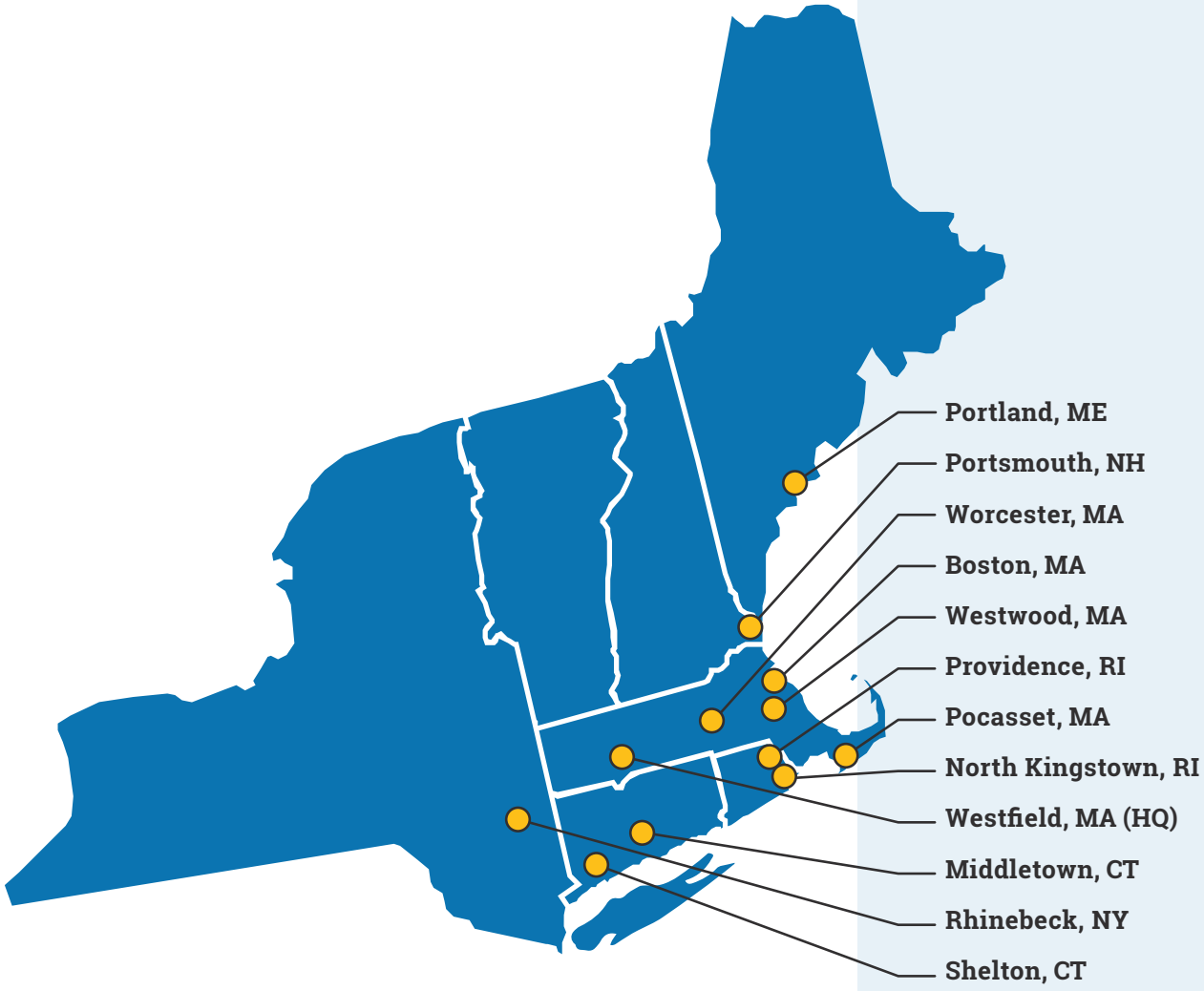
We have built our practice on a foundation of long-term client relationships, and our principals and staff are dedicated to listening and developing a comprehensive perspective before beginning design work. Our studio is known for design commissions that lead to fully-realized, lasting projects—a testament to our emphasis on flexible spaces, durable materials and community consensus. We believe the best solutions result from careful investigation and robust collaboration with all those involved in project planning, development, maintenance, and use.

Our emphasis on designs that lead to built work has resulted in a comprehensive and practical knowledge of construction requirements. We also offer expertise in several technical areas, including waterfront landscape design; tidal shoreline restoration; complete streets and multi-modal transportation; horticulture; historic landscape restoration and adaptation; and the selection and coordination of public art.

## OUR FULL-SERVICE DESIGN APPROACH

Joining Tighe & Bond strengthens Halvorson's ability to create timeless, engaging landscapes that offer adaptive, resilient solutions and are responsive to the demanding challenges facing cities and communities. Our collective team of designers, planners, engineers, and scientists are innovative problem solvers. Vision, technical expertise, exceptional service and strong client relationships have always been at the forefront of our mission.

## OUR LOCATIONS




**With 12 offices across the Northeast, we are ready to provide responsive, high-quality professional services to efficiently meet your project goals, schedule, and budget.**

Tighe&Bond

# FIRM OVERVIEW

**FOUNDED**

**1911**

**TEAM MEMBERS**

**400+**

**ZWEIG GROUP**

**BEST FIRMS TO WORK FOR**

**ENR NEW ENGLAND TOP DESIGN FIRMS**

**#7**

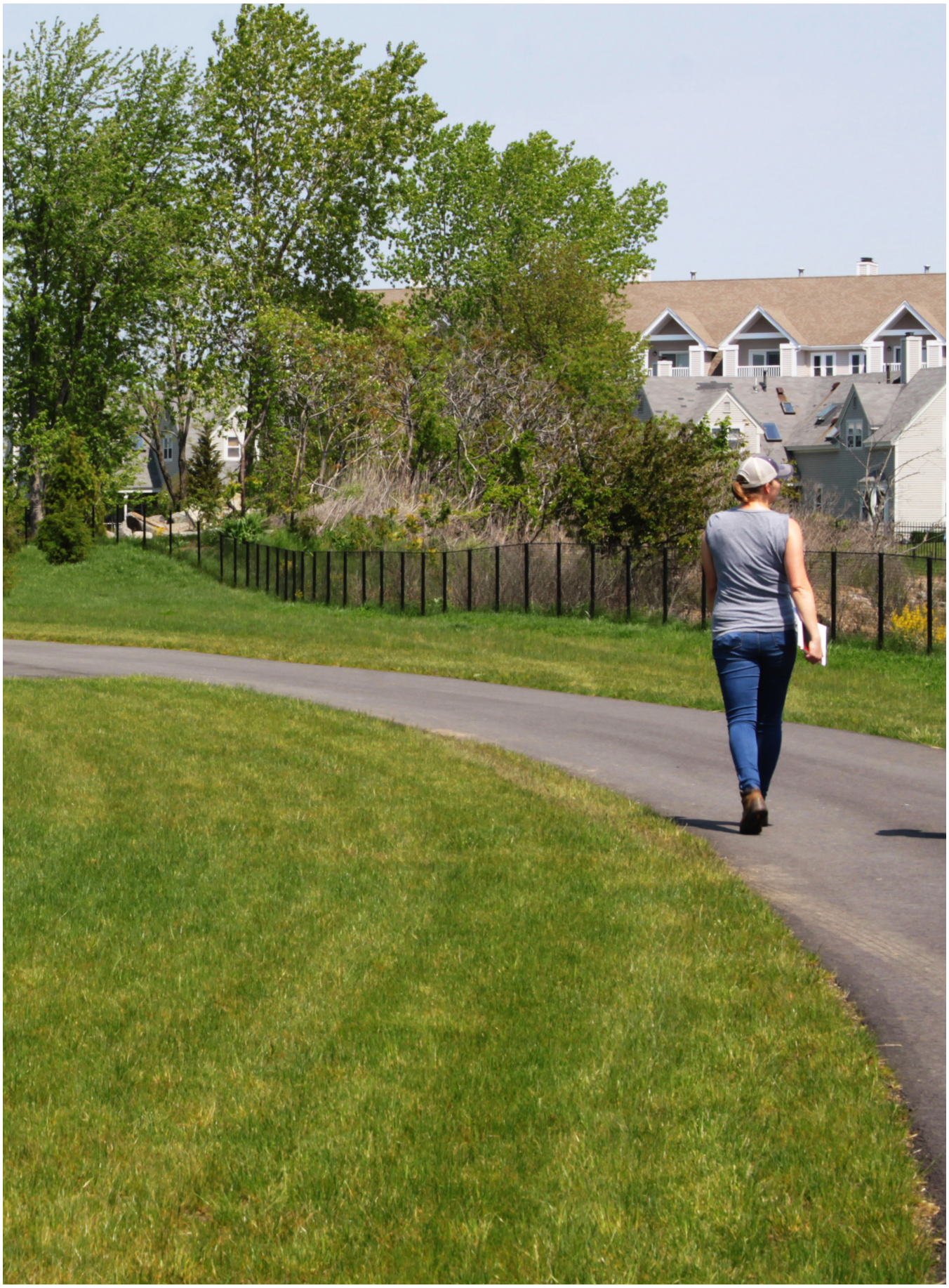
For more than a century, Tighe & Bond has been a leading multi-disciplinary consulting firm in the Northeast, manifesting its clients' vision for a better built environment by providing full-service engineering, landscape design, site planning, and environmental services. Innovative thinking and exceptional service have always been at the core of our work.

In addition to our engineering and environmental expertise, Tighe & Bond's landscape design studio (Halvorson | Tighe & Bond Studio) offers a unique perspective creating more holistic solutions with an eye to unlocking each site's potential.

Our experienced professionals provide concept-to-completion expertise to comprehensively address the needs of our public and private clients. By focusing on bright ideas, green strategies, and clear solutions, the Tighe & Bond team develops creative, collaborative responses to complex challenges. We never stop evolving in order to keep pace with our ever-changing industry because moving forward is what we do.

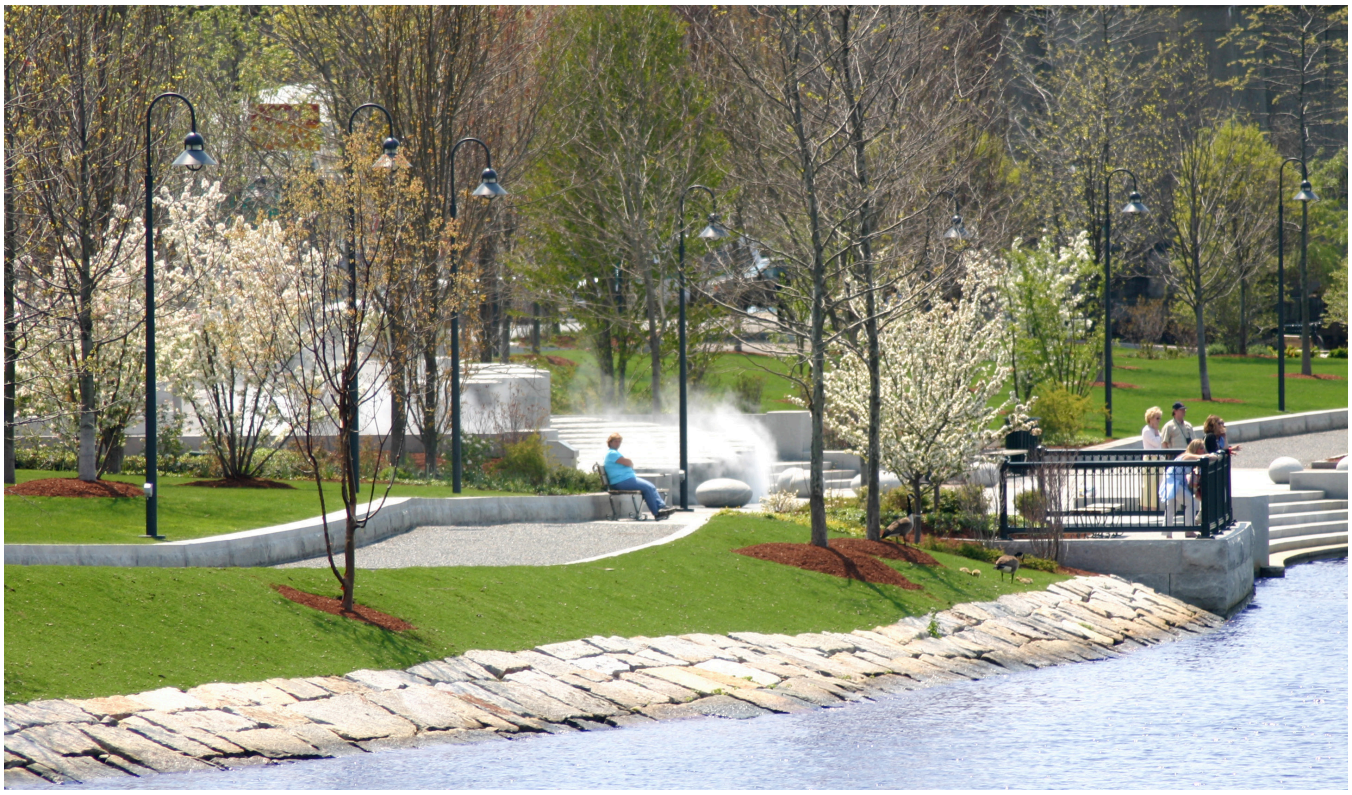
## SERVICES

- Building Services: MEP, Structural & Geotechnical Engineering
- Coastal & Waterfront Solutions
- Environmental Consulting
- GIS/Asset Management
- Landscape Architecture & Urban Design
- Site Planning & Design
- Transportation Engineering
- Water & Wastewater Engineering



Sen. Joseph Finnegan Park & Wetlands Restoration, Boston, MA,

# PROJECT EXPERIENCE



Nashua Street Park, Boston, MA

Society places great demands on its open spaces, whether they are parks, streetscapes, campuses or multi-modal transportation corridors. We want our open spaces to satisfy a wide range of needs—and be designed to facilitate those specific interests or demands—while still remaining flexible and programmable destinations able to host a variety of events.

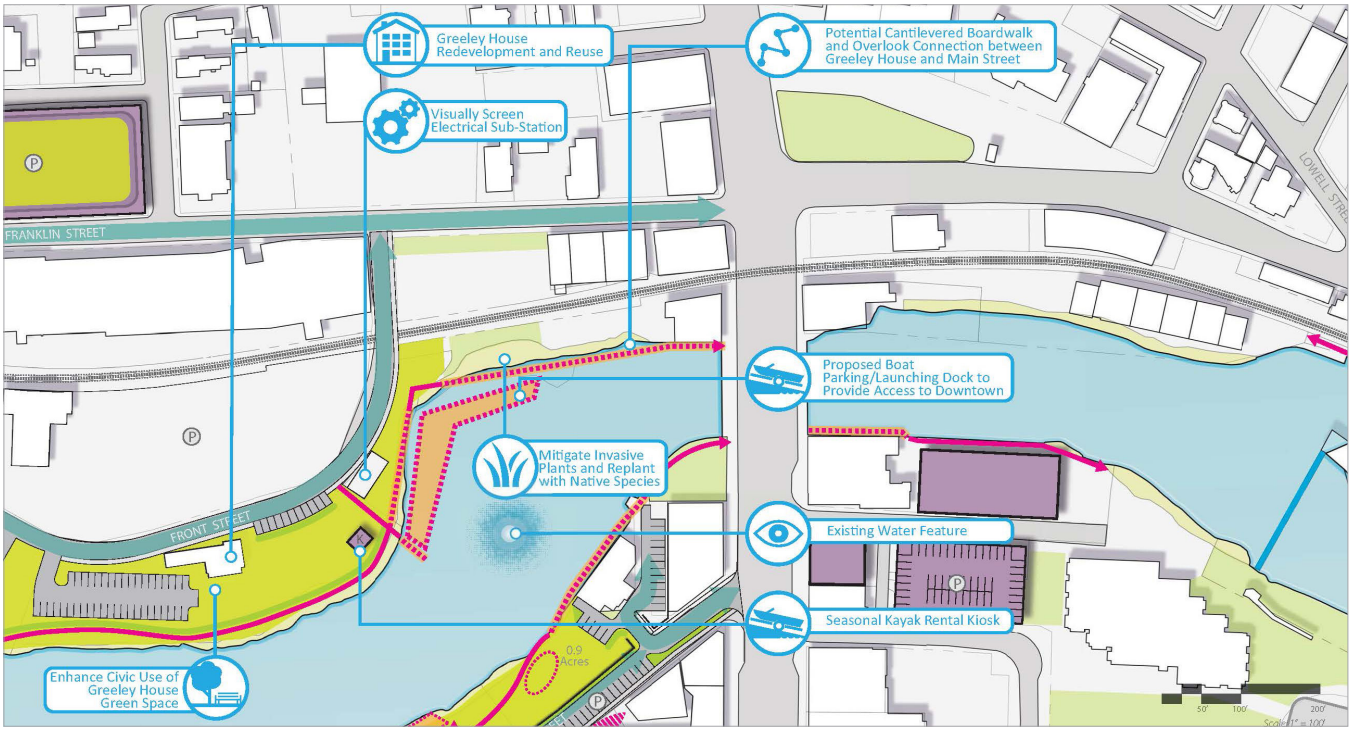
Parks and other public spaces also must reflect the values of their neighborhood, protect vulnerable communities from the effects of rising heat and the impact of increased storm events, and serve both symbolic and interpretive functions by cerating a sense of place through art, environmental graphics, or incorporation of natural landscape features or historic elements.

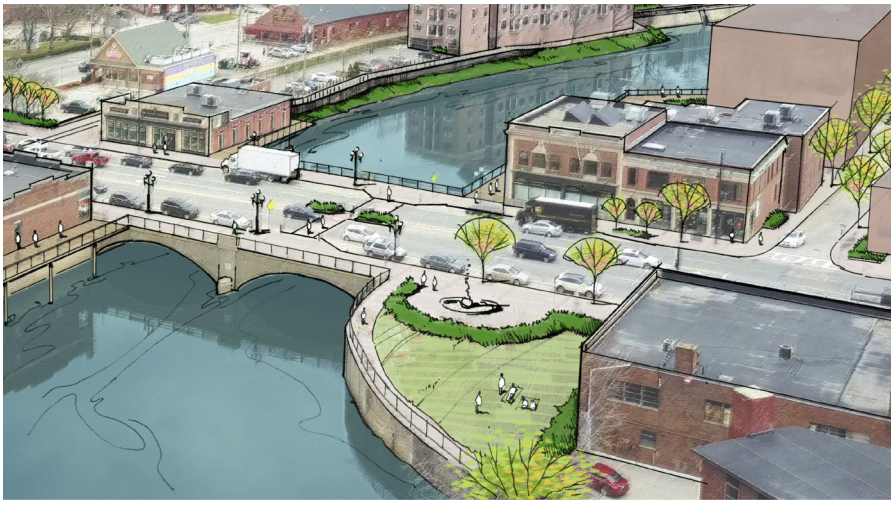
We apply our expertise—developed from over 40 years of urban design and landscape architecture experience for projects that range from small municipal parks to large waterfront developments—to utilize strategies and tactics that best suit the unique character and neighborhood goals for each project we undertake. We work to identify opportunities for pedestrian-scaled amenities within the landscape and to create a sense of place.

Many of Halvorson's public realm projects also incorporate art and/or interpretive elements. The integration of art elements often involves working with stakeholder groups, the community, and artist(s) to come up with features that speak to and resonate with the community. If done right, these elements can extend and provide meaning to the project.

# NASHUA DOWNTOWN RIVERFRONT PLAN

*Nashua, NH*



**OWNER**

City of Nashua

Halvorson assisted the City to create a vision and conceptual plan to guide improvements and uses along the Nashua River corridor in downtown Nashua. The process involved an extensive community engagement component with both in-person and online engagement opportunities, cost estimates and project prioritization.

By taking the City and community's input into consideration, Halvorson developed a framework plan that: highlights the Nashua River as an asset to the downtown, creates connectivity between the riverfront and local businesses, improves waterfront amenities for public gathering, minimizes development impacts on the riparian ecosystem and identifies focus areas for future development.

This framework will guide the City's development strategy for the next 10 to 20 years. Halvorson is currently working with VHB on the first phase of implementation.

HALVORSON
Tighe&Bond STUDIO

## SEN. JOSEPH FINNEGAN PARK + WETLANDS RESTORATION

*Boston, MA*




### OWNER

Massachusetts Department of Conservation & Recreation (DCR)

### AWARDS + PUBLICATIONS

**The Waterfront Center**
Excellence on the Waterfront Award, Top Honor, 2018

**Environmental Business Council**
Nicholas Humber Environmental-Energy Award for Outstanding Collaboration, 2018

Located at the mouth of the Neponset River, the 14-acre Senator Joseph Finnegan Park was transformed from an industrial site—as the former home of the Shaffer Paper Factory—into a neighborhood open space that improves access to the waterfront and restores a sensitive ecological habitat.

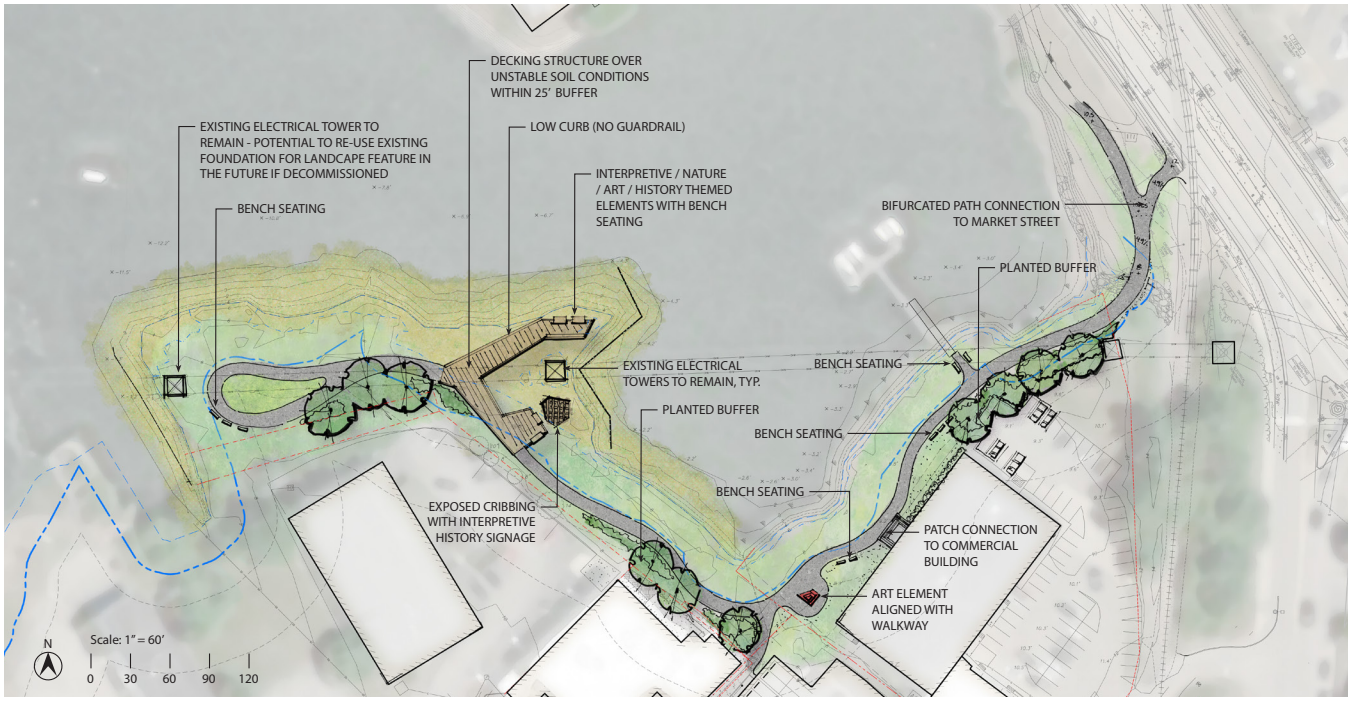
Halvorson collaborated with GEI Consultants and DeRosa Environmental on an ambitious strategy to transform this blight on the neighborhood for the Massachusetts Department of Conservation and Recreation (DCR). The team cleaned up the site, replaced dilapidated seawalls with soft shorelines, restored wetlands, and removed crumbling buildings.

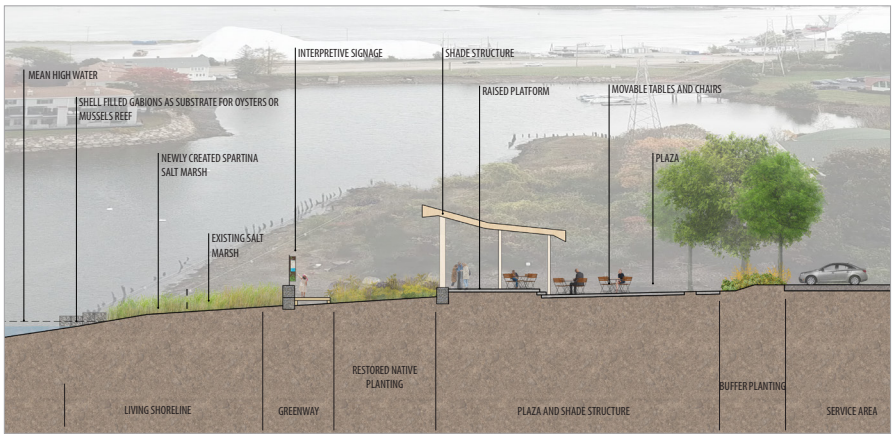
Walking trails, new trees and open fields now welcome Port Norfolk residents to enjoy this community waterfront asset.


SENATOR JOSEPH FINNEGAN PARK + WETLANDS RESTORATION

# NORTH MILL POND TRAIL + GREENWAY

*Portsmouth, NH*





**OWNER**

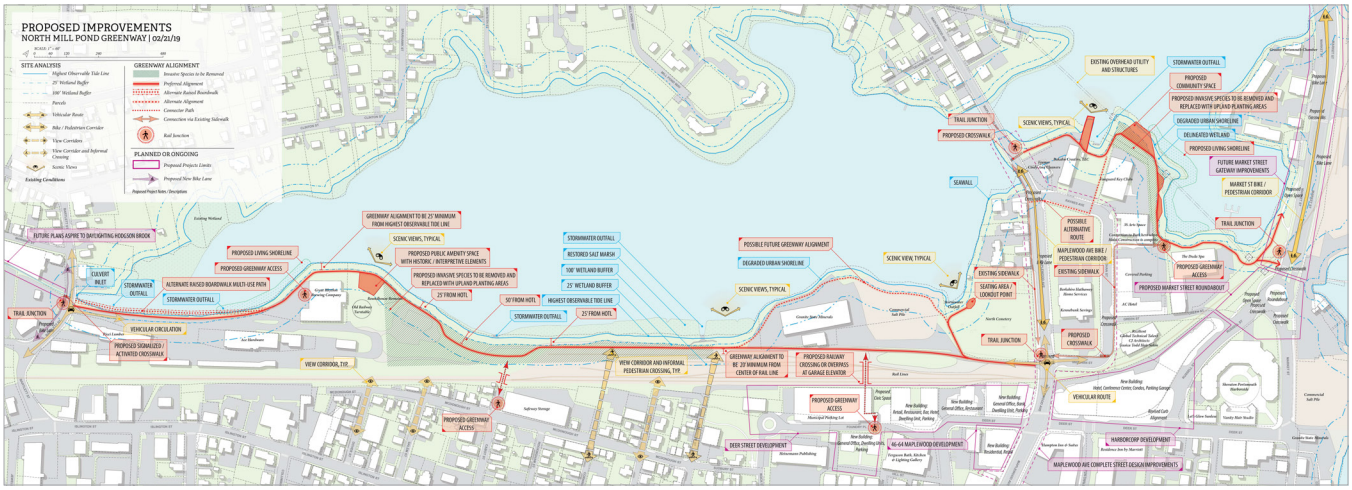
City of Portsmouth

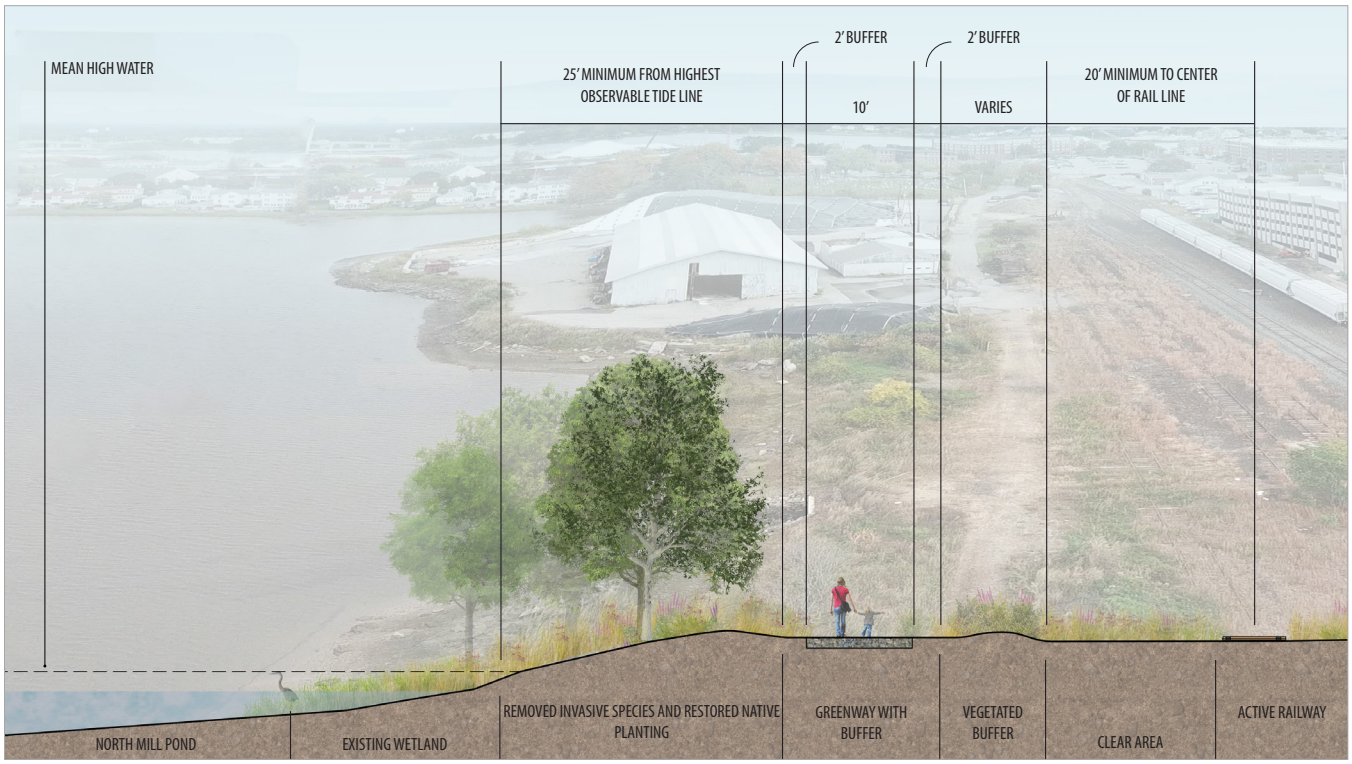
Halvorson | Tighe & Bond Studio is collaborating with the City of Portsmouth and DeRosa Environmental to design a linear greenway and community park along the southeast shoreline of North Mill Pond.

The proposed mile-long greenway is driven by a public process to engage the community, property owners and abutters, with an ultimate goal of connecting downtown Portsmouth with adjacent neighborhoods and planned transportation, complete streets, bike and greenway improvements.

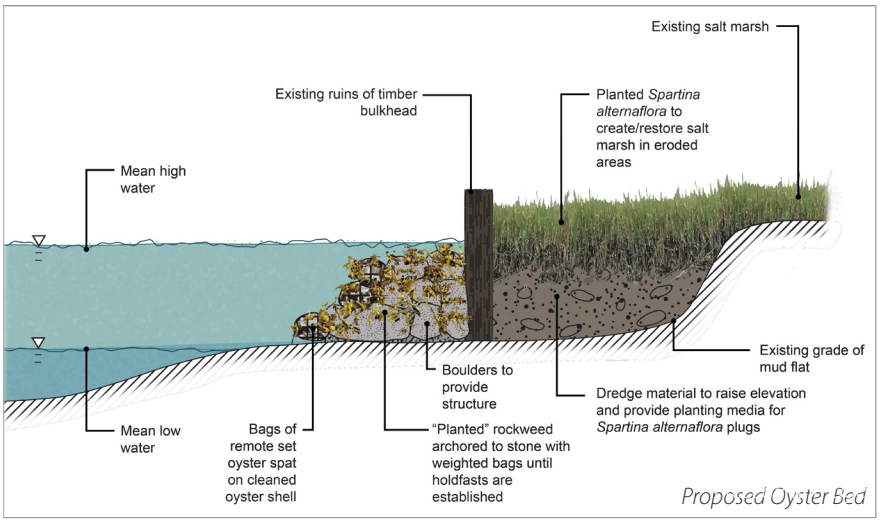
Designed to enhance the natural assets of North Mill Pond, the greenway will serve as a valuable open space and habitat that provides an ecologically healthy, socially vibrant, and educational destination for residents and visitors alike. It will feature scenic lookouts and seating, interpretive signage, bank enhancements, a living shoreline, and potentially a raised boardwalk overlooking the water.

A one-acre community park with flexible seating and interpretive elements will create a welcoming new public amenity and educational destination.








NORTH MILL POND TRAIL + GREENWAY

## NASHUA STREET PARK

*Boston, MA*

### OWNER

Commonwealth of Massachusetts
Department of Conservation and Recreation

### AWARDS + PUBLICATIONS

**American Society of Landscape Architects**
Boston Chapter Honor Award, 2005

**Boston Globe Magazine**
"Best of the New," 2005

Nashua Street Park engages the public with access to the Charles River shoreline and linkages to adjacent areas for walkers, bicyclists and rollerbladers through a network of paved paths.

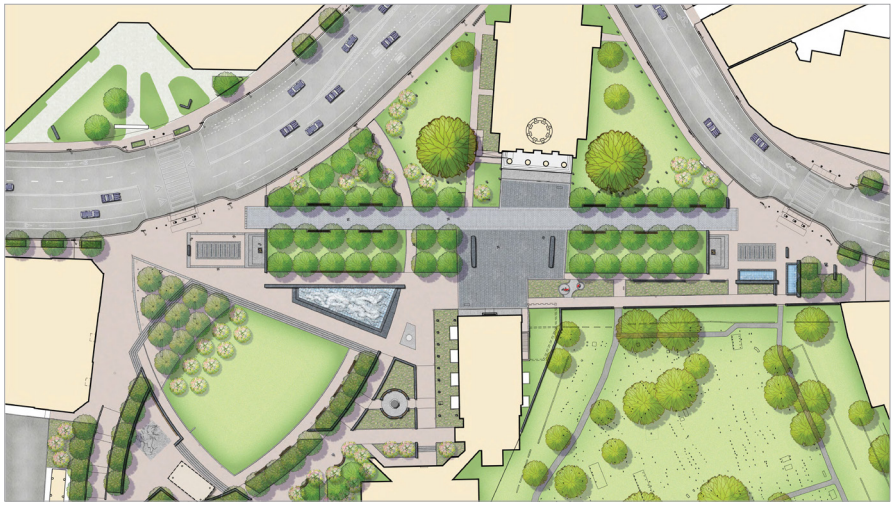
The park design includes carefully integrated moments of artistic expression. A spiral granite sculpture forms an axis at the heart of the open plaza and provides access to elevated views of the river.

The provision of full accessibility was critical to the design of the site, allowing use by all members of the community and serving as an informal therapeutic resource for the nearby Spaulding Rehabilitation Hospital.

NASHUA STREET PARK

# HANCOCK-ADAMS COMMON

*Quincy, MA*



**CLIENT**

City of Quincy

**AWARDS + PUBLICATIONS**

**Boston Society of Landscape Architects**
2020 BSLA Design Merit Award

**American Planning Association**
APA-MA Planning Project Award, 2018

**Preservation Mass**
Frederick Law Olmsted Award, 2019

**ACEC Massachusetts Engineering Excellence**
Bronze Award *(w/Woodard & Curran)*, 2019
Silver Award *(w/Howard Stein Hudson)*, 2018

Bringing new life and activity to historic Quincy, Hancock-Adams Common is poised to become a civic focal point for the community.

This new activated park and streetscape connects cyclists and pedestrians to the bustling downtown. Contemporary water features and elegant materials establish a celebratory ground that commemorates Quincy's national renown as the birthplace and home of two American presidents.

Halvorson's ambitious park design involved a realignment of the urban fabric, including the reconstruction of two major streets to develop an integrated vision for the park and surrounding historic downtown.

The transformation of Hancock Street introduces a new pedestrian promenade and plaza, which serve as an attractive setting for three of the city's most important historic sites: United First Parish Church, Old City Hall and Hancock Cemetery.

HANCOCK ADAMS COMMON

# WILTON STATION PEDESTRIAN WALKWAY

## WILTON, CT

**OWNER** Town of Wilton

## SERVICES

Hydraulic Analysis

Design and Permitting - Local, State, and Federal

Floodplain Management

Utility Cordination

The commercial district of Wilton Center and the Wilton Train Station are separated by the Norwalk River, with no convenient pedestrian linkage. Additionally, athletic fields on the west side of the Norwalk River are connected to the Norwalk River Valley Trail, but parking connections are limited. The Town of Wilton secured STEAP and LOTCIP grants to construct a pedestrian bridge over the Norwalk River to link the Wilton Train Station to Wilton Center, and to provide a convenient pedestrian linkage to parking for the walking trail and or the athletic fields.

Tighe & Bond was retained by the Town of Wilton for the design and permitting of the proposed connection, which includes a new pedestrian bridge spanning the Norwalk River as well as the pathways linking the bridge to the Train Station and Wilton Center which will be constructed on the existing footprint of the walking trail. The pathways will be hard surfaced and will include landscape and lighting elements.

Tighe & Bond developed crossing concepts, and in the process of developing the hydraulic model of the Norwalk River, identified an error in the existing Flood Insurance Study that underestimated the base flood elevation. Due to the topography of the site, earthwork will be required to ramp approaches up to the bridge so that the bridge crossing has sufficient underclearance for the 100-year flood elevation. The proposed fill will be offset by excavation of a flood bench along the river.

As part of the hydraulic analysis of the site, Tighe & Bond evaluated potential scour as a result of the bridge construction, and designed appropriate countermeasures, such as placing the abutments on deep piles. We also developed hydrology and hydraulics for the design of temporary facilities, such as cofferdams to enable the construction of the proposed flood bench. The bridge was designed to include a accommodations for a future extension of gas service.

The project received permits from a number of agencies, including local inland wetlands approval, CTDEEP 401 Water Quality Certification, and a Pre-Construction Notification under the USACE Connecticut General Permit, in addition to CTDOT Encroachment permits for rails and state highways. Since the project is located in the floodplain of the Norwalk River, the state-funded project required Floodplain Management Certification through the CTDOT/CTDEEP MOU process.

# MIDDLETOWN BOATHOUSE

## MIDDLETOWN, CT

### OWNER

City of Middletown

### SERVICES

Brownfields Redevelopment

New 100,000 Square Foot Boathouse

Grant from Department of Community and Economic Development

Upon completion of a planning study for the redevelopment of Middletown's Riverfront, one of the recommendations that emerged was the need for a community boathouse to spur economic development and attract people to the riverfront. As a result, the City of Middletown initiated efforts to design a concept based on the needs of the existing users, and input from the community. Middletown's riverfront has long been a popular site for rowing, with various programs currently operating out of two existing boathouses.

Tighe & Bond, teaming with Architectural Resources Cambridge, was selected to design a new 70,000 square foot community boathouse and banquet facility to revitalize the banks of the Connecticut River in Middletown.

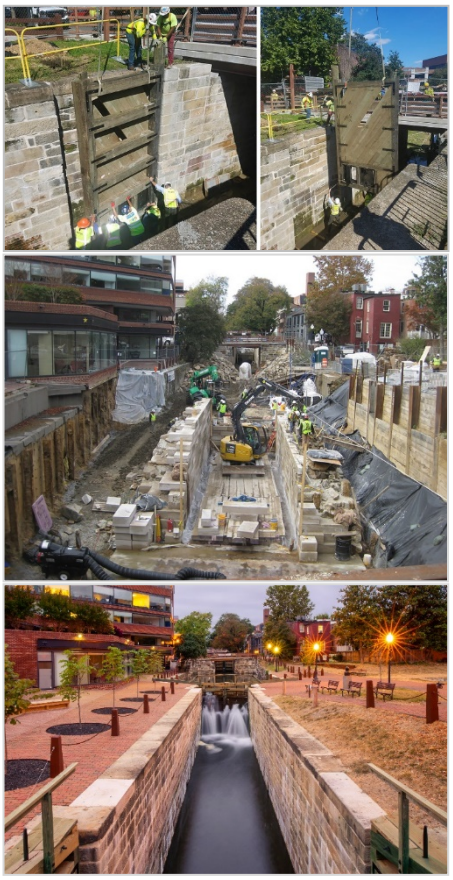
The design included rowing facilities, and associated equipment storage and locker rooms, for three local high schools, Wesleyan University, and community rowing groups. The boathouse will have a rowing tank for training, offices, a 9,500 square foot upper level function hall able to accommodate 300 people, and river overview decks.

The site is adjacent to the river within the flood plain, and as a former brownfields site is also in need of remediation. The shoreline will be reworked into a stable, aesthetically pleasing and functional bank and the docks replaced and improved to allow for premiere rowing regattas.

The project is receiving funding from a $2.6 million grant from the Department of Community and Economic Development for environmental assessment, remediation, and planning for this new boathouse project.

# CANAL PROJECT SHOWCASES

## C&O Canal Locks 3 & 4 Rehabilitation for National Park Service-NCR, Washington, DC



The C&O Canal was constructed as America's first nationally funded infrastructure project between 1828 and 1850. Its most visible piece of engineering are the lift locks. Given the irregular terrain of Georgetown, four locks were built to transfer vessels from one water level to another. For nearly 100 years, this canal operated as an industrial entity until it was damaged in the 1924 Flood and effectively replaced by railroads for transporting coal and other commodities. McMullan previously provided pre-design and schematic design services.

For this task order, and as structural engineer under an IDIQ contract led by an architect, McMullan provided design development, construction documents, and construction administration services for the rehabilitation of these two locks located between 30th and 31st Streets NW with Thomas Jefferson Street in between with environment and geotechnical engineering. Nearly failing, Lock 3 required almost complete reconstruction to address water infiltration from the higher level which was undermining the lock walls and causing failure of the timber foundation. The 14-foot-high ashlar laid stone walls were disassembled with the lock foundation, stone walls, wooden gates, and associated hardware reconstructed using new and salvaged/reinstalled materials. Lock 4 required extensive repair work to maintain its water tightness and continual operation of the structure, comprising stone wall repair, replacement, and repointing as well as replacement of the wood lock gates and associated hardware. Together, both historic locks serve as highlights in the National Park Service's interpretive canal boat tour program and recreational use of the canal. Most importantly, these preservation efforts enable both historic locks to function as a flood control structure for the Georgetown Community and the flood prone Potomac River.

In addition, and subsequent to the award-winning rehabilitation of these two locks, McMullan has been retained by Georgetown Heritage in partnership with the National Park Service to further refine the overarching master plan of rehabilitating the remaining locks and canal segments for the Georgetown portion of the C&O Canal.

**Key Project Attributes**

- Historic Canal/Locks
- Geotechnical Analysis
- Historic Infrastructure Assessment
- Cultural Resource Studies
- Design & Construction Administration
- Surveys
- Masterplanning/Recreational Use
- State or Other Government Ownership/Representation
- Permitting

**Project Role**

Structural/Canal Engineer & Construction Manager | Subconsultant

**Owner**

National Park Service

**Client Contact**

Dan Copenhaver
301.432.5103 |
daniel_copenhaver@nps.gov

## C&O Canal Repairs to Locks 5-22 for National Park Service, Potomac, MD

This project included the repair and replacement of nationally significant canal structures in the longest watered segment of the historic Chesapeake & Ohio Canal from Lock 5 through the upstream end of Level 22. These structures must be in good condition to maintain the water level for National Park Service's interpretive canal boat program. For the design phase, McMullan was retained as a subconsultant with specific focus on our structural and historic canal engineering. For the construction administration phase, McMullan was prime, leading a multidisciplinary engineering team.

Our specific scope of services included the design of repairs and construction administration services at 14 locations along 20 miles of canal that included: replacement of the timber lock gates; repointing and reconstruction of the lock and canal prism masonry walls; installation of a fuse plug upstream of Lock 7 due to frequent towpath washouts; replacement of timber bridges; replacement of waste weirs; stabilization/rebuilding of dry-stone wall on towpath side; rebuilding of an armored wall on towpath side; replacement of lock gates and hardware; repairs to and repointing of stone masonry; replacement of waste weir timber bridge, abutments, and associated infrastructure Lock 20; and installation of a water control structure. The above work included field surveys and measurements, updating topo plans, and identifying means to keep towpath open during construction.

**Key Project Attributes**

- Historic Canal/Locks
- Preliminary Site Investigation, Assessments, Alternatives & Cost Estimates
- Hydrologic, Hydraulic & Flooding Routing Analyses
- Geotechnical Analysis
- Historic Infrastructure Assessment
- Cultural Resource Studies
- Design & Construction Administration
- Surveys
- Masterplanning/Recreational Use
- State or Other Government Ownership/Representation
- Permitting

**Project Role**

Project Manager (Construction) | Prime
Structural/Canal Engineer | Subconsultant

**Owner**

National Park Service

**Client Contact**

Dan Copenhaver
301.432.5103 | daniel_copenhaver@nps.gov

## Morris Canal Lock 2 East & Miter/Drop Gates Restoration for Borough of Wharton, Wharton, NJ

Lock 2 East was one of 23 traditional locks and 23 inclined planes within the Morris Canal which traversed Northern New Jersey in a general east-to-west direction between Newark and Phillipsburg. The lock measures 11 feet wide from interior plank wall to interior plank wall, 91 feet long between gates, and is approximately 15 feet in height. The Morris Canal was constructed between 1825 and 1831. The significance of both Lock 2 East and the Morris Canal is intertwined resulting in the Morris Canal being listed on the New Jersey and National Registers of Historic Places. Contracted by the Borough of Wharton, McMullan's assignment involved a field inspection, design including approvals by the State Historic Preservation Office (SHPO), bid documents, and construction administration services for restoration of the stone lock walls in preparation for the miter gate and drop gate installations. We then designed the miter gates and provided construction services. McMullan prepared construction documents for the timber drop gates. All restoration work has complied with the SHPO and the Standards for Treatment of Historic Properties by the Secretary of the Interior.

**Key Project Attributes**

- Historic Canal/Lock
- Preliminary Site Investigation, Assessments, Alternatives
- & Cost Estimates
- Hydrologic, Hydraulic & Flooding Routing Analyses
- Geotechnical Analysis
- Historic Infrastructure Assessment
- Cultural Resource Studies
- Design & Construction Administration
- Surveys
- Masterplanning/Recreational Use
- State or Other Government Ownership/Representation
- Permitting

**Project Role**

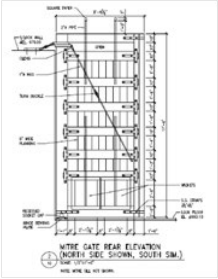
Project Manager & Structural/Canal Engineer | Prime

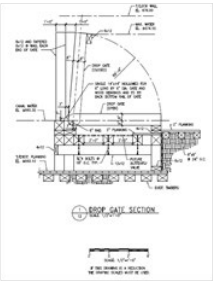
**Owner**

Borough of Wharton

**Client Contact**

John Manna
973.568.9835 | jcmanna@optiline.net





## Lockington Lock 1 Reconstruction for Ohio History Connection, Lockington, OH

In our role as Prime A/E, McMullan conducted a structural investigation of existing conditions of the five historic Lockington Locks located on the Miami-Erie Canal, originally built in 1833. Work included a preliminary analysis and physical condition assessment of the locks, concluding with a report of recommendations for stabilization and preservation of the locks with cost estimates for a permanent stabilization scheme for each individual lock.

Subsequently, McMullan was further commissioned for the rebuilding of Lock 1 using as much of the original material as possible, in accordance with The Secretary of the Interior's Standards for the Treatment of Historic Properties. This involved the disassembly and reconstruction of the historic stone canal lock. The stones were carefully removed, marked for relocation in their original configuration, and stored on site until reassembly onto a new foundation. Our engineering services included the design and planning of the project; production of working drawings and budgets; owner assistance in the bidding and awarding of the project; construction administration and observation; and field monitoring during restoration.

**Key Project Attributes**

- Historic Canal/Lock
- Preliminary Site Investigation, Assessments, Alternatives & Cost Estimates
- Hydrologic, Hydraulic & Flooding Routing Analyses
- Geotechnical Analysis
- Historic Infrastructure Assessment
- Cultural Resource Studies
- Design & Construction Administration
- Surveys
- State or Other Government Ownership/Representation
- Permitting

**Project Role**

Project Manager & Structural/Canal Engineer | Prime

**Owner**

Ohio History Connection

**Client Contact**

Fred Smith
614.297.2300 | fsmith@ohiohistory.org

HUNTER RESEARCH
Historical Resource Consultants
120 W. State Street, Trenton, NJ 08608

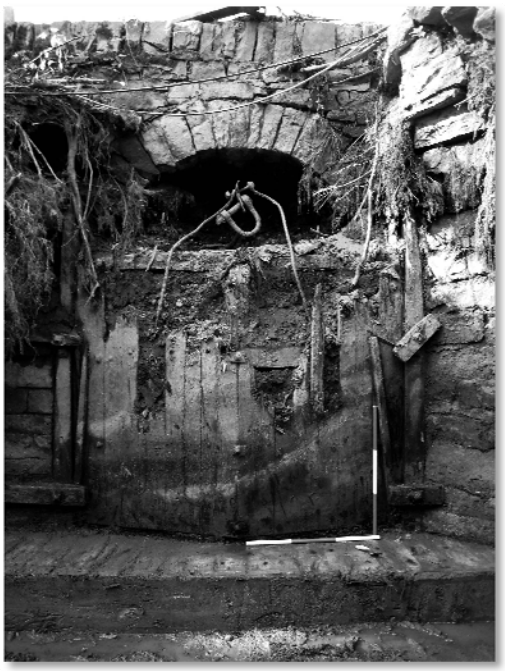
# Delaware & Raritan Canal

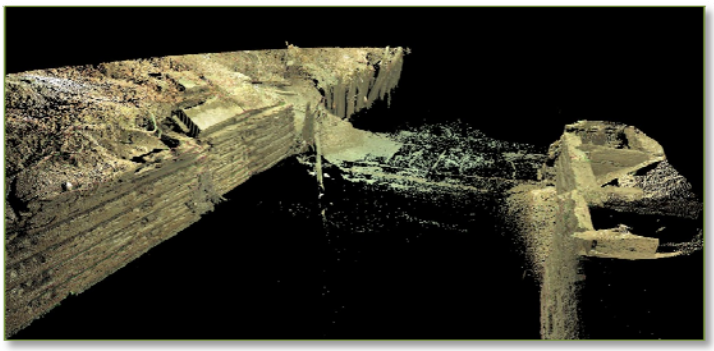
## Delaware & Raritan Canal Historic District, Cultural Resources Management Statewide, New Jersey

For more than 20 years, Hunter Research, Inc. has worked on various Delaware and Raritan Canal projects for the Delaware & Raritan Canal State Park and Canal Commission, the New Jersey Water Supply Authority (NJWSA), the New Jersey Department of Environmental Protection, Division of Parks and Forestry (NJDEP/DPF), and other community stakeholders. These projects have included surveys, documentation, the development of restoration and management plans, and completion of preservation and interpretive planning studies along both the 33-mile length of the main canal across the waist of New Jersey from Bordentown to New Brunswick, and the 22-mile long feeder canal on the east bank of the Delaware River north of Trenton.

Hunter Research's initial involvement with the canal began in the late 1980s with preparation of a canal-wide survey and maps of resources for the NJWSA in support of ongoing maintenance dredging operations. Since that time Hunter Research has worked on a variety of NJWSA capital projects including restoration and repairs of various culverts, weirs, gates, spillways and bridges. The firm's archaeologists and historians have teamed with engineers, architects and contractors to develop appropriate conservation and rehabilitation techniques that preserve the original function and appearance of the canal. We have provided archaeological survey and monitoring services in conjunction with bridge, parking lot and boat launch construction projects to improve recreational access to the canal.

Recent projects in which our firm has been involved include the rehabilitation of two early 20th-century concrete spillways (the "Rooster Coop" and "Workhouse" spillways), a 19th-century spillway at Bull's Island and a 19th-century waste gate near Prallsville on the Delaware and Raritan Feeder Canal for the New Jersey Water Supply Authority. Hunter Research also worked on the rehabilitation of a series of concrete and stone dams and spillways for a late 19th-century ice manufacturing company at the Mountain Lakes Nature Preserve in Princeton Township; the construction of an ADA ramp between the Washington Crossing Bridge and the Delaware and Raritan Feeder Canal in Hopewell Township; and the construction of a bridge and path at Lock 1 of the Delaware and Raritan Canal in Hamilton Township.





Three-Dimensional Scan of the D&R Canal Outlet Lock

Waste Gate on the D&R Feeder Canal north of Prallsville

HUNTER RESEARCH
Historical Resource Consultants
120 W. State Street, Trenton, NJ 08608

# Morris Canal

## Morris Canal Historic District, Cultural Resources Management
## Statewide, New Jersey

Since 1992, Hunter Research, Inc. has completed nearly two dozen projects involving the Morris Canal and related resources for a variety of public and private clients. The scopes of work have ranged across the full spectrum of cultural resources management activity: archaeological monitoring; working with engineers and contractors to stabilize and preserve features such as canal prisms, locks and inclined planes; survey and mapping of segments of the canal; documenting of significant canal features to Historic American Engineering (HAER) standards; interpretive planning; incorporation of canal features into greenway and park settings; and preparation of public outreach materials, such as interpretive signs and booklets. Among the many highlights of our past work on the Morris Canal are the following:

- In 1994, Hunter Research completed a historic resources management plan for the new corporate headquarters of the BASF Corporation in Mount Olive, Morris County. Among the most critical resources dealt with was a stretch of the Morris Canal that included an aqueduct. Hunter Research also produced a historical booklet titled *Farm, Mill, Canal*.

- In 2004, Hunter Research developed outdoor interpretive signs featuring the Morris Canal for the Lafayette Senior Center Project in Jersey City.

- Since 2009, Hunter Research has been working on a project to restore Lock 2 East in Wharton Borough, Morris County. Archaeological survey was followed by structural assessment of the lock itself and removal of the fill from the lock. This resulted in the discovery of intact timber and iron gate mechanisms, which were removed and stabilized. At each stage of the project, Hunter Research has coordinated with the New Jersey Historic Preservation Office.

- In 2009-10, Hunter Research conducted archaeological investigations of Locks 4 and 5 West in Allamuchy Township, Warren County, assessing their condition and providing data for restoring the locks and interpreting them for visitors to the Morris Canal Greenway.

- In 2011, Hunter Research completed an archaeological survey and assisted with the preparation of stabilization plan for Plane 10 West in Lopatcong Township, Warren County. In May 2012, Hunter Research began a project to monitor restoration of a segment of the canal prism near Strykers Road, also in Lopatcong.

# MORVEN PARK

Arlington, VA




LEVERAGE

# WALDEN WOODS BREWSTER HILL

Concord, MA




LEVERAGE

# RAYMOND L. FLYNN MARINE PARK

Boston, MA




LEVERAGE

Nashua Street Park, Boston, MA

# REFERENCES

**HALVORSON | TIGHE & BOND STUDIO**

**City of Middletown, CT**

Joseph Samolis
Director of Planning, Conservation, and Development
245 deKoven Drive
Suite 202
Middletown, CT 06457
P: 860-638-4840
E: Joseph.Samolis@middletownct.gov

**Preston Redevelopment Agency**

Sean Nugent
Chairperson
Preston Town Hall
Upstairs Conference Room
389 Route 2
Preston, CT 06365
P: 860-887-5581
E: snugent@prestonriverwalk.com

**ASML**

Ervins Ozolins
Facilities Director
E: ervins.ozolins@asml.com

**Wilton, CT**

Michael Wrinn
Director of Planning & Land Use Management, Town Planner
238 Danbury Road
Wilton, CT 06897
P: 203-563-0185
E: Michael.wrinn@wilton-ct.org

## HUNTER RESEARCH

**Connolly & Hickey Architects**
Margaret Hickey
P: 973-746-4911

**McMullan & Associates, Inc.**
Douglas Bond
P: 703-556-0651

## MCMULLAN & ASSOCIATES, INC.

**National Park Service**
Dan Copenhaver
P: 301.432.5103
E: daniel_copenhaver@nps.gov

**BOROUGH OF WHARTON, NJ**
John Manna
P: 973.568.9835
E: jcmanna@optiline.net

**Ohio History Connection**
Fred Smith
P: 614.297.2300
E: fsmith@ohiohistory.org

## LEVERAGE DESIGN GROUP

**Civic Space Collaborative**
Michelle Moon
E: michelle@civicspacecollaborative.org
P: 320.282.7708

**Colliers Project Leaders | Northern New England**
Adam Troidl, LEED AP BD+C & Homes
222 St. John Street
Suite 116
Portland, ME 04102
E: adam.troidl@colliers.com
P: 207-319-9304

Nashua Street Park, Boston, MA

# PROJECT TEAM

**Robert R. Uhlig, FASLA, LEED AP BD+C, Project Director**
Bob Uhlig brings more than 30 years of experience in urban design and institutional projects ranging from parks, waterfronts, and streetscapes to commercial, residential, and campus landscapes. He has served as Principal-in-Charge for many sophisticated multi-disciplinary projects that require solving site design and engineering challenges, and frequently involve the seamless integration of art, architecture, and natural systems. He has guided the design and implementation for many award-winning projects, including Quincy's Hancock Adams Common, recipient of the 2019 Preservation Mass and 2018 APA-MA Planning Award; the Lakewood Cemetery Garden Mausoleum in Minneapolis, winner of the 2014 ASLA Award of Excellence; and Atlantic Wharf in Boston, which received the 2012 ULI Global Award of Excellence for sustainable development.

**Sean Ragan, ASLA, Project Manager**
Sean Ragan is an experienced landscape architect who specializes in institutional and commercial landscapes. He has served as lead designer and project manager for notable clients throughout the Northeast, including Yale University, University of Connecticut, and Williams College. With a strong belief that design can be a catalyst for positive change, Sean strives to create vibrant and enduring landscapes that enrich communities and improve the environment. Prior to joining Halvorson | Tighe & Bond Studio, Sean was a landscape architect with Towers|Golde in New Haven and had prior experience in real estate development and construction management.

**James Olsen, PG, LEP, Client Service Manager**
James is the manager of Tighe & Bond's Middletown, CT office and is the Firm's Technical Director for the Environmental Business Line. He has significant experience with site assessment, remediation, permitting, redevelopment, brownfields, hazardous building materials (HBM) assessment and abatement, demolition design, and water supply projects for municipal, industrial, developer, and utility clients. His projects have involved solvent, metal, PCB, and petroleum assessment and remediation under both federal and state environmental programs. He strives to find innovative and cost saving approaches for projects.

**Iris Yung-Ching Lin, RLA, LEED AP, Landscape Architect**
Iris Lin's design perspective is shaped by her background in landscape architecture, her interest in the fine arts, and her engineering training. Her expertise lies in thoughtful and creative problem solving combined with aesthetic expression, which she applies throughout the design. Iris has contributed to projects ranging from park planning and design to cemetery improvements, hospitality and mixed-use developments, and institutional and academic campuses. Some of her notable projects include Senator Joseph Finnegan Park at Port Norfolk, which achieved the Top Honor in The Waterfront Center's Excellence on the Waterfront Award and the Mount Auburn Cemetery Entry Precinct, which received the 2019 Preservation Massachusetts Award.

**Nicholas Granata, LEP, Environmental**
Nicholas Granata is a principal environmental scientist experienced in water supply planning and development. This includes hydrogeologic and geologic investigations, pump testing and aquifer characterization, as well as source water protection. He also performs site assessments; as well as subsurface site investigation and remediation. As a Connecticut Licensed Environmental Professional (LEP) he manages verifications and compliance evaluations with respect to the Connecticut Department of Energy and Environmental Protection (CTDEEP) Remediation Standard Regulations, the Connecticut Transfer Act, United States Environmental Protection Agency (USEPA), and Connecticut Health Department regulatory issues.

**Richard Canavan, PhD, PWS, Permitting**
Richard Canavan is a Principal Environmental Scientist with over 24 years of experience in environmental research, teaching and consulting. His research projects have examined nutrient and pollutant chemistry in lakes, agricultural soil and coastal sediment. As a consultant, he has directed environmental permitting for a range of clients including private developers, municipalities, public utilities and state agencies. This work has included wetland delineation and field assessment, design review, and coordination with regulatory staff, local commissions and stakeholders on permit applications. He has provided environmental planning services for the development of water quality monitoring programs, data analysis and watershed planning.

**Christopher Haker, PE, Geotechnical Engineer**
Christopher Haker's background includes dams, foundation and earth retaining structure design and analysis, site investigations and environmental pre-characterization for various municipal, commercial, and industrial developments including municipal and private office buildings, schools, water and wastewater treatment plants, transmission towers, and retail stores. Chris has prepared geotechnical design recommendations and technical specifications for developments in Massachusetts, Connecticut, New Hampshire, and Rhode Island. Recommendations focused on building foundation and pavement design, site walls and slopes, groundwater control, and earthwork operations. Chris also specializes in dam engineering and soils engineering for dam-related and geotechnical projects. He has served as project manager, performed engineering analysis and design, and prepared contract drawings and specifications for dam rehabilitation (concrete, stone masonry, and earth embankments), commercial and industrial building foundations (shallow and deep), blasting, earthwork, temporary earth support, and permanent retaining wall structures.

**Craig French, PE, Structural Engineer**
Craig French manages Tighe & Bond's structural department and is responsible for structural engineering and architectural design. He is involved with most projects from the conceptual stage through final design and construction. He has experience in the structural design of commercial, institutional, and industrial buildings. In addition, Craig has extensive experience in evaluating existing buildings and structures, as well as performing bridge condition assessments and designs.

**Joseph Canas, PE, LEED AP, CFM, Site/Civil Engineer**
Joseph Canas is a Principal Engineer who has expertise in various civil engineering disciplines, including: floodplain management and modeling, stormwater management and collection systems, roadway design, and construction administration. He has been involved in all phases of project execution from planning through design and construction. He is a CTDOT certified Hydraulic Engineer, LEED AP, and Certified Floodplain Manager.

**Troy Barry, MS, PEng, Riverfront and Geomorphology**
Troy is a stream restoration specialist with a background in watershed science and fluvial geomorphology. He possesses a broad range of science and engineering skills to assess, investigate, and design restoration, enhancement, and recovery solutions for degraded riparian, lake, riverine, and estuary environments. His project experience includes coastal erosion research, coastal resiliency, streambank restoration and stabilization, restoration of natural hydrologic and physical processes, and hydrologic/ hydraulic assessments throughout the United States and Canada.

**R. Shawn Shepard, PE, Drone Operator**
Shawn Shepard is a systems development engineer with experience in a broad array of site/civil engineering projects in addition to his experience with Geographic Information Systems (GIS) and computer application development. Shawn has a unique insight into the use of GIS for civil/environmental engineering projects having a number of years of experience in both disciplines. Shawn's GIS experience focuses on the development of custom web-based GIS applications as well as the development of custom mapping tools for various industries. Shawn currently develops and manages Tighe & Bond's web-based systems including the company website, project specific websites, and several internal web applications and services.

**Craig Yannes, PE, PTOE, RSP 1, Transportation Engineer**
Craig Yannes utilizes his experience in transportation and traffic engineering to develop improved roadway and street networks that balance effective traffic operations and safety, not only for vehicular traffic, but all modes of transportation. His technical specialties include traffic analysis & modeling, transportation planning, traffic safety engineering, and traffic calming & signal design. Serving as a Project Manager in Tighe & Bond's Land Use & Transportation business line, Craig has been involved with and led successful projects from design through construction for a blend of private, Municipal, and State clients. Through these projects, Craig has become a trusted advisor to our clients, utilizing his relationships and expertise in analysis, design, and the permitting process to streamline project delivery.

## SUBCONSULTANT TEAM

**Douglas E. Bond, PE, SE, Structural/Canal Principal Engineer**
Doug has over 32 years of specialized experience in the evaluation and design of repairs for stone masonry canals, arch bridges and aqueducts, lock, and retaining walls, as well as extensive experience in the evaluation of existing masonry lock wooden foundations, aqueduct pier wooden cribbing, and wood pile foundations. He has completed many important projects involving renovations for the National Park Service, General Services Administration, and U.S. Army Corps of Engineers. Doug has presented the technical paper "Restoration of Stone Masonry Aqueducts" on the Chesapeake & Ohio Canal to the Historic Bridge Conference in Ohio, as well as the "Restoration of Monocacy Aqueduct" to the Transport Research Board in Saratoga Springs, New York.

**Rebecca Biskadouras, PE, Structural/Canal Project Engineer**
Rebecca has seven years of experience working on projects that involve new construction, alternations/ additions to existing buildings, renovations, and restoration/preservation of historic canals. She has also overseen development of several Historic Structure Reports (HSRs), condition assessments, and HABS/HAER documentation. Having spent the majority of her career with McMullan, Rebecca is directly involved in performing structural surveys, testing, investigations, designs, calculations, modeling and construction phase services, along with designing projects that use Building Information Management (BIM) software. Her wide-ranging experience includes National Park Service, the Northern Virginia Park Authority, JBG Smith, and Union Station Redevelopment Corporation.

**James Lee, M.A., RPA,Principal Investigator/Archaeologist**
Mr. Lee has over 24 years experience in cultural resource management. He has directed background research and fieldwork activities, overseen laboratory operations, contributed to and authored hundreds of technical reports, and coordinated with clients and review agencies. Mr. Lee has extensive archaeological experience in New Jersey and Pennsylvania on prehistoric, historic, historic industrial and urban sites. Originally trained as a prehistoric archaeologist, he also maintains a specialty in industrial archaeology, with a particular emphasis on the canals of the Middle Atlantic region. Jim has conducted over 20 studies on the Morris Canal, Delaware & Raritan Canal, Chesapeake & Delaware Canal and the Gowanus Canal. Jim has worked on several projects on Ellis and Liberty Islands since 2011 including the Life and Safety Upgrades, Hurricane Sandy Repairs and Site Improvements, Screening Facility, Liberty Island Beautification, and Statue of Liberty Museum projects.

**J. Patrick Harshbarger, M.A., M.P.A,Principal Historian/Architectural Historian/Industrial Archaeologist**
Mr. Harshbarger joined Hunter Research in 2010 as Principal Historian/ Architectural Historian. His current duties include the management and technical oversight of the firm's archival research and historic architectural surveys. With more than two decades of experience in cultural resources management, he has worked in 19 states for a variety of clients from federal and state agencies to municipalities and not-for-profits. He has excellent research skills with a strong working knowledge of archives and libraries on the East Coast and beyond.regulatory issues. Of special interest to Mr. Harshbarger are historic transportation corridors that grew alongside of canals, railroads and early American highways. He is considered a national expert in historic bridges and has conducted state historic bridge surveys and/or management plans in ten states.

**Chris Sheehan, LEED AP, SEGD**
As a multidisciplinary design leader, Chris fuses brand, signage and graphics with architecture to create successful branded environments and places that foster positive user experiences. Over the past 20 years, Chris has collaborated with clients on multiple project types including: healthcare, hospitality, mixed-use, retail, civic, sports, education, corporate, and transportation. As Principal In Charge of our design team, Chris will provide strategic design solutions from masterplanning to design documents.

**Brian Sheehan, SEGD**
Throughout his 18 year career, Brian has brought a successful balance of design understanding and  industry-proven project management. His work includes site research and analysis, signage and wayfinding master plans, brand development, messaging, and branded environments. Building on his experience and knowledge of production and fabrication techniques, Brian ensures that projects are on schedule and meet the demands of our clients' expectations.

# City of Shelton

## Client Service Manager

**James Olsen, PG, LEP**

## Halvorson | Tighe & Bond Studio

**Robert Uhlig, FASLA, LEED AP BD+C**
*Project Director*

**Sean Ragan, ASLA**
*Project Manager*

**Iris Yung-Ching Lin, RLA, LEED AP**
*Landscape Architect*

**Nicholas Granata, LEP**
*Environmental*

**Richard Canavan, PhD, PWS**
*Permitting*

**Christopher Haker, PE**
*Geotechnical Engineer*

**Craig French, PE**
*Structural Engineer*

**Joseph Canas, PE, LEED AP, CFM**
*Site/Civil Engineer*

**Craig Yannes, PE, PTOE, RSP1**
*Transportation Engineer*

**Troy Barry, MS, PEng**
*Riverfront / Geomorphology*

**R. Shawn Shepard, PE**
*Drone Operator*

## Hunter Research, Inc.
Architectural Historian

**James Lee, M.A., RPA**
*Principal Investigator/ Archaeologist*

**J. Patrick Harshbarger, M.A., M.P.A**
*Principal Historian/ Architectural Historian/ Industrial Archaeologist*

## McMullan Consulting Engineers
Historic Canal and Lock Engineer

**Douglas E. Bond, PE, SE**
*Principal Structural Engineer*

**Rebecca Biskadouras, PE**
*Project Engineer*

## Leverage Design Group
Wayfinding/ Interpretive Graphics

**Chris Sheehan, LEED AP, SEGD**
*Principal In Charge*

**Brian Sheehan, SEGD**
*Project Manager*

## Pereira Engineering, LLC
Site Surveyor

**Joseph Pereira, PE**
*Principal*

**Jeffrey Jurzynski, P.L.S**
*Survey Manager*

*Landscape architecture services in CT provided by Tighe & Bond Studio, Inc.

Nashua Street Park, Boston, MA

# PROJECT APPROACH

## PROJECT SCOPE

The Master Plan is critical to the success of the project as it will serve as a road map for the project implementation, which we understand is comprised of the following components:

- Environmental Restoration of Shelton Canal System north of Wooster Street
- Historic Preservation of the Shelton Canal Lock
- Establishment of public open space opportunities such as expanded walking paths, creating access to the Housatonic River, and establishing pocket parks within the program boundaries.

This multi-faceted project will require a nimble design team with a broad range of technical expertise. The Tighe & Bond Studio team includes professionals with expertise in Landscape Architecture, Civil Engineering, Environmental and Permitting Consulting, Structural Engineering, Geotechnical Engineering, Geomorphology, and Transportation Engineering. The team will be further supported by external sub-consultants, including McMullan Consulting Engineers as the Historic Canal and Lock Engineer and Hunter Research, Inc. as the Architectural Historian, both of which bring deep expertise in historic canal and lock projects, and Pereira Engineering as Site Surveyor. Additionally, to help convey the “spirit” and story of the site and bring its rich history to life, we have included Leverage Design Group to develop wayfinding guidance, site signs, and interpretive graphic panels.

## PHASING

### PHASE 1: GATHER INFORMATION

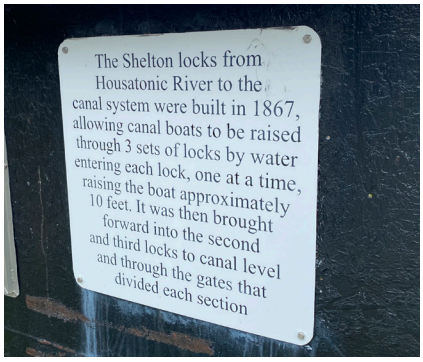
#### Part A: City Input

Based on our prior success with similar projects, we recommend beginning the project with a day of concentrated conversations and meetings to walk the site, get to know one another and develop a shared understanding of the programmatic aspirations, stakeholders, City resources, project schedule, community engagement strategy, and deliverables. This allows us to listen to your “hope and dreams” balanced against site and project constraints — setting the tone for the entirety of the project.

#### PART B: RESEARCH AND ASSESS

In this phase, we will assess the site environmental conditions and lock historical records and structural conditions, as well as associated permitting.

- Investigate historical records of the canal and lock to determine and verify its historically accurate 19th-century condition
- Perform a structural condition analysis of the canal and lock walls through field investigation potential test probes, and historic drawings and photographs.
- Perform a Phase I Environmental Site Assessment (ESA) to identify potential or existing environmental contamination concerns.
- Perform a transportation and parking assessment.
- Perform geo-environmental investigations to better understand the soil conditions and potential implications for proposed improvements.
- Meet with permitting agencies to identify potential permitting requirements.
- Perform a Class A2 boundary and T2 topographic survey of the property.
- We propose to photo document the overall project area using both a drone and a handheld camera. The drone will fly over the site and the river for the length of the project area to provide a holistic and contextual perspective of the site and its relationship to surrounding conditions. The drone views will provide a tangible understanding of the existing conditions and graphically convey transformational impact when overlaid with the proposed vision. In addition, we anticipate supplementing existing conditions with photographs along both sides of the riverbank and adjacencies.




## PHASE II: INITIAL VISUALIZATION

### Part A: Analysis and Programming

The intent of this phase is to establish the project goals.

- Based on the site assessments and further visual on-site observations, analyze through a series of diagrammatic plans the existing site conditions, including utilities, vegetation, vehicular and pedestrian circulation, topography, environmental constraints, conditions of historic features, including the locks and walls, and other contextual factors relevant to planning.
- Based on a compilation of analyses, develop an annotated opportunities and constraints plan identifying the potential for site pedestrian access to and along the Housatonic River and canal, pockets parks or other areas of special interest for new civic amenities or attractions, vehicular parking for park visitors; future connections to adjacent development parcels; and opportunities for site enhancements.
- Review findings with the City and other key stakeholders to solicit input and initial hopes, dreams, and priorities.
- Prepare a general “high level” assessment of site infrastructure including sewer, water, lighting and electrical supply, and other utilities.
- Prepare a general “high level” assessment of the site environmental conditions of the river’s edge, floodplain, and wetlands and opportunities for site enhancements to improve resiliency, address stormwater quantity and quality, and reduce adverse impacts on combined sewer and storm utilities.

### PART B: VISUALIZE INITIAL IDEAS

This phase of the process would seek to propose solutions to the identified problems, provide recommendations regarding the preservation and enhancement of the assets and the approaches to achieve the established goals.

- Based on opportunities and constraints and input from stakeholders, explore and prepare up to the three alternative overall master plan concepts representing a range of ideas and illustrating their impact on the site and regional context.
- Prepare precedent images to convey program, design intent, and character
- Present preferred alternative concept(s) to the City and stakeholders to solicit preferences, review comments, and conduct design charrette meeting(s) to explore further and refine ideas.
- Refine Preferred Initial Design Plans, Diagrams, support graphics, and precedent images for the Public Engagement Phase


## PHASE III: PUBLIC ENGAGEMENT

A strong public engagement is critical to sustain support and fully realize the project. Though not identified in the RFQ, based on our experience on similar projects, we could envision a robust public engagement component for this project. Our role in that phase could vary from assisting the City to taking the lead in the process, dependent on the City's preference. At a minimum, we would anticipate being a collaborative partner, assisting the City in formulating a public engagement strategy and devising an approach that focuses public input on programs and priorities.

We anticipate the Video/Plans/Diagrams prepared in Phase 2 would serve as the basis for Public Engagement and include:

- Fly Over: Use of drone for a fly-over video to highlight the project area for the public in an easily understood and engaging graphic format.
- Existing Conditions: Use of Existing Conditions documentation for familiarizing the public with the site, its current conditions, and issues along the length of the river corridor.
- Site Analysis: Use of Opportunities and Constraints Plans and Diagrams for aiding public understanding of the potential for site enhancements and their associated public benefits.
- Initial Design Plans/Diagrams, support graphics, and precedent images to engage the project in the overall vision and generate interest, enthusiasm, and support of the Overall Vision and confirm Priority Projects.

## PHASE IV: MASTER PLAN

We understand the overall intent of the Master Plan project is to be a concise, compelling, implementable vision for the City of Shelton. As such, this final phase will include the following tasks:

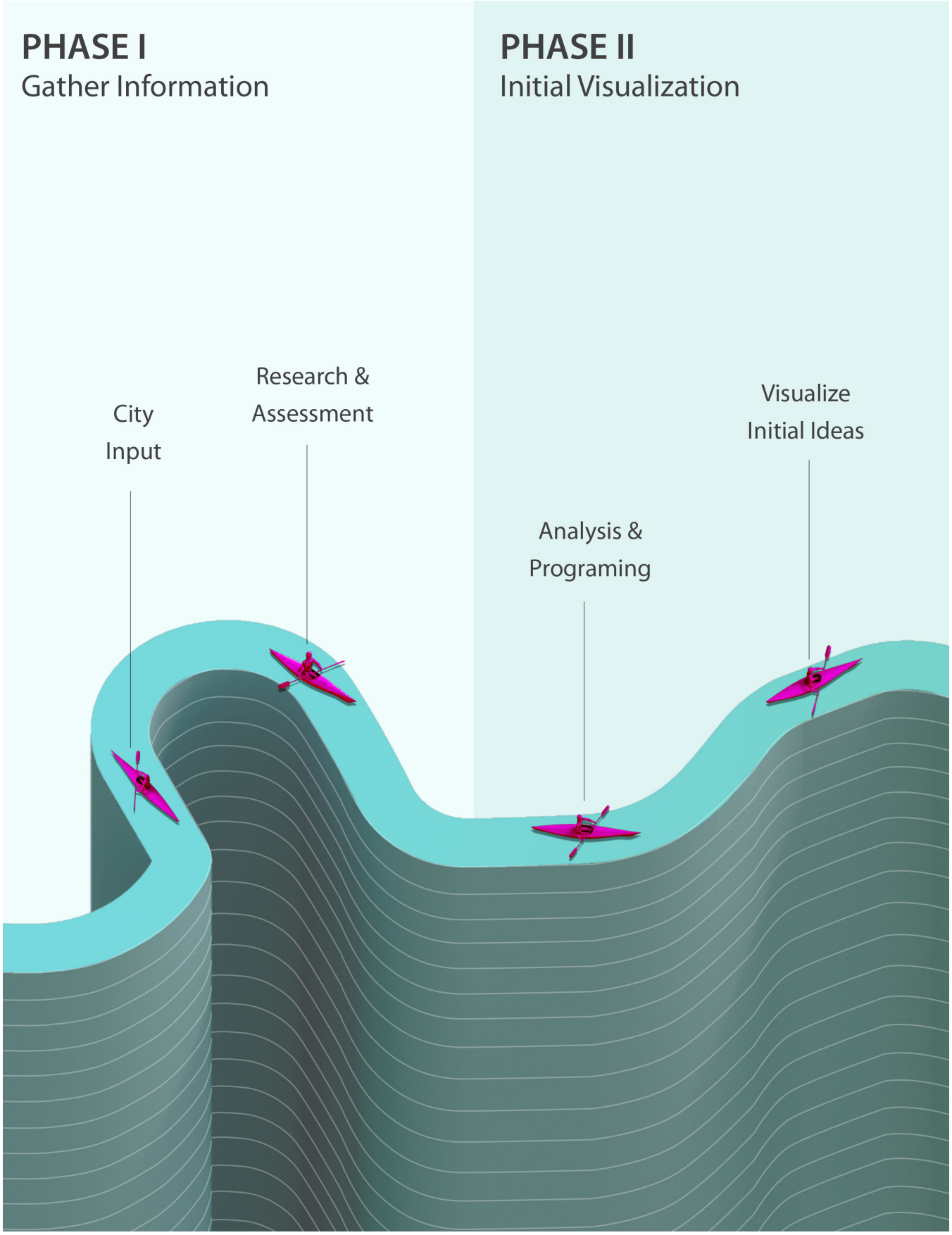
### PART A: ANALYZE INPUT AND INCORPORATE INTO VISION

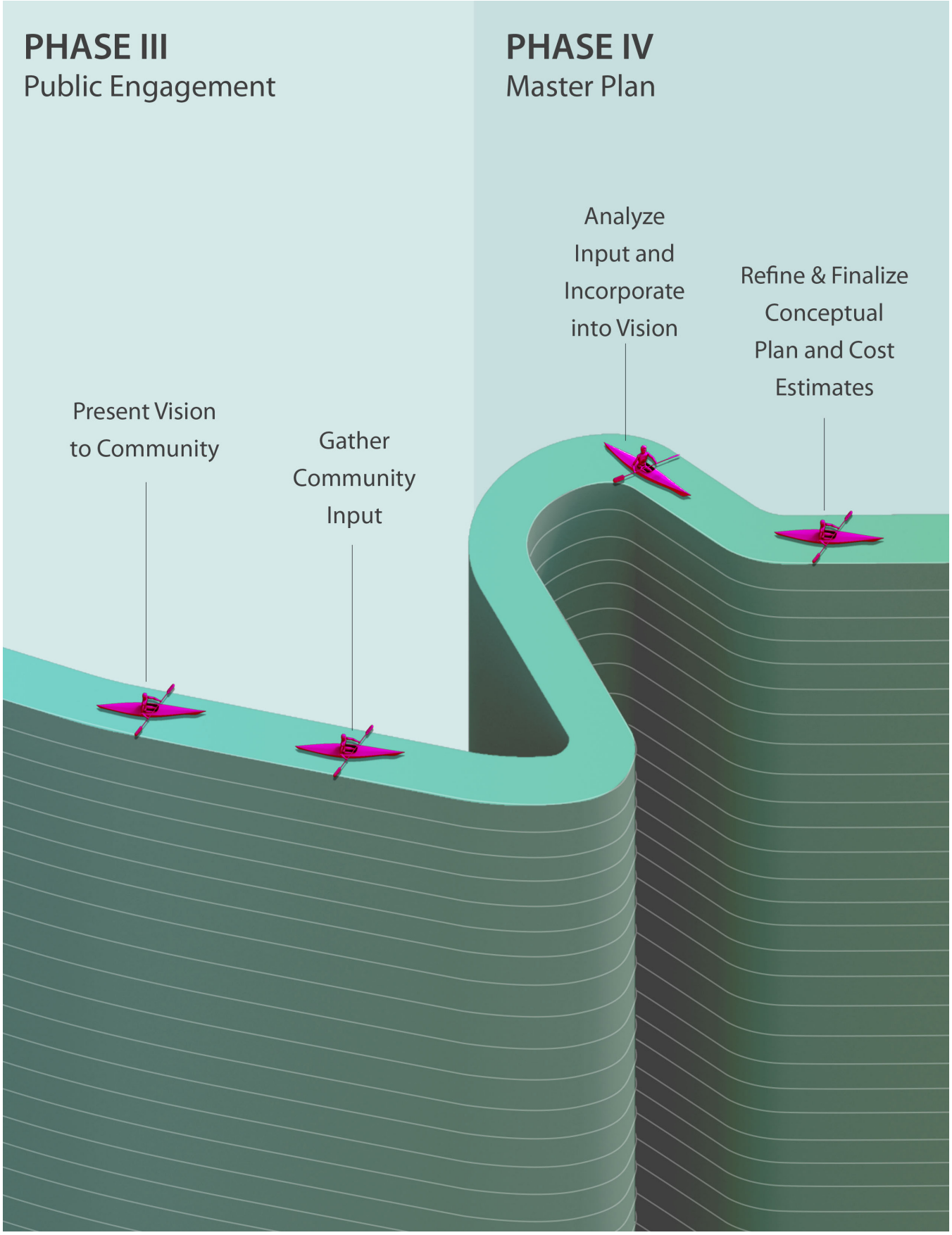
We will hold a Public Engagement De-Brief Meeting with the City to review and confirm takeaways from Public Engagement Phase and how that should influence the Master Plan Design and Priorities. We will review and confirm the project vision, confirm "Priority Site Enhancement Projects" within the program boundaries, and discuss preliminary budgets for the overall and priority projects.

### PARTS B & C: REFINE & FINALIZE CONCEPTUAL PLAN & COST ESTIMATES

Based on the direction from the City and feedback from the Public Engagement process, we will prepare a final report which includes an annotated illustrative site plan of the overall site, enlargements of areas of significance and an itemized preliminary budget for the project subdivided into logical phased implementations.

# SCHEDULE


PHASE I
Gather Information
PHASE II
Initial Visualization
City Input
Research & Assessment
Analysis & Programing
Visualize Initial Ideas


PHASE III
Public Engagement
PHASE IV
Master Plan
Present Vision to Community
Gather Community Input
Analyze Input and Incorporate into Vision
Refine & Finalize Conceptual Plan and Cost Estimates

# APPENDIX A: RESUMES

Sen. Joseph Finnegan Park & Wetlands Restoration | Boston, MA

# ROBERT R. UHLIG, FASLA, LEED AP BD+C

## VICE PRESIDENT OF LANDSCAPE ARCHITECTURE & URBAN DESIGN

Bob Uhlig brings more than 30 years of experience in urban design and institutional projects ranging from parks, waterfronts, and streetscapes to commercial, residential, and campus landscapes. He has served as Principal-in-Charge for many sophisticated multi-disciplinary projects that require solving site design and engineering challenges, and frequently involve the seamless integration of art, architecture, and natural systems.

He has guided the design and implementation for many award-winning projects, including Quincy's Hancock Adams Common, recipient of the 2019 Preservation Mass and 2018 APA-MA Planning Award; the Lakewood Cemetery Garden Mausoleum in Minneapolis, winner of the 2014 ASLA Award of Excellence; and Atlantic Wharf in Boston, which received the 2012 ULI Global Award of Excellence for sustainable development.

Recognized with the 2015 ASLA Honor Award for Research for "Below the Surface: Evaluating Urban Soil Performance over Time," Bob is deeply engaged in studying the relationship of soil chemistry and biology and their effect on the health of urban trees. In 2017, he was inducted into the American Society of Landscape Architects (ASLA) Council of Fellows in recognition of his work.

### REPRESENTATIVE PROJECTS

Senator Joseph Finnegan Park at Port Norfolk, Boston, MA

North Mill Pond Trail + Greenway, Portsmouth, NH

Nashua Downtown Riverfront Development Plan, Nashua, NH

Hancock Adams Common Park + Streetscape, Quincy, MA

Wharf District Public Realm Visioning, Boston, MA

Atlantic Wharf | Green Roof + Streetscape, Boston, MA

MBTA Government Center Station | City Hall Plaza & Streetscape, Boston, MA

Breakwater North Harbor, Lynn, MA
254 Lynnway Residences + Lynn Harborwalk Site Design

Suffolk Downs Phase 1R Development, Revere, MA

Allston Green | Multi-Family Development, Allston, MA

Tuscan Village Mixed-Use Development, Salem, NH

Yale New Haven Hospital | Saint Raphael Campus, New Haven, CT

South Boston Maritime Park + Congress Street and Infrastructure Boston, MA

Channel Center + Iron Street Park, Boston, MA

Gables Seaport Residences, South Boston, MA

The Smith Residences, Boston, MA

Fuse Cambridge Residential Development, Cambridge, MA

Pfizer Campus at 610 Main, Cambridge, MA

### EXPERIENCE

36 Years

### SPECIALTIES

Landscape Architecture

Urban Design

Planning

Public Engagement

Resiliency / Waterfront Design

### EDUCATION

Bachelor of Environmental Design
Landscape Architecture
North Carolina State University, 1984

### LICENSES & REGISTRATIONS

Licensed Landscape Architect
MA #981
NH #00142
CT #1194
RI #475
PA #3165
MN #48482
NC #1311

LEED Accredited Professional
Building Design + Construction

Certified Construction Specifier

### PROFESSIONAL AFFILIATIONS

American Society of Landscape Architects (ASLA)

Urban Land Institute (ULI)

Friends of the Mary Ellen Welch Greenway, Board Vice President

## REPRESENTATIVE PROJECTS (CONT.)

BNY Mellon Center at One Boston Place, Boston, MA

Vaughan, Worth + Bridge | Civic Open Space Planning Studies
Portsmouth, NH

Boston Architectural College | Sustainable Campus Initiative, Boston, MA
Green Alley + Vegetated Roof

Riverside Park, Cambridge, MA

South Street Landing P3 Development, Providence, RI
Master Plan | Power Center Adaptive Reuse | River House Student Housing

University Park at MIT, Cambridge, MA

Boston World Trade Center | Multiple Projects, Seaport, Boston, MA
Eastport Park | Seaport Hotel | West Office Building Sitework

Seaport Blvd Streetscape + Design Guidelines / Master Plan, South Boston, MA

Battery Wharf Mixed-Use + Harborwalk, Boston, MA

Norman B. Leventhal Park at Post Office Square, Boston, MA

Market Landing Waterfront Park, Newburyport, MA

Beacon Park, Detroit, MI

Greensboro Center City Park + Streetscape Enhancements, Greensboro, NC

Wilmington Riverfront Park, Wilmington, NC

Statler Park + Fountain Restoration, Boston, MA

Logan Airport Neptune Road Buffer Park + North Service Area Site Enhancements
East Boston, MA

Lower Atkinson Common Renovation, Newburyport, MA

Linden Square Mixed-Use Development, Wellesley, MA

The Street at Chestnut Hill Shopping Center, Chestnut Hill, MA

Northwest Park at 3rd Avenue, Burlington, MA

Station Landing Mixed-Use Development, Medford, MA

Illinois Science and Technology Park, Skokie, IL

Codman Square Green Infrastructure, Boston, MA

## SPEAKING ENGAGEMENTS

2020 Storm Surge Virtual Speaker Series, “Climate Change & the Benefits of Green Infrastructure,” Newburyport, MA

2020 Massachusetts Association of Conservation Commissions (MACC) Fall Conference, “No Time to Waste - Making the Case for Investments in Living Shorelines,” Virtual

2017 BSA Placemaking Network, “Wharf District Public Realm Planning,” Boston, MA

2016 ABX, “Making Urban Spaces” Boston, MA

2015 ASLA Annual Meeting, “Organic Landscape Management: Perceptions vs Reality,” Chicago, IL

2014 ASLA Annual Meeting, “Beyond the Great Debate: Assessing Post Installation Manufactured Soils Performance,” Denver, CO

2013 ASLA Annual Meeting, “The Boston Tree Party,” Boston, MA

# SEAN RAGAN, ASLA
## SENIOR LANDSCAPE ARCHITECT

Sean Ragan is an experienced landscape architect who specializes in institutional and commercial landscapes. He has served as lead designer and project manager for notable clients throughout the Northeast, including Yale University, University of Connecticut, and Williams College. With a strong belief that design can be a catalyst for positive change, Sean strives to create vibrant and enduring landscapes that enrich communities and improve the environment. Prior to joining Halvorson | Tighe & Bond Studio, Sean was a landscape architect with Towers|Golde in New Haven and had prior experience in real estate development and construction management.

### EXPERIENCE
14 Years

### SPECIALTIES
Landscape Architecture

Urban Design

Resiliency/Sustainability

Community Outreach

### EDUCATION
Bachelor of Science
Landscape Architecture,
University of Connecticut

Bachelor of Arts
Urban & Community Studies,
University of Connecticut

### LICENSES & REGISTRATIONS
Professional Landscape Architect
CT #1280

### PROFESSIONAL AFFILIATIONS
American Society of
Landscape Architecture (ASLA)

Connecticut Green Building Council
(CTGBC)

### REPRESENTATIVE PROJECTS

Downtown Riverfront Implementation, Nashua, NH

781 Whalley Avenue Mixed-Use Development, New Haven, CT

Green Farms Academy, Westport, CT

Plantsville Pump Station Planting Plan, Southington, CT

West Queen St Pump Station Planting Plan, Southington, CT

Stop & Shop Headquarters Plaza, Quincy, MA

The Village at Grafton Woods Mixed Use Development, Grafton, MA

Riverside Mixed-Use Development, Newton, MA

Dunstan East Residential Development, Newton, MA

103 North Beacon Street Mixed-Use Development, Boston, MA

30 Leo Birmingham Parkway Mixed-Use Development, Boston, MA

Harvard Business School Baker Hall Courtyard, Boston, MA

Boston University Student Housing, Boston, MA

Harvard Law School Wasserstein Hall, Cambridge, MA

Illinois Science and Technology Park, Skokie, IL

### PREVIOUS EXPERIENCE (WITH TOWERS | GOLDE)

Yale University | Multiple Projects, New Haven, CT
- Adams Center for Musical Arts
- Sterling Hall of Medicine Courtyard Renovation
- Sterling Hall of Medicine Courtyard Playground
- Sterling Power Plant Cogeneration
- 43 Hillhouse Avenue
- Ingalls Rink Renovation
- Economics Building

University of Connecticut | Multiple Projects, Storrs, CT
- Northwest Science Quad Infrastructure
- Peter J. Werth Residence Tower
- Hilltop Residential Campus Site Improvements
- Mansfield Hall Water Intrusion

## PREVIOUS EXPERIENCE (CONT.)

University of Connecticut Health Center, Academic Building, Farmington, CT

Bucknell University, Lewisburg, PA
- Campus Master Plan
- Design Vocabulary Manual
- Academic Quadrangle Renovation

Williams College, Williamstown, MA
- Center for Economic Development Renovation
- CDE Residence Hall
- Greylock Quad Improvement

Mount Wachusett Community College, Haley Academic Center, Gardner, MA

North Shore Community College, Campus Expansion, Lynn, MA

Gateway Community College, New Haven, CT

Wayback Residence Hall at Purchase College, Purchase, NY

Division of Fisheries and Wildlife, Field Headquarters, Westborough, MA

Mohegan Sun Earth Tower Hotel, Uncasville, CT

Dartmouth Hitchcock Medical Center, Outpatient Surgery Center, Lebanon, NH

Yale New Haven Health, Ambulatory Care Center, North Haven, CT

VA Medical Center: Psychiatric Emergency Room, West Haven, CT

66 Summer Street, Stamford, CT

Vela on the Park, Stamford, CT

777 Main Street Pocket Park, Hartford, CT

## SPEAKING ENGAGEMENTS

2019 Connecticut Architecture Conference, “Designing with Time in the New England Landscape”, Uncasville, CT, Presenter

2017 Connecticut Architecture Conference, “Collaboration Beyond the Building: Structure + Site = Place”, Trumbull, CT, Presenter

2017 Landscape Design Study School, “Introduction to Urban Design”, New Haven, CT, Presenter

# IRIS YUNG-CHING LIN, RLA, LEED AP

## SENIOR LANDSCAPE ARCHITECT

Iris Lin's design perspective is shaped by her background in landscape architecture, her interest in the fine arts, and her engineering training. Her expertise lies in thoughtful and creative problem solving combined with aesthetic expression, which she applies throughout the design. Iris has contributed to projects ranging from park planning and design to cemetery improvements, hospitality and mixed-use developments, and institutional and academic campuses.

Some of her notable projects include Senator Joseph Finnegan Park at Port Norfolk, which achieved the Top Honor in The Waterfront Center's Excellence on the Waterfront Award and the Mount Auburn Cemetery Entry Precinct, which received the 2019 Preservation Massachusetts Award.

Iris is a registered landscape architect in Massachusetts and Maryland as well as a member of the Wellesley Design Review Board.

### EXPERIENCE

14 Years

### SPECIALTIES

Landscape Architecture

Urban Design

Planning

Public Engagement

### EDUCATION

Master of Landscape Architecture
University of Illinois at
Urbana-Champaign

Bachelor of Science
Electronic Engineering
Chia-Tung University in Taiwan

### LICENSES & REGISTRATIONS

Licensed Landscape Architect
MA #4043
MD #3690

US Green Building Council
LEED AP

### REPRESENTATIVE PROJECTS

DCR Senator Joseph Finnegan Park at Port Norfolk, Boston, MA

Harris Park Playground Renovation, Medford, MA

Mount Auburn Cemetery | Bigelow Chapel + Asa Gray Garden, Cambridge, MA

West Laurel Hill Cemetery | Multiple Projects, Bala Cynwyd, PA
New Jewish Section | The Laurels Pet Cemetery

Western Avenue "Complete Streets" Reconstruction, Cambridge, MA

Whittier Choice Neighborhood Housing, Roxbury, MA

Gables Seaport Residential Development, South Boston, MA

Lower Atkinson Common Master Plan, Newburyport, MA

Boston College | Multiple Projects, Chestnut Hill, MA

Bristol Plymouth Vocational High School Feasibility Study, Taunton, MA

Carver Elementary School, Carver, MA

Dover High School, Dover, NH

St. Paul's School | Friedman Community Center, Concord, NH

Emma Willard School | President's House Entry Garden Renovation, Troy, NY

Brookline High School | Campus Expansion Feasibility Study, Brookline, MA

McIntyre Federal Building Redevelopment, Portsmouth, NH

### LEADERSHIP

2018 – Present Wellesley Design Review Board

### SPEAKING ENGAGEMENTS

2019 New England Cemetery Association Conference, "Landscape Planning for Cemeteries: Longevity through Beauty, Harmony & Innovation," Stowe, VT, Presenter

# JAMES OLSEN, PG, LEP

## VICE PRESIDENT

James is the manager of Tighe & Bond's Middletown, CT office and is the Firm's Technical Director for the Environmental Business Line. He has significant experience with site assessment, remediation, permitting, redevelopment, brownfields, hazardous building materials (HBM) assessment and abatement, demolition design, and water supply projects for municipal, industrial, developer, and utility clients. His projects have involved solvent, metal, PCB, and petroleum assessment and remediation under both federal and state environmental programs. He strives to find innovative and cost saving approaches for projects.

**EXPERIENCE**
33 Years

**SPECIALTIES**
Site Assessment & Remediation

Hazardous Building Materials

Brownfields Redevelopment

Demolition

PCB Cleanup

**EDUCATION**
Master of Science
Environmental Engineering
University of New Haven

Bachelor of Science
Geology
University of Connecticut

Graduate Hydrogeology Coursework
University of Connecticut

40-Hour OSHA HAZWOPER Training

**LICENSES & REGISTRATIONS**
Licensed Environmental Professional
CT #178

Professional Geologist
NY #000728

## SITE ASSESSMENT/REMEDIATION

**STATE HOSPITAL REDEVELOPMENT— PRESTON, CT**
Serving as Project Director and Manager and LEP-of-Record for one of the largest brownfield redevelopment projects in the northeast. Developed innovative remedial approaches saving the Town of Preston millions of dollars. Examples include a Technical Impracticability Argument to leave several thousand gallons of No. 6 oil in place, consolidating over 50,000 cubic years of ash, cinders and impacted soil on site into containment areas, and implementing an Engineered Control on a steep slope where wastes and impacted soil were historically disposed of.

**BROWNFIELDS REMEDIATION—MERIDEN, CT**
Serving as Project Manager and LEP-of-Record for the remediation of this site at the former New Departure facility. Conducted a subsurface investigation to delineate extent of petroleum, PCB, and metal impacts at the site. Designed a cleanup system to remove large quantities of light non-aqueous phase liquid (LNAPL) from the subsurface over a one-acre area. Designed investigation and cleanup plan for large leaking PCB-transformer. Conducted community outreach and stakeholder negotiations.

**BROWNFIELDS TRANSPORTATION ORIENTED DEVELOPMENT PROJECTS—MERIDEN, CT**
Served as Project Manager and developed Investigation Plans and Quality Assurance Project Plan (QAPPs) for various sites. Prepared cleanup approaches based on site redevelopment plans. Also, evaluated building abatement and demolition costs, including PCB impacted materials to be used by the City for planning purposes. Managed project activities to ensure successful project execution. Conducted community outreach and stakeholder negotiations.

**BROWNFIELDS SITE ASSESSMENT & REDEVELOPMENT—HARTFORD, CT**
Served as Project Director for the Capital Region Council of Governments (CRCOG) on EPA and DECD funded brownfield site assessments for several sites. Services included preparing Quality Assurance Project Plans (QAPPs), completion of Phase I, II, and III Environmental Site Assessments, development of Remedial Action Plans and Opinions of Probable Cost for remediation activities

**POWER SITE REMEDIATION—MILFORD, CT**

Serving a Project Director and Manager for the Milford Power site in Milford, CT. Developed and executed an Investigation Plan and Remedial Action Plans (RAP) for the site. Site is impacted with chlorinated VOCs from historic waste disposal. Conducted an extensive investigation of the bedrock aquifer using geophysics. Developed cleanup approach using Monitoring Natural Attenuation to meet cleanup goals for the site. Assisted client with negotiations with CTDEEP.

**BEACH REMEDIATION—STRATFORD, CT**

Served as Project Manager for the cleanup of PCB impacts at the Long Beach West site in Stratford, CT. Developed Investigation plan and self-implementing cleanup plan for abatement of PCB-impacted building materials, and a large surrounding beach wildlife area. Managed project activities to ensure successful project execution under an expedited schedule. Assisted client with navigating project activities through numerous regulatory programs. Conducted community outreach and stakeholder negotiation.

**ENVIRONMENTAL INVESTIGATION AND REMEDIATION FOR FOOTBALL STADIUM—EAST HARTFORD, CT**

Managed the environmental investigation and remediation evaluation of this football stadium in East Hartford, CT. Supervised the preparation of the investigation work plan, an extensive field investigation, and completion of the investigation report and remediation evaluation. Participated in public meetings and presentations at various stages during the project. Delivered project progress and results to regulatory and state agencies. Completed a large and comprehensive investigation within a tight timeframe.

## HAZARDOUS BUILDING MATERIALS ABATEMENT/DEMOLITION

**UCONN PARKING GARAGE-STAMFORD, CT**

Serving as Project Director for abatement, demolition and PCB cleanup of UConn's parking garage. The project involved the demolition and PCB cleanup of building materials and soil from a 1970s 3-level parking garage in a sensitive residential setting. Providing overall technical guidance on the project and responsible for quality assurance and control. Also conducted community outreach and lead negotiations with CTDEEP and EPA.

**FORMER RECORD JOURNAL—11 CROWN STREET—MERIDEN, CT**

Served as Project Director for the Former Record Journal redevelopment. Provided brownfields assessment and engineering services to the City of Meriden as part of the demolition and remediation of the former Record Journal newspaper printing facility. Tighe & Bond conducted the HBMA and developed detailed abatement specifications and cost estimates that were used by the City to competitively bid the abatement and demolition project. Due to the unique construction and site layout Tighe & Bond also provided site civil and structural engineering services to ready the site for re-development. Tighe & Bond provided on-site monitoring and inspection during the abatement and demolition work.

**FORMER CONTRACT PLATING FACILITY—STRATFORD, CT**

Served as Project Director for the Former Contract Plating site cleanup and demolition. Tighe & Bond provided HBMA and Demolition Design services for the abatement and demolition of a 30,000-SF dilapidated manufacturing building and several smaller plating buildings at the former Contract Plating site in Stratford, CT. Tighe & Bond also prepared a Performance-Based PCB Cleanup Plan in accordance with TSCA regulations for submittal to CTDEEP and EPA as well as a facility decontamination plan to characterize and dispose of residual waste chemicals. Also, prepared bidding documents and cost estimates that were used by the Owner during competitive bid procurement and contractor evaluation. Oversaw the hazardous waste cleanup, HBM abatement and building demolition.

# NICHOLAS GRANATA, LEP

## PRINCIPAL ENVIRONMENTAL SCIENTIST

Nicholas Granata is a principal environmental scientist experienced in water supply planning and development. This includes hydrogeologic and geologic investigations, pump testing and aquifer characterization, as well as source water protection. He also performs site assessments; as well as subsurface site investigation and remediation. As a Connecticut Licensed Environmental Professional (LEP) he manages verifications and compliance evaluations with respect to the Connecticut Department of Energy and Environmental Protection (CTDEEP) Remediation Standard Regulations, the Connecticut Transfer Act, United States Environmental Protection Agency (USEPA), and Connecticut Health Department regulatory issues.

### SITE ASSESSMENT & REMEDIATION

**BROWNFIELDS SITE ASSESSMENT & REDEVELOPMENT—CONNECTICUT**
Served as project manager and technical LEP for the Capital Region Council of Governments (CRCOG) on EPA and DECD funded brownfield site assessments for several sites located in Manchester, Windsor, and Hartford. Brownfield assessment activities included development of technical investigation work plans, Quality Assurance Project Plans (QAPPs), completion of Phase I, II, and III Environmental Site Assessments, development of Remedial Action Plans and Opinions of Probable Cost for remediation activities. Managed project activities to ensure successful project execution. Worked to develop creative and cost effective remedial strategies to help support brownfields redevelopment.

**BROWNFIELDS SITE ASSESSMENT—OLD SAYBROOK, CT**
Served as project manager and technical LEP for the Town of Old Saybrook DECD funded brownfield site assessment for nine contiguous properties located off Boston Post Road in the Town of Old Saybrook. Brownfield assessment activities included development of technical investigation work plans, completion of Phase I, II, and III Environmental Site Assessments, development of Remedial Action Plans and Opinions of Probable Cost for remediation activities. Managed project activities to ensure successful project execution. Worked to develop creative and cost-effective remedial strategies to help support brownfields redevelopment.

**BROWNFIELDS SITE ASSESSMENT—ENFIELD, CT**
Served as project manager and technical LEP for the Town of Enfield DECD funded brownfield site assessment and cleanup of former petroleum and coal distributor facility in the Town of Enfield. Brownfield assessment activities included development of technical investigation work plans and completion of a Phase III Environmental Site Assessment. Remedial planning and development of a final Remedial Action Plan are underway, which is anticipated to include site wide capping and institutional controls. Managed project activities to ensure successful project execution. Worked to develop creative and cost-effective remedial strategies to help support brownfields redevelopment.

**EXPERIENCE**
18 Years

**SPECIALTIES**
Site Assessments, Risk Characterization & Remediation

Environmental Data Collection & Interpretation

Remedial Action Oversight

Subsurface Investigations

RSR Compliance

Water Supply Planning & Development

**EDUCATION**
Bachelor of Science
Environmental Earth Science (Geology), Minor: Geographic Information Systems
Eastern Connecticut State University

40-Hour OSHA HAZWOPER Training

8-Hour OSHA Site Supervisor Training

10-Hour OSHA Hour Construction Safety and Health

30-Hour OSHA Hour Construction Safety and Health

**LICENSES/REGISTRATIONS**
Licensed Environmental Professional CT #537

**PROFESSIONAL AFFILIATIONS**
Environmental Professionals Organization of Connecticut

National Groundwater Association

Geologic Society of America

**COMMERCIAL PROPERTY REDEVELOPMENT—NORTH HAVEN, CT**
Served as project manager and LEP of record for investigation activities associated with a commercial property development regulated by the Connecticut Transfer Act. Oversaw investigation activities and prepare comprehensive Phase I and II site assessments. Served as LEP of record to verify the property under the Connecticut Transfer Act. Provided consulting advice and worked with client lending institutions to assist in facilitating property redevelopment.

## HAZARDOUS BUILDING MATERIALS ABATEMENT AND DEMOLITION

**ASBESTOS INSPECTIONS**
Served as project manager and conducted inspection activities for renovation and pre-demolition asbestos inspections of residential, commercial, and industrial buildings. Identified regulated building materials that required abatement prior to demolition. Assisted clients with renovation and demolition procedures for regulated activities.

**SITE REDEVELOPMENT AND PCB ASSESSMENT**
Served as project manager associated with PCB Hazardous Building Materials Investigations. Assisted in the preparation of Self-Implementing PCB Cleanup Plans for submittal to EPA and CTDEEP for approval. Prepared and designed investigations and remediation planning for PCBs building, material and soil assessment and remediation activities.

## WATER SUPPLY

**BACKUP AND REPLACEMENT WELL ASSESSMENTS**
Served as technical lead for backup up and replacement well assessments. Determined suitable well locations based on geologic/hydrogeologic conditions and site constraints. Oversaw and directed drilling activities during test well installation. Experience in evaluating well design parameters; size, screen selection and length, filter media including gravel pack and glass bead construction.

**PUMP TESTING AND AQUIFER CHARACTERIZATION**
Served as project manager and hydrogeologist to oversee the of short and long term yield tests in both overburden and bedrock environments. Evaluated technical yield test data to determine aquifer characteristics. Determined safe yield and prepared water supply permit applications to state regulatory agencies.

**HYDROGEOLOGICAL / GEOLOGIC INVESTIGATIONS**
Served as project manager and hydrogeologist to conduct a fracture trace analysis; reviewed aerial photography, geological, structural geological, hydrological, and hydrogeological data associated with siting optimal well locations in fractured bedrock. Utilized GIS to map and analyze relationships between geological, hydrogeological, and hydrological information. Conducted geological field investigations of fractured bedrock; collected lithological and structural bedrock data for optimum well placement.

**SOURCE WATER PROTECTION—CONNECTICUT**
Served as field manager and technician to map and inventory pollution sources in Connecticut aquifers in support of development of Connecticut's aquifer protection regulations. Collected data using GPS and GIS technologies and compiled data into a custom Microsoft access database.

# JOSEPH CANAS, PE, LEED AP, CFM

## PRINCIPAL ENGINEER

Joseph Canas is a Principal Engineer who has expertise in various civil engineering disciplines, including: floodplain management and modeling, stormwater management and collection systems, roadway design, and construction administration. He has been involved in all phases of project execution from planning through design and construction. He is a CTDOT certified Hydraulic Engineer, LEED AP, and Certified Floodplain Manager.

**EXPERIENCE**
26 Years

**SPECIALTIES**
Floodplain Management

Stormwater Management

Civil/Site Engineering

Site Development

**EDUCATION**
Bachelor of Science
Civil Engineering
University of Connecticut

**LICENSES & REGISTRATIONS**
Professional Engineer
CT #20873
NY #086159-1

Leadership in Energy and Environmental Design Accredited Professional (LEED AP)

Certified Floodplain Manager
#US-13-0791

**PROFESSIONAL AFFILIATIONS**
Association of State Floodplain Managers

Connecticut Association of Flood Managers, Chair

Rhode Island Floodplain Manager's Association

## HYDRAULICS/HYDROLOGY

**GREEN RIVER DAM REPAIRS—GREENFIELD, MA**
Performed a hydrologic and hydraulic analysis for a water supply dam that was overtopped and breached during a major flooding event estimated to exceed a 500-year storm. The hydrologic analysis consisted of applying a Log Pearson Type III distribution to historic peak flow data recorded by the USGS gauging station upstream of the site. Frequency relationships were then transposed to the site to determine the appropriate flow rates; the dam was then modeled using HEC-HMS to establish the appropriate spillway elevation.

**ELTON ROGERS PARK DAM REHABILITATION—BRIDGEPORT, CT**
Preparing the hydraulic and hydrologic analysis of the reconstruction of the existing dam at Elton Rogers Park in Bridgeport as part of the first phase of the six phase Ox Brook Flood control project. In addition to improvements at the dam, the project included an evaluation of downstream flooding conditions along Ox Brook to Lourmel Street. This section of Ox Brook includes segments of open channel flow and closed-conduit flow through a heavily urbanized area. Performing dam breach modeling in a 2D environment.

**FEMA LETTERS OF MAP REVISION—TRUMBULL, CT**
Provided floodplain engineering services to update hydraulic analyses to successfully revise the locations of the floodplain boundary for portions of Tributary A to Horse Tavern Brook and Tributaries F and J to the Pequonnock River. In all three cases, the flood boundaries shown in the Flood Insurance Study were inconsistent with local flooding observations, and/or did not reflect the current path of the watercourse. Prepare hydraulic models to modify the existing studies as appropriate to reflect existing conditions. All three revised models were submitted to FEMA in support of a Letter of Map Revision, and all three were approved.

**MANCHESTER-BY-THE-SEA COASTAL RESILIENCY STUDY MANCHESTER, MA**
Provided technical support for the modeling of flood risk associated with riverine and coastal flooding in downtown area and along Saw Mill Brook. The analysis accounted for the combination of sea level rise along with increased precipitation in the Saw Mill Brook watershed to identify the flood exposure for critical municipal infrastructure, including emergency response facilities, as well as identification of culverts in the watershed at greater risk of overtopping based upon an analysis of mid-range precipitation projections.

**NORWALK RIVER: ASML FLOODPLAIN MITIGATION EVALUATION—WILTON, CT**
Served as project manager for the ASML Floodplain Mitigation project on the Norwalk River. Developed a hydraulic model of the river and evaluated a series of measures to reduce floodplain exposure for the ASML facility. The selected alternative involved removing an existing pedestrian bridge, a portion of an existing building, and widening the channel above the ordinary high water mark. Prepared USACE and CTDEEP permit applications in support of the project, as well as a Letter of Map Revision application to FEMA. The proposed improvements lowered floodplain elevations through the facility site by two feet, and improved upstream flooding conditions in a residential neighborhood by one foot.

**PHEASANT LANE – BRIARWOOD LANE DRAINAGE IMPROVEMENTS – STAMFORD, CT**
Served as project manager for the design to resolve flooding issues at properties along Pheasant Lane in Stamford. Recommended drainage improvements to alleviate erosion issues, which included upgrading storm drain sizes and construction of additional drainage inlets and eliminating the swale through the wooded area in favor of a pipe down a steep slope. Coordinate work with the City's Environmental Protection Board to obtain their early input into the project, which included minor drainage improvements of Pheasant Lane.

**UNITED ILLUMINATING COMPANY, MILVON SUBSTATION FLOOD STUDY—MILFORD, CT**
Investigated flooding at the Milvon Substation, analyzing the contributing watershed, and developing a hydrologic model that was calibrated to a one-year frequency storm event that caused significant flooding. Analysis indicated that the flooding was exacerbated by saturated and frozen ground. Evaluated a series of alternatives to provide greater resiliency to the facility, including a protective berm around the facility, but determined that construction of an overflow culvert beneath the railroad to supplement the existing undersized culvert would be the most cost effective solution to maximize flood resiliency.

**UNITY AND TWIN BROOKS PARKS—TRUMBULL, CT**
Served as Project Manager for improvements to ponds at both parks to allow for the Town to better manage resources, designed improvements to replace failing outlet control structures, dredging of ponds, and at Twin Brooks Park, developed a complex hydrologic model showing the interconnection of ponds to support the relocation of an existing roadway away from Booth Hill Brook to improve the riverine buffer. Prepared and supported applications to the Town of Trumbull Inland Wetlands Commission, CTDEEP for a 401 Water Quality Certification and USACE for a Connecticut General Permit.

**WILTON STATION PEDESTRIAN WALKWAY—WILTON, CT**
Served as Project Manager for a proposed pedestrian walkway connecting Wilton Station with the Norwalk River Valley Trail and Wilton Center. The centerpiece of the walkway is a new 90-foot prefabricated truss bridge over the Norwalk River. Performed the hydraulic analysis of the Norwalk River that indicated that FEMA base flood elevations were incorrect in the project area and developed a mitigation plan for the construction of the bridge abutments in the floodplain to meet the Town requirements for compensatory storage and conveyance. Elements of the mitigation plan included an elevated ramp to access the abutment on the east side of the river, a split elevation ramp supported on retaining walls on the west side of the river, and a flood bench excavated on both sides of the river. Coordinated the permitting effort through the Town of Wilton, USACE Pre-Construction Notification, CTDEEP 401 Water Quality Certification, as well as the CTDOT/CTDEEP Floodplain Management Certification Memorandum of Understanding process.

**WALL STREET PARCEL 3 REDEVELOPMENT—NORWALK, CT**
Prepared an application for a Conditional Letter of Map Revision (CLOMR) on the Norwalk River to FEMA for the Wall Street Parcel 3 Redevelopment project for the City of Norwalk Redevelopment Agency in CT. The request was based upon better topographic data and revised hydrology. FEMA approved the CLOMR application.

# RICHARD CANAVAN, PhD, PWS

## PRINCIPAL ENVIRONMENTAL SCIENTIST

Richard Canavan is a Principal Environmental Scientist with over 24 years of experience in environmental research, teaching and consulting. His research projects have examined nutrient and pollutant chemistry in lakes, agricultural soil and coastal sediment. As a consultant, he has directed environmental permitting for a range of clients including private developers, municipalities, public utilities and state agencies. This work has included wetland delineation and field assessment, design review, and coordination with regulatory staff, local commissions and stakeholders on permit applications. He has provided environmental planning services for the development of water quality monitoring programs, data analysis and watershed planning.

**EXPERIENCE**
24 Years

**SPECIALTIES**
Wetland Delineation, Restoration and Permitting

NEPA Compliance

Water Quality

**LICENSES/REGISTRATIONS**
Professional Wetlands Scientist PWS #2147 SWS

Registered Professional Soil Scientist SSSSNE

40 HOUR HAZWOPER

Municipal Inland Wetland Agency Training – Connecticut Department of Energy/Environmental Protection

**EDUCATION**
Doctor of Philosophy
Biogeochemistry
Utrecht University

Master of Science
Soil Scientist
Cornell University

Bachelor of Science
Botany
Connecticut College

**PROFESSIONAL AFFILIATIONS**
Connecticut Federation of Lakes Board of Directors

Last Green Valley, Board of Directors

Connecticut Association of Wetlands Scientist

Association of Massachusetts Wetlands Scientists

## TRANSPORTATION ENVIRONMENTAL PERMITTING

**ROADWAY RECONSTRUCTION—THOMASTON, CT**
Directed wetland delineation and wetlands permitting for two miles of roadway reconstruction with culverted stream crossings.

**MUNICIPAL BRIDGE REPLACEMENT & REHABILITATION-CT & MA**
Provided wetland delineation and environmental permitting services for local bridge projects in Fairfield, CT and Sudbury, Southbridge, Worcester, and Manchester-by-the-Sea, MA. Coordination with local DPW and engineering staff and presentations at local review hearings. Developed solutions to address site specific issues for water handing, tidal wetlands, fisheries, floodplain and utilities.

**CHARTER OAK BRIDGE/EXIT 29 PROJECT**
**HARTFORD & EAST HARTFORD, CT***
Conducted wetland delineations in project corridor. Led the development of an Environmental Assessment under NEPA. Coordination with bridge and highway design engineers for impact avoidance and stormwater management.

**CTDOT CONSULTANT LIAISON BRIDGE PROGRAM-CT***
Led the field investigation and permit application development for over 20 bridge repair and replacement projects. Coordination with DOT staff, state and federal regulators, hydraulic and structural engineers, design consultant staff. Projects ranged from large coastal interstate bridges to culvert rehabilitation.

**MASSDOT BRIDGE REPLACEMENTS—MASSACHUSETTS***
Environmental documentation and permitting for nine bridge replacement/rehabilitation projects throughout Massachusetts. Services included wetland delineation, riparian shelf design for state-listed species, preparation of 401 Water Quality Certification applications, NEPA documentation including an individual Categorical Exclusion and field review with DOT and regulatory staff.

**BRIDGE REPLACEMENT–COVENTRY, RI***
Obtained approval under the Fresh Water Wetlands Act for a design-build bridge replacement project including reconstruction of flood damaged structures in a river channel. Rapid response to meet design-build schedule including coordination with staff from RIDOT, RIDEM and the construction firm.

**PEDESTRIAN / RECREATIONAL TRAILS***
Wetland delineation, design review, mitigation alternatives, rare species coordination and state and local permitting for trail projects in Fisher's Island, NY, Putnam, CT and Sturbridge, MA.

## WETLAND DELINEATION, RESTORATION, AND PERMITTING

**COASTAL WETLAND DELINEATION—LEDYARD, CT***
Conducted coastal wetland delineation and obtained a CTDEEP Tidal Wetlands and Structures, Dredging and Fill permits for a residential dock on the Thames River.

**CULVERT REPAIR—COLCHESTER, CT***
Obtained CTDEEP Inland Wetlands and Cat. II USACE approvals for an emergency culvert repair for the Lyman Viaduct. Work included coordination with CTDEEP inland fisheries for channel stabilization design.

**BROWNFIELD REMEDIATION—PRESTON, CT**
Permitting in support of a DECD brownfield remediation. Preparation of inland wetlands and coastal wetlands permits, flood management certification and stormwater construction permit. Coordination with NDDB in the field for mapping and avoidance of critical habitat area. Project mitigation included the construction of tidal wetlands at the Thames River.

**1779-LINE ELECTRIC TRANSMISSION LINE REBUILD**
**EAST HARTFORD & SOUTH WINDSOR, CT**
Wetland delineation, wetlands functions and values assessment, preparation of 401 WQC and Dam Safety applications to DEEP and PCN application to USACE. Prepared an Environmental Assessment under NEPA associated with a Section 408 USACE approval. Supported the registration under the Construction Stormwater GP and conducted inspections and stormwater monitoring.

**HORIZONTAL DIRECTIONAL DRILL SEWER MAIN—WESTPORT, CT**
Prepared Coastal Site Plan, Tidal Wetlands, and Structures, Dredging and Fill applications for the installation of a sewer line under the Saugatuck River. Prepared a Categorical Exclusion under NEPA for work in non-access line of I-95, directed monitoring for NDDB species.

**ASPETUCK RESERVOIR DAM REPAIRS—EASTON, CT**
Prepared a 401 Water Quality Certification application and PCN application for dam repairs and the construction of fisheries enhancements for eel passage.

**YALE NEW HAVEN HEALTH REGIONAL OPERATIONS CENTER—WEST HAVEN, CT**
Directed a wetland delineation and assessments of wetlands functions and values, vernal pools, and wildlife habitat assessment. Work included meeting and coordination with USACE to resolve wetland mitigation requirements from previous approvals at the site, site alternatives analysis, local wetlands application, and pre-construction turtle protection plans.

**CORBIN BLOCK REDEVELOPMENT—DARIEN, CT**
Led environmental services for local inland wetlands, Water Diversion Permit, 401 WQC and PCN approvals and supported a Water Diversion Permit application for the redevelopment of several parcels in downtown Darien including the extention of a culvert in a CTDOT drainage easement.

**WETLAND DELINEATION & MIGRATION PLANS —WOODSTOCK, CT**
Prepared a successful permit application to USACE and CTDEEP, including state and federal wetland delineation, functions and values assessment, and wetland mitigation plans. Directed mitigation work in the field, conducted post-construction wetland mitigation monitoring and reporting.

# CRAIG FRENCH, PE

## STRUCTURAL ENGINEERING MANAGER

Craig French manages Tighe & Bond's structural department and is responsible for structural engineering and architectural design. He is involved with most projects from the conceptual stage through final design and construction. He has experience in the structural design of commercial, institutional, and industrial buildings. In addition, Craig has extensive experience in evaluating existing buildings and structures, as well as performing bridge condition assessments and designs.

**EXPERIENCE**
23 Years

**SPECIALTIES**
Building Construction & Evaluation

Bridge Assessment & Repairs

Dam Repair & Reconstruction

Wind Tower Inspections & Assessments

**EDUCATION**
Bachelor of Science
Civil Engineering
Worcester Polytechnic Institute

**LICENSES & REGISTRATIONS**
Professional Engineer
NY #084734
RI #12060
MA #45032
NH #11749
CT #25836
ME #14148

**PROFESSIONAL AFFILIATIONS**
American Society of Civil Engineers

American Institute of Steel Construction

### BRIDGES & DAMS

**SEWER EXTENTION—WORCESTER, MA**
As the structural lead, oversaw a bridge crossing that is 1/4 mile long and spans an entire state highway in Worcester, MA. Part of the Route 20 sewer extension project, this is the largest Tighe & Bond project of its kind. The bridge crosses over a rail yard, the Blackstone River, two bike paths and the Upper Blackstone Treatment Plant effluent canal.

**BRIDGE REPAIR DESIGN—PALMER, MA**
Designed and detailed reinforcing repairs for deficient steel beams at the Main Street Bridge in Palmer, MA. This project included review of previous bridge inspection reports, site inspection, and preparation of a technical memorandum documenting our findings, repair design, and preparation of construction drawings that Mass Highway reviewed.

**EMERGENCY RIVER DAM REPAIRS—GREENFIELD, MA**
Responded to need for emergency design and construction of temporary coffer dams at Green River Dam that was overtopped and breached during a major flood estimated to have exceeded a 500-year storm event. Prepared final design, construction drawings, and technical specifications for repairs of the concrete intake structure and a new concrete core wall for this Town of Greenfield, MA project.

**MAJOR DAM RECONSTRUCTION—DALTON, MA**
Provided structural engineering services for major reconstruction of the Windsor Reservoir Dam in Dalton, MA. This high-profile project entailed the demolition of the existing spillway and reconstruction of a new and wider concrete spillway.

### BUILDING CONSTRUCTION & EVALUATION

**MIDDLETOWN BOATHOUSE—MIDDLETOWN, CT**
Provided structural design for a new 70,000 SF community boathouse facility on the banks of the Connecticut River in Middletown. The facility will house rowing facilities, and associated equipment storage and locker rooms, for three local high schools, Wesleyan University, and community rowing groups. The boathouse includes a rowing tank for training, offices, a 9,500 SF upper level function hall able to accommodate 300 people, and river overview decks.

**STRUCTURAL DESIGN SERVICES—NORTH ATTLEBOROUGH, MA**
Provided structural design services for a 4.6 MGD wastewater treatment facility in North Attleborough, MA.

**RENOVATION DESIGN AND REINFORCEMENT—WESLEYAN UNIVERSITY, MIDDLETOWN, CT**
Evaluated and reinforced an existing wood floor and roof members for Wesleyan University's Memorial Chapel in Middletown, CT, originally constructed in approximately 1890. Developed design and reinforcement requirements for the renovation and addition to the chapel which included depressing the basement level 4 feet, reinforcing the existing chapel floor, and constructing a new concrete alter floor. The project also included the design of a one-story center-link building constructed from steel pipes in an inverted pendulum shape.

**INDUSTRIAL PARK REDEVELOPMENT—CHICOPEE, MA**
Provided structural evaluation and design services of a historic five story and 300,000 SF mill building in the Cabotville Industrial Park to be converted into residential condominium units. Provided complete local design phase services, building structural review and an alternative code compliance submittal for the Chicopee Building Department and the State Board of Building Regulations and Standards.

**EDUCATION FACILITY EXPANSION—SOUTHBOROUGH, MA**
Provided structural design services for a wastewater treatment facility at the private Fay School in Southborough, MA. Project was part of a campus expansion that included Leadership in Energy and Environmental Design (LEED) certification of buildings, and used green technologies and construction practices.

**NEW POLICE STATION DESIGN—NORTHAMPTON, MA**
Provided structural engineering services for the design phase of a new $16M, three-level and 31,500 SF police station – as well as an adjacent two-level, 135-space parking garage – for the City of Northampton, MA. This project, which was designed to meet LEED gold certification, included preparation of structural drawings and probable construction costs.

**MILL COMPLEX REDEVLOPMENT—LUDLOW, MA**
Provided structural and code review for ten buildings in a historic 170-acre mill complex in Ludlow, MA. Included structural evaluation of foundations, exterior masonry walls, interior wood beams, floors and roofs.

**BOILER REPLACEMENT—HOLYOKE, MA**
Performed structural engineering services during the replacement of two boilers at the Cabot Street Station in Holyoke, MA. Included a detailed Chapter 34 code review to address egress, lighting and ventilation, fire protection, and structural and geotechnical requirements.

**ROOF, WINDOW AND BOILER IMPROVEMENTS—MASSACHUSETTS**
Performed structural engineering services for multiple K-12 public schools in Greenfield, Palmer and Westfield, MA under the Massachusetts School Building Authority (MSBA) Green Project. Included a range of roof, window, and boiler improvements for nine schools.

**EMERGENCY STRUCTURAL EVALUATION—EAST MEADOW, MA**
Provided emergency structural evaluation services to review cracks in the wood roof arches of the school's cafeteria in East Longmeadow, MA. Coordinated repairs and inspected other structural elements.

**ROOF REPLACEMENT—ORANGE, MA**
Completed a roof condition survey and made recommendations for repairs to Butterfield Elementary School in the Town of Orange, MA. Based on these recommendations, the Town selected Tighe & Bond to provide design documents for the roof replacement and provide construction observation. In addition, Tighe & Bond assisted the Town in their application for reimbursement from the MSBA, under the green repair program.

# CHRISTOPHER HAKER, PE

## VICE PRESIDENT

Christopher Haker's background includes dams, foundation and earth retaining structure design and analysis, site investigations and environmental pre-characterization for various municipal, commercial, and industrial developments including municipal and private office buildings, schools, water and wastewater treatment plants, transmission towers, and retail stores. Chris has prepared geotechnical design recommendations and technical specifications for developments in Massachusetts, Connecticut, New Hampshire, and Rhode Island. Recommendations focused on building foundation and pavement design, site walls and slopes, groundwater control, and earthwork operations. Chris also specializes in dam engineering and soils engineering for dam-related and geotechnical projects. He has served as project manager, performed engineering analysis and design, and prepared contract drawings and specifications for dam rehabilitation (concrete, stone masonry, and earth embankments), commercial and industrial building foundations (shallow and deep), blasting, earthwork, temporary earth support, and permanent retaining wall structures. He has performed numerous Phase 1 and Phase 2 dam inspections. He has also conducted analysis, design, and forensic investigations of mechanically stabilized earth walls. His construction observation experience includes shallow and deep foundations, soil/cement mix columns, deep dynamic compaction, tieback installation and testing, advanced drilling techniques including in-situ testing and instrumentation installation, and earthwork operations.

### EXPERIENCE
25 Years

### SPECIALTIES
Engineering Analysis & Design

Geotechnical Evaluations

Site Investigations

Retaining Walls & Slopes

Dam Inspections & Design

### EDUCATION
Bachelor of Science
Civil Engineering
Northeastern University

Master of Civil Engineering
Geotechnical Specialization
Georgia Institute of Technology

### LICENSES & REGISTRATIONS
Professional Engineer
MA #47184
NH #13750
CT #28898
RI #12158

### PROFESSIONAL AFFILIATIONS
American Society of Civil Engineers

Boston Society of Civil Engineers

Association of State Dam Safety Officials

New England Environmental Business Council (EBC)/Member of EBC's Dam Management Committee

American Council of Engineering Companies of Massachusetts (ACEC/MA)

## GEOTECHNICAL

### RETAINING WALLS AND SLOPES
Reviewed contractor-designed retaining walls, including pre-cast concrete block gravity walls (up to 28 feet in height), and a mechanically stabilized earth (MSE) wall (up to 42 feet in height) for real estate development projects throughout Massachusetts. Managed construction observation for quality control of wall installations. Prepared construction documentation reports certifying wall construction conformance for submission to local building department. Designed protection system of anchored reinforced concrete wall and riprap armor slope to limit erosion/weathering of soft, shale rock abutment at Niagara power plant owned and operated by New York Power Authority (NYPA). Prepared construction cost estimates for NYPA annual budget.

### MUNICIPAL INFRASTRUCTURE
Performed geotechnical evaluations for foundation and retaining wall design for numerous municipal infrastructure projects such as new bike paths, water tanks, pump stations, roadway embankments, and bridges.

### COMMERCIAL DEVELOPMENT
Performed geotechnical evaluations for foundation and retaining wall design for numerous commercial developments, such as office buildings, hospitals, and retail stores. Included "Lot E" in New Haven, CT, a mixed use development site dealing with excavation and replacement of urban fill for building foundation support. Also included One Quarry Place in Milford, MA with bedrock removal, site slopes and retaining walls, and spread footing foundations for a multiple store development site.

### INDUSTRIAL DEVELOPMENT

Performed geotechnical evaluations for numerous industrial facilities for foundation and site retaining wall design. Designed ground improvement via temporary surcharge of soft clays to reduce potential settlement of the Kollmorgen's new world headquarters in Northampton, MA. Performed geotechnical evaluations and designed for a groundwater contamination migration cutoff system for an industrial site along the Chicopee River in Chicopee, MA.

### ROADWAY EMBANKMENT

Performed forensic engineering on settlement of an 800-foot long roadway embankment in Stoughton, MA, recently reconstructed over a wetland. Engineering analyses included MSE wall and foundation stability evaluations, and current and projected embankment settlement calculations.

## DAMS AND LEEVES

### DEPARTMENT OF CONSERVATION AND RECREATION (DCR) DAMS

Managed and provided engineering design for DCR's Dam Maintenance and Office of Dam Safety divisions. Projects included Phase 1 and Phase 2 dam inspections, jurisdictional determinations, and complete dam rehabilitation or reconstruction. Services included inspections, design, permitting, bidding assistance, and construction observation. Highlighted projects include:

- Eames Mill Dam in Paxton, MA
- Aldrich Lake Dam in Granby, MA
- Emergency inspection, design, permitting, and construction phase services during major storm events, including Hurricane Irene in August 2011.

### MUNICIPAL DAMS

Managed and provided engineering design, permitting and construction phase services for complete dam rehabilitations and re-constructions for municipal dam owners including:

- Rockwood Lake Dam in Greenwich, CT
- Aspetuck Reservoir Dam in Easton, CT
- Lakeville No. 3 Dam in Salisbury, CT
- Green River Dam in Greenfield, MA (water supply dam that failed during Hurricane Irene)
- Lower Pond Dam in Brewster, MA (Historical structure with fish ladder)
- DelCarte Dams Nos. 3 and 4 in Franklin, MA (Recreational dams)

### WESTFIELD LEVEE

Managed the provisionally accredited levee process in Westfield, MA. As part of that process, FEMA required the City to certify the levee in accordance with federal regulation 44 CFR 65.10. The process included topographic, visual inspection of the earth levee and pump station, and soil borings and stability analysis of the levee.

### INSPECTIONS

Performed numerous Phase I and Phase II dam inspections for various concrete gravity and earth embankment dams for water supply and recreational dams throughout Massachusetts, Connecticut and Rhode Island.

# R. SHAWN SHEPARD, PE

## SENIOR DEVELOPMENT ENGINEER

Shawn Shepard is a systems development engineer with experience in a broad array of site/civil engineering projects in addition to his experience with Geographic Information Systems (GIS) and computer application development. Shawn has a unique insight into the use of GIS for civil/environmental engineering projects having a number of years of experience in both disciplines. Shawn's GIS experience focuses on the development of custom web-based GIS applications as well as the development of custom mapping tools for various industries. Shawn currently develops and manages Tighe & Bond's web-based systems including the company website, project specific websites, and several internal web applications and services.

**EXPERIENCE**
25 Years

**SPECIALTIES**
Systems Development

Computer Application Development

Geographic Information Systems

Computer Models & Renderings

Construction Plans

**EDUCATION**
Bachelor of Science
University of Massachusetts Amherst
Civil Engineering

**LICENSES & REGISTRATIONS**
Professional Engineer
MA #40628

**PROFESSIONAL AFFILIATIONS**
American Society of Civil Engineers

### COMPUTER APPLICATION DEVELOPMENT

Development and management of Tighe & Bond's GIS hosting system. The development of this system included the specification, installation, and integration of a multi-server Microsoft Windows Network, installation and management of a storage area network (SAN) and the development of a custom web-based mapping application using ESRI's ArcIMS and ArcSDE. This system now hosts GIS data for 30+ area communities.

Development and implementation of in-vehicle mobile GIS application for 6 Metro Boston Fire departments. This project included the development of a mobile GIS application and installation of laptops, GPS equipment and servers for 6 fire department

Development and implementation of a browser based snow removal management system for the City of Springfield, MA. The application consists of a browser-based mapping system for monitoring street status as well as a vehicle management interface and vehicle tracking

Development and implementation of a vehicle tracking solution for the City of Springfield DPW utilizing Verizon Network GPS tracking, ESRI Geoevent Services and ESRI Javascript runtime.

### GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Development of an attendance zone model to consider ethnic balancing for Holyoke, MA school system. This project included the analysis of the current school system student assignments, the development of a custom tool set for the development of attendance zones, and several presentations to the school committee and task force members.

Managed the development of a stormwater and sewer GIS for Chicopee, MA, including scanning record plans for both systems, integrating planimetric data from a CAD database, and specification and installation of new GIS hardware and software.

Managed a multi-year effort to develop a water system GIS for Holyoke, MA, including the conversion of City-wide CAD data files, scanning of record plans, and integration of several existing customer and system databases.

Developed contaminate concentration datasets and mapping for a dredging project in Gardner, MA, including dataset creation, probability modeling, volume calculation, and project mapping.

Developed contaminate concentration mapping for a large former industrial property in Stamford, CT, including dataset development, probability modeling, the development of a custom database application and mapping for several hundred borings.

Developed new police beat map for the Holyoke, MA Police Department based on the distribution of calls for service. Developed a crime mapping tool set to aid the department in the development of weekly crime maps. Continue to provide on-call mapping services.

Developed mapping for a sump pump investigation program in Peabody, MA, including dataset development and mapping of inspected homes and facilities.

Provide ongoing GIS services for numerous municipal departments in Holyoke, MA including watershed mapping and service area delineation for the Water Department and infrastructure accounting for the Department of Public Works.

## VISUALIZATION

Developed accurate 3-dimensional computer models for the Lake Whitney Water Treatment Plant, Hope VI housing project, and other commercial projects. Visualizations included architectural and site renderings as well as animated fly-bys.

Developed models and renderings for several municipal projects including the Central Maintenance Facility in Holyoke, MA and the Sewer Department Maintenance Facility in Raynham, MA.

Developed models to show the proposed location and future appearance of an electrical substation for site permitting purposes for Northeast Utilities in Wilton, CT.

## CIVIL/SITE

Developed construction plans for a municipal parking lot improvements project including site drainage, site lighting improvements, pavement reclamation, and access improvements.

Developed construction plans for a 1,500 gpd pressure dosing septic system utilizing multi-level trenches to preserve the natural grading of the site.

Developed construction plans for the reconstruction of 640 feet of an urban street with new sanitary sewer, drainage, and water lines. Handled narrow right-of-way, close proximity of buildings, and a short design time frame expeditiously and successfully.

## ROADWAYS

Developed construction plans for roadway and drainage improvements for a rural road in Westfield, MA. Improvements included a large box culvert extension, roadway reconstruction, and reclamation.

Developed construction plans and assisted with obtaining required permits for the reconstruction of 7,000 feet of road with severe drainage problems, and designed two precast span bridges in Westhampton, MA.

# TROY BARRY, MS, PEng

## PRINCIPAL ENGINEER

Troy is a stream restoration specialist with a background in watershed science and fluvial geomorphology. He possesses a broad range of science and engineering skills to assess, investigate, and design restoration, enhancement, and recovery solutions for degraded riparian, lake, riverine, and estuary environments. His project experience includes coastal erosion research, coastal resiliency, streambank restoration and stabilization, restoration of natural hydrologic and physical processes, and hydrologic/ hydraulic assessments throughout the United States and Canada.

Troy has achieved Level I, II and III certifications from Dr. Rosgen's Research and Education Center for River Studies.

Troy has worked throughout New England and in the intermountain west on a variety of projects from urban streams in Maine to agriculturally and land use practice degraded headwater systems in the west. His body of work includes coastal erosion research and publication in New England with MGS and NOAA for and is being applied in the State of Maine. He also worked on several freshwater stream projects with DEP in the region. He is always looking for a path of collaboration that provides a balance of solutions that can incorporate these experiences and ties to the riverine communities Troy has completed quality restoration work with private clients, NGO's as well as with State and Federal agencies.

### COASTAL BANK RESTORATION AND STABILIZATION

**QUINCY SEAWALL ASSESSMENT AND STABILIZATION CONCEPTS**
Wave runup analysis was utilized to design a hybrid combination structural wave-break and plant-based biostabilization approach. Considered a buffer zone between the land and the sea, this coastal bank was a prime area for biostabilization to replace existing riprap and protect the land from wave induced erosion and provide ecological uplift.

**MANCHESTER-BY-THE-SEA LIVING SHORELINE RESTORATION COASTAL RESILIENCY**
Geomorphologic compatibility, hydrology and hydraulics were combined to develop concept basis and integrated into the "restoration" of an aggraded tidal/freshwater pond created by a tide gate at the tide boundary of Sawmill Brook. A range of restoration design concepts included natural stream processes and tidal flow inundation. The use of riparian and tidal planting, at appropriate elevations, provides root mass, depth, and density creating soil stability using native vegetation to provide coastal resiliency and enhance habitat creation.

### GREEN INFRASTRUCTURE

**COASTAL RESILIENCY—CASCO BAY, ME**
Provided coastal decision makers along the bluff coasts with better tools to collect data with the goal of assessing and planning for predicted sea-level rise and more frequent and severe storms. Provided State and local decision makers with improved regulatory and non-regulatory approaches for coastal resiliency. Work included the following:

**EXPERIENCE**
25 Years

**SPECIALTIES**
Fluvial Geomorphology
Stream Restoration and Ecology
Watershed Hydrology & Hydraulics
Coastal Living Shorelines
Natural Process Design

**EDUCATION**
Master of Science in Environmental Science & Management
*Idaho State University*

Bachelor of Science Civil & Environmental Engineering
*Clarkson University*

**LICENSES & REGISTRATIONS**
Professional Engineer-Ontario, CAN
Rosgen Level I
Rosgen Level II
Rosgen Level III
Wetland Delineation and Ecology
River Science – USFS
Aquatic Organism Passage - USFS

**PROFESSIONAL AFFILIATIONS**
IAG

Developed, published, and presented a transferable model for predictive bluff erosion and landslide susceptibility (Maine Geological Survey and University of Maine). The creation of a three-tier assessment technique for evaluating shoreline erosion (RLA, PLA, DLA). Conducted outreach, selected three municipalities, applied the model, provided technical assistance to complete vulnerability assessments, educated officials and landowners and developed bluff management strategies. Assessed/documented the effects of existing regulatory approaches (shoreline armoring) and produced recommendations for better management of bluff shorelines (Maine Coastal Program, Maine Geological Survey, DACF Municipal Planning Assistance Program).

Developed, published and presented a Planting Guide for coastal resiliency. Developed a native plant guide for three distinct planting zones from the shoreline up to the upland boundary. Project included publication and adoption of “living shoreline” techniques by MGS and NOAA that have changed the “rip-rap” approach to stabilization. Included case studies for the following sites and presentation to regional councils:

- *Mackworth Island* – Living Shoreline Restoration, Bank Stabilization & BMP’s
- *Bustin’s Island* – Living Shoreline and Watershed BMP’s
- *Harpswell Mitchel Field* – site has various shoreline failures ranging in size from upper bank shallow failures to toe erosion due to wave scour.
- *Mere Point Bluff Failure* – The failure at Mere Point was a coastal soil shear failure with dimensions of approximately 550’ long by 200’ wide.

Treatments include: Living shoreline approach, using plantings for stabilization, stabilize the toe and encourage a mud flat with a fringing salt marsh to establish, plant additional woody and herbaceous planting throughout the terraces of the failure, establish both woody and herbaceous vegetation in the upland areas of the bluff, consider heavy planting in the concentrated flow path areas with plants that will provide large water absorption in the vadose zone.

**BRUNSWICK SHORELINE WORKING GROUP**
Shoreline Erosion Management Steering committee member responsible for developing a logic model and Decision Support Tool for the Town of Brunswick. The guidelines were meant to address the need to educate consultants, contractors, and other professionals in the use of erosion assessment and possible living shoreline strategies.

## WATERSHED MANAGEMENT PLANS

Assess and prepare WMP based on the EPA’s nine-element water shed based plans for nonpoint source pollution impairing waters.

**PHILLIPS BROOK—SCARBOROUGH**
1.3 Square mile watershed consisting of a mix of agriculture, forested and dominated by residential and commercial development. Developed field protocols for stream assessment and authored watershed management plan goals and strategies. Member of the steering committee to determine stream stressors and possible water quality and nutrient issues causing aquatic organism spiraling.

**RED BROOK—SOUTH PORTLAND**
Stream survey, assessment and identification of poor geomorphic compatibility culverts.

**LONG CREEK—SOUTH PORTLAND**
Stream survey, assessment and identification of poor geomorphic compatibility crossings. Identification of bank erosion, culvert impacts, loss of floodplain, channel alteration and stream sediment sources. Potential improvement for BMP’s in the watershed.

# CRAIG D. YANNES, PE, PTOE, RSP1

## TRANSPORTATION ENGINEER

Craig Yannes utilizes his experience in transportation and traffic engineering to develop improved roadway and street networks that balance effective traffic operations and safety, not only for vehicular traffic, but for all modes of transportation. His technical specialties include transportation safety engineering, traffic analysis & modeling, transportation planning, and traffic signal & roadway design. Serving as a Project Manager in Tighe & Bond's Land Use & Transportation business line, Craig has been involved with and led successful projects from design through construction for a blend of private, Municipal, and State clients. Through these projects, Craig has become a trusted advisor to our clients, utilizing his relationships and expertise in analysis, design, and the permitting process to streamline project delivery.

**HAWK'S RIDGE OF SHELTON—SHELTON, CT**
Conducted a traffic impact study for the Hawk's Ridge residential development in Shelton that included 54 single family homes, 57 townhomes, 89 apartments, and 161 assisted living units. The efforts included coordinating City, OSTA, and CTDOT Encroachment Permit approvals for the development, which included off-site signage and pavement markings improvements at the State Route 714 (Bridgeport Avenue) and Long Hill Cross Road intersection.

**BEARD SAWMILL ROAD IMPROVEMENTS—SHELTON, CT**
Designed roadway widening and traffic signal improvements to the Beard Sawmill Road intersection with Bridgeport Avenue (State Route 714) in Shelton. The improvements facilitated access to the Brightview Assisted Living Facility (161 units) and Ridge at Sawmill (89 units) apartment complex on Beard Sawmill Road. The traffic study and permitting were performed for the developments as part of the larger Hawk's Ridge residential development that also included 54 single family homes and 57 townhomes accessed via Long Hill Cross Road to the north.

**THE RIDGE AT SAWMILL—SHELTON, CT**
Performed the traffic impact study for The Ridge at Sawmill residential development on Beard Sawmill Road in Shelton. The development was a portion of the larger Hawk's Ridge residential development, which developed adjacent property and improved Beard Sawmill Road for roadway geometry and intersection sight distances. The efforts included City and OSTA permitting.

**LANGANKE'S LANDING—SHELTON, CT**
Performed a traffic impact study for Langanke's Landing mixed use development on Bridgeport Avenue (State Route 714) in Shelton. The development will include a 4,400 square foot convenience market, 10 fueling position gas station and 6,200 square feet of retail and office use.

**DAYBREAK RIDGE—SHELTON, CT**
Performed a traffic impact study for the Daybreak Ridge residential development on River Road (State Route 110) in Shelton. The development will include a 34 unit townhouse residential community.

**ROUTE 2 BIKE/PED STUDY—NORTH STONINGTON, CT**
Served as porject manager on the study to develop conceptual roadway improvement plans for approximately three miles of Route 2 in North Stonington from Route 184 to Holly Green. The concepts focused on

**EXPERIENCE**
12 Years

**SPECIALTIES**
Transportation Safety

Transportation Planning & Feasibility Studies

Traffic Impact & Parking Studies

Traffic Signal & Roadway Design

Traffic Calming Planning & Design

**EDUCATION**
Master of Science
Civil Engineering
University of Connecticut

Bachelor of Science
Civil Engineering
University of Connecticut

**LICENSES & REGISTRATIONS**
Professional Engineer
CT #29075
RI #12796

Professional Traffic Operations Engineer #3567

Roadway Safety Professional 1 #301

**PROFESSIONAL AFFILIATIONS**
Institute of Transportation Engineers (Past President of the Connecticut Chapter)

American Society of Civil Engineers

implementing bicycle and pedestrian accommodations along the corridor based on demonstrated need and deficiencies in the existing roadway. A separated multi-use path and/or on-street buffered bike lanes were proposed alongside sidewalk, pedestrian crossing, and access management improvements.

**STATEWIDE ROAD DIET FEASIBILITY STUDY (SPN 170-3480)**
Served as the traffic and safety engineering technical adviser for the Transportation and Safety Road Diet Feasibility Study on State-owned four-lane undivided state roadways. Tasks include an analysis of existing and future traffic operations and safety conditions, identification of implementable alternatives to improve the safety, mobility, and access deficiencies for all users along the roadway segments.

**PEQUONNOCK RIVER TRAIL CROSSINGS IMPROVEMENTS—TRUMBULL, CT**
Performed the design of the Pequonnock River Trail crossings of State Route 111 and Whitney Avenue in Trumbull. The project aimed to improve safety for trail crossing users by installing pedestrian activated RRFB along with advanced warning signage and markings. A radar speed sign was also installed on Whitney Avenue in advance of the crossing to reduce vehicle speeds on the steep grades approaching the crossing.

**ROUTE 77 PEDESTRIAN IMPROVEMENTS (SPN 059-168)—GUILFORD, CT**
Lead engineer for the traffic design services for pedestrian improvements to Route 77 in Guilford. The goal of the project, funded through the CTDOT's Transportation Alternatives (TA) Program, is to create a safe, continuous sidewalk network between the Elisabeth C. Adams Middle School and Hubbard Road including important facilities such as the Guilford Racquet Club, Guilford Art Center, and Guilford Public Safety Complex. The project includes approximately 2,700 LF of new sidewalks meeting PROWAG guidelines, drainage improvements, traffic signal revisions, and a Rectangular Rapid Flashing Beacon (RRFB).

**ROUTE 25 AND 111 ENGINEERNG PLANNING STUDY—TRUMBULL, CT**
Lead Transportation Engineer for the Transportation Planning Study of State Routes 25 and 111 in Monroe and Trumbull. Tasks included detailed analysis of existing and future traffic conditions, a traffic safety review, and identification of implementable improvements to develop a transportation plan solving recurring congestion, safety, and mobility issues along the corridor. The study, funded through LOTCIP, included coordination with the Connecticut Metropolitan Council of Governments (METROCOG), the Towns of Monroe and Trumbull, CTDOT, and corridor stakeholders.

**HEBRON AVENUE CORRIDOR ROUNDABOUT STUDY & HEBRON AVENUE AT HOUSE STREET ROUNDABOUT —GLASTONBURY, CT**
Performed a roundabout planning study for the Hebron Avenue Corridor. The project included capacity analyses, microsimulation, and conceptual layouts to evaluate the feasibility of roundabout installations at the New London Turnpike and House Street intersections. The results of the study were presented to the Town Council resulting in funding for the design of the roundabouts. Assisted in the design and construction of the modern roundabout at the intersection of Hebron Avenue at House Street.

**KINGS HIGHWAY COMPLETE STREETS (SPN 050-218)—FAIRFIELD, CT**
Assisted in the design of pedestrian connectivity improvements along U.S. Route 1 (Kings Highway) in Fairfield. The scope includes the restriping of Kings Highway and reconstruction of the sidewalks for better pedestrian connectivity, complete with ADA accessible sidewalks, ramps, and crosswalks. Project funding included the MAP-21 Transportation Alternatives (TA) program and Local Transportation Capital Improvement Program (LOTCIP).

# Douglas E. Bond, PE, SE

***McMullan – Principal Structural Engineer***

**Education**

*MS Civil Engineering, Virginia Polytechnic Institute and State University, 1989*
*BS Civil Engineering, Virginia Polytechnic Institute and State University, 1988*

**Years of Experience**

25 Years with McMullan | 32 Years Overall

**Professional Licenses & Certifications**

Professional Engineer: CT (No. 32919) + 24 States & DC; NCEES Certified

**Professional Affiliations**

American Concrete Institute (ACI); The American Institute of Steel Construction (AISC); American Society of Civil Engineers (ASCE); American Wood Council (AWC); Association for Preservation Technology (APT); Association for Preservation Technology International (APTI); National Trust for Historic Preservation (NTHP); Society for Industrial Archeology (SIA); Steel Joist Institute (SJI); and Structural Engineers Association - Metropolitan Washington (SEAMW)

**Biography & Notable Projects**

Doug has over 32 years of specialized experience in the evaluation and design of repairs for stone masonry canals, arch bridges and aqueducts, lock, and retaining walls, as well as extensive experience in the evaluation of existing masonry lock wooden foundations, aqueduct pier wooden cribbing, and wood pile foundations. He has completed many important projects involving renovations for the National Park Service, General Services Administration, and U.S. Army Corps of Engineers. Doug has presented the technical paper "Restoration of Stone Masonry Aqueducts" on the Chesapeake & Ohio Canal to the Historic Bridge Conference in Ohio, as well as the "Restoration of Monocacy Aqueduct" to the Transport Research Board in Saratoga Springs, New York.

***C&O Canal Locks 3 & 4 Rehabilitation for National Park Service-NCR, Washington, DC***

Principal Structural Engineer for the disassembling of lock walls down to the foundation; building of new foundations; rebuilding of locks using original and supplemental stone; construction of new lock gates; and restoration of surrounding plaza with geotechnical investigation and report, as well as additional survey work. Project has garnered multiple industry awards and has enabled NPS to resume its canal boat services, as intended for the Georgetown portions of the C&O Canal. *Project Type*: Historic Canal Lock Rehabilitations. *Project Scale*: 6,000 SF. *Project Value*: $6.0 Million. *Construction/Delivery Model*: Historic Rehabilitations/Design-Bid-Build.

***C&O Canal Repairs to Locks 5-22 for National Park Service, Potomac, MD***

Principal Structural Engineer for design of repairs along 20 miles of canal as well as construction administration services; includes drainage, canal liner, stone walls, weirs/fuse plug, towpath and culverts. McMullan was the Prime A/E for this project. *Project Type*: Historic Canal Lock Repairs & Rehabilitations. *Project Scale*: 20 Miles. *Project Value*: $9.5 Million. *Construction/Delivery Model*: Historic Repairs & Rehabilitations/Design-Bid-Build.

***Conococheague Creek Aqueduct Rehabilitation for National Park Service-NCR, Williamsport, MD***
Principal Structural Engineer for feasibility study and multiple award-winning structural restoration of this 1835 three-span masonry arch aqueduct. Work included rebuilding collapsed berm parapet and berm spandrel as well as repair of deficiencies for NPS' effort to demonstrate canal boat services from a point 500 feet upstream to Lock 44 downstream of the Cushwa Basin. *Project Type*: Historic Aqueduct Rehabilitation. *Project Scale*: 9,600 SF. *Project Value*: $9.0 Million. *Construction/Delivery Model*: Historic Rehabilitation/Design-Bid-Build.

***Morris Canal Lock 2 East & Miter/Drop Gates Restoration for Borough of Wharton, Wharton, NJ***
Principal Structural Engineer for the investigation, assessment, analysis, construction documents, and construction phase services for the restoration of this historic stone lock, including a set of timber lock gates. Lock 2 East was one of 23 traditional locks and 23 inclined planes within the Morris Canal circa 1825-1831, which traversed Northern New Jersey in a general east-to-west direction between Newark and Phillipsburg. *Project Type*: Historic Canal Lock Repair & Rehabilitation. *Project Scale*: 10,000 SF. *Project Value*: $1.2 Million. *Construction/Delivery Model*: Historic Repair & Rehabilitation/Design-Bid-Build.

***Paterson Raceway Rehabilitation for City of Paterson, Paterson, NJ***
Principal Structural Engineer for the evaluation of deficiencies and current conditions of raceway structures; engineering analysis of integrating flood hazard planning to employ the raceway as an emergency flood management resource in the historic district; and analysis of historical documentation, archeological investigations, and rehabilitation reports. Preliminary investigations into the permits necessary to achieve project goals and initial meetings with regulatory agencies were conducted along with preparation of a comprehensive report with findings, recommendations, and cost estimates presented to the city. McMullan was the Prime A/E. *Project Type*: Historic Raceway Repair & Rehabilitation. *Project Scale*: 118 Acres. *Project Value*: $11.6 Million. *Construction/Delivery Model*: Historic Repair & Rehabilitation/Design-Bid-Build.

***Lockington Lock 1 Reconstruction for Ohio History Connection, Lockington, OH***
Principal Structural Engineer for structural investigation, preliminary analysis, and physical condition assessment as well as design and construction administration services (with Owner assistance for bidding/awarding of contracts) for the disassembly and reconstruction of Lock 1 – one of five masonry lock structures on the Ohio & Erie Canal circa 1837-1845. Stones were carefully removed, marked for relocation in their original configuration, and stored on site until reassembly onto a new foundation. *Project Type*: Historic Canal Lock Reconstruction. *Project Scale*: 8,000 SF. *Project Value*: $1.7 Million. *Construction/Delivery Model*: Historic Preservation & Reconstruction/Design-Bid-Build.

# Rebecca Biskadouras, PE

***McMullan – Project Engineer***

**Education**

*MS Civil Engineering, Virginia Polytechnic Institute and State University, 2014*
*BS Civil Engineering, Virginia Polytechnic Institute and State University, 2013*

**Years of Experience**

6 Years with McMullan | 7 Years Overall

**Professional Licenses & Certifications**

Professional Engineer: VA

**Professional Affiliations**

American Society of Civil Engineers (ASCE) and Structural Engineers Association - Metropolitan Washington (SEAMW)

**Biography & Notable Projects**

Rebecca has seven years of experience working on projects that involve new construction, alternations/ additions to existing buildings, renovations, and restoration/preservation of historic canals. She has also overseen development of several Historic Structure Reports (HSRs), condition assessments, and HABS/HAER documentation. Having spent the majority of her career with McMullan, Rebecca is directly involved in performing structural surveys, testing, investigations, designs, calculations, modeling and construction phase services, along with designing projects that use Building Information Management (BIM) software. Her wide-ranging experience includes National Park Service, the Northern Virginia Park Authority, JBG Smith, and Union Station Redevelopment Corporation.

***C&O Canal Locks 3 & 4 Rehabilitation for National Park Service-NCR, Washington, DC***

Project Engineer for the disassembling of lock walls down to the foundation; building of new foundations; rebuilding of locks using original and supplemental stone; construction of new lock gates; and restoration of surrounding plaza with geotechnical investigation and report, as well as additional survey work. Project has garnered multiple industry awards and has enabled NPS to resume its canal boat services, as intended for the Georgetown portions of the C&O Canal. *Project Type*: Historic Canal Lock Rehabilitations. *Project Scale*: 6,000 SF. *Project Value*: $6.0 Million. *Construction/Delivery Model*: Historic Rehabilitations/Design-Bid-Build.

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Project Engineer for the evaluation of deficiencies and current conditions of raceway structures; engineering analysis of integrating flood hazard planning to employ the raceway as an emergency flood management resource in the historic district; and analysis of historical documentation, archeological investigations, and rehabilitation reports. Preliminary investigations into the permits necessary to achieve project goals and initial meetings with regulatory agencies were conducted along with preparation of a comprehensive report with findings, recommendations, and cost estimates presented to the city. McMullan was the Prime A/E. *Project Type*: Historic Raceway Repair & Rehabilitation. *Project Scale*: 118 Acres. *Project Value*: $11.6 Million. *Construction/Delivery Model*: Historic Repair & Rehabilitation/Design-Bid-Build.

Richard W. Hunter
PRESIDENT

Patrick Harshbarger
VICE PRESIDENT

James S. Lee
VICE PRESIDENT

Patricia A. Madrigal
VICE PRESIDENT

**PATRICK HARSHBARGER**
**Vice President**
**Principal Historian/Architectural Historian, M.A., M.P.A.**

## EDUCATION

M.A., History, University of Delaware, Newark, Delaware, 1990

- Fields of Study: History of Technology (focus on built environment, structural engineering and architecture); American Colonial History; American Labor History; European Industrialization

Museum Studies Certificate, University of Delaware, Newark, Delaware, 1990

M.P.A., Public Administration, Florida International University, Miami, Florida, 1988

- Focus on non-profit management

B.A. *magna cum laude*, American History, Brown University, Providence, Rhode Island, 1984

## EXPERIENCE

2015-present Vice President
Hunter Research, Inc., Trenton, New Jersey

As a member of the firm's senior management team, Mr. Harshbarger participates in all aspects of business management, development and strategic planning.

2010-present Principal Historian/Architectural Historian
Hunter Research, Inc., Trenton, New Jersey

Technical and day-to-day managerial responsibilities for historical and archival research in support or historic architecture and archaeology. Participation in: Section 106 and state preservation law compliance review; historical architectural survey, evaluation and recording of buildings and structures; historical research; preservation planning; public outreach; historical exhibits and signage; interpretive planning and development; report preparation; proposal preparation.

1996-2016 National Editor, *Society for Industrial Archeology Newsletter*
(www.sia-web.org/siapubs/publications.html)

Full editorial responsibilities inclusive of identifying and providing assistance to contributing authors and photographers, copy editing and oversight of graphic design and production on a quarterly basis. The SIA is the leading North American organization for the documentation and preservation of industrial heritage.

1991-2010 Senior Historian/Preservation Planner
TranSystems Corp. (formerly Lichtenstein Consulting Engineers)
Langhorne, Pennsylvania and Paramus, New Jersey

Served as one of two staff historians to a national engineering and transportation consulting firm specializing in historic bridges and roads, as well as general cultural resources management services and architectural surveys (Sections 106 and 4f), to a client base consisting mainly of local, state and federal transportation agencies.

## CONTINUING EDUCATION AND CERTIFICATIONS

- Secretary of the Interior's Professional Qualifications Standards for Historians (36 CFR Part 61)
- Secretary of the Interior's Professional Qualifications Standards for Architectural Historians (36 CFR Part 61)
- Architectural History Seminar and Workshop, New Hampshire Division of Historical Resources, Manchester, New Hampshire, 2014.
- National Register Nomination Preparation, New Jersey Historic Preservation Office and National Register of Historic Places Joint Workshop, Trenton, New Jersey, 2011
- Iron and Steel Preservation Workshop Certificate, Lansing Community College, Lansing, Michigan, 2010, 2012 (also presenter)
- Section 106 Training Certificate, Ohio Department of Transportation, Columbus, Ohio, 2010
- HAZWOPER 24-hr. Training
- Section 106 Training Workshop, Pennsylvania Department of Transportation, Allentown, Pennsylvania, 2009
- Museum Studies Certificate, University of Delaware, Newark, Delaware, 1990
- Hagley Fellow in the History of Industry and Technology/Museum Studies, Hagley Museum & Library, Wilmington, Delaware, 1988-1991

## SPECIAL SKILLS AND INTERESTS

- historic bridges
- historic transportation systems (roads, canals, railroads)
- preservation of historic machinery and tools
- industrial and commercial architecture
- engineering heritage
- industrial archaeology
- public history and heritage tourism
- photography

## PROFESSIONAL AFFILIATIONS

National Society for the Preservation of Covered Bridges
National Trust for Historic Preservation
Newlin Foundation Trustee (Historic Grist Mill)
Society for Commercial Archeology
Society for the History of Technology
Society for Industrial Archeology
2017 General Tools Award Recipient for Distinguished Service to the Field of Industrial Archaeology
Society for the Preservation of Old Mills
Vernacular Architecture Forum

## SELECTED PUBLICATIONS AND REPORTS

Co-author with Richard W. Hunter. *Sartori to Sacred Heart: Early Catholic Trenton.* Sacred Heart Parish, Trenton, New Jersey, 2014.

*New Jersey Department of Transportation's Fernwood Service Station, Serving New Jersey's Highways Since 1922.* New Jersey Department of Transportation, Trenton, New Jersey. 2014.

"Two Pioneering American Roadways." *Proceedings of the Institution of Civil Engineers – Engineering History and Heritage*. London, England, May 2010.

Editor. *Abstracts of American Truss Bridge Patents, 1817-1900*. Society for Industrial Archeology, Houghton, Michigan, 2009.

Co-author. *National Guidelines for Historic Bridge Rehabilitation and Replacement*. Washington, D.C.: American Association of State Highway and Transportation Officials, 2008.

"Defining Historic Roads." *Proceedings of the 6th Preserving the Historic Road in America Conference*. Albuquerque, New Mexico, 2008.

Richard W. Hunter
PRESIDENT

Patrick Harshbarger
VICE PRESIDENT

James S. Lee
VICE PRESIDENT

Patricia A. Madrigal
VICE PRESIDENT

**JAMES S. LEE, III, M.A., RPA**
**Vice President**
**Principal Investigator/Archaeologist**

## EDUCATION

M.A., Archaeology, University of Durham, Durham, United Kingdom, 1996

B.A., Anthropology and History, Rutgers University, New Brunswick, New Jersey, 1995

## EXPERIENCE

2015-present Vice President/Principal Investigator/Archaeologist
Hunter Research, Inc., Trenton, NJ

Vice President of firm providing archaeological and historical research, survey, excavation, evaluation, report preparation and public outreach services in the Northeastern United States. Responsible for:

- Project management, budgeting and scheduling
- Technical and synthetic writing
- Proposal preparation, contract negotiation and management
- Hiring and supervision of personnel
- Supervision of research, fieldwork, analysis and report preparation

2001-2015 Principal Investigator
Hunter Research, Inc., Trenton, NJ

Technical and managerial responsibilities for survey, evaluation and mitigation of selected archaeological projects. Technical and managerial responsibility for report production. Participation in:

- overall site direction and day-to-day management
- development and implementation of research, excavation and analysis strategies for prehistoric and historic archaeological sites
- supervision of cartographic and GIS product, graphic design and report layout
- hiring and supervision of personnel

2001 Crew Chief
Kittatinny Archaeological Research, Stroudsburg, Pennsylvania

- survey and excavation
- supervision of field personnel
- stratigraphic and artifact analysis

1997-2001 Principal Investigator/Project Manager
Cultural Resource Consulting Group, Highland Park, New Jersey

- overall site direction and day-to-day management
- development and implementation of research, excavation and analysis strategies for prehistoric and historic archaeological sites
- report and proposal preparation
- hiring and supervision of personnel

1997-2000 Laboratory Supervisor
Cultural Resource Consulting Group, Highland Park, New Jersey

Technical and managerial responsibilities for laboratory components of archaeological projects. Participation in:

- management of laboratory operations
- supervision of laboratory personnel
- computerization of artifact data
- prehistoric and historic ceramic analysis
- preparation of artifact inventories and writing of artifact sections of reports

1996-1997 Field Technician
Cultural Resource Consulting Group, Highland Park, New Jersey

## SPECIAL SKILLS AND INTERESTS

- canals and associated water control structures
- waterpowered mill sites
- iron manufacture
- prehistory of the northeastern United States
- prehistoric lithic technology
- historic sites interpretation and public outreach

## CONTINUING EDUCATION AND CERTIFICATIONS

Secretary of the Interior's Professional Qualification Standards for Archaeologists (36 CFR Part 61)
Register of Professional Archaeologists
Advanced Metal Detecting for the Archaeologist, RPA Continuing Education Course, November 2018
OSHA 40-hour Initial Training, 2002
OSHA 8-hour Refresher Course, 2016

## PROFESSIONAL AFFILIATIONS

Society for Industrial Archaeology
Archaeological Society of New Jersey, Executive Board Member at Large
Society for Pennsylvania Archaeology
New York State Archaeological Association
Canal Society of New Jersey
Warren County Morris Canal Committee
Eastern States Archaeological Federation
Middle Atlantic Archaeological Conference

# BRIAN SHEEHAN

SEGD

## Title/Role

Project Manager

## Bio

Throughout his 18 year career, Brian has brought a successful balance of design understanding and industry-proven project management. His work includes site research and analysis, signage and wayfinding master plans, brand development, messaging, and branded environments. Building on his experience and knowledge of production and fabrication techniques, Brian ensures that projects are on schedule and meet the demands of our clients' expectations.

## Education

George Mason University - Bachelor of Arts

## Experience

Harvard University
Morven Park
Walden Woods Brewster Hill
LSU Campus
Maine Medical Center
Mercy Medical Center
MaineHealth
Blue Cross Blue Shield
Suffolk Downs Masterplan
White Plains Hospital
Johns Hopkins
Harvard Medical
Johnson & Johnson
Aresenal Yards
Mars Wrigley

# CHRIS SHEEHAN

LEED AP, SEGD

## Title/Role

Principal In Charge

## Bio

As a multidisciplinary design leader, Chris fuses brand, signage and graphics with architecture to create successful branded environments and places that foster positive user experiences. Over the past 20 years, Chris has collaborated with clients on multiple project types including: healthcare, hospitality, mixed-use, retail, civic, sports, education, corporate, and transportation. As Principal In Charge of our design team, Chris will provide strategic design solutions from masterplanning to design documents.

## Education

Boston Architectural Center - Masters of Architecture

Rochester Institute of Technology - Bachelor of Arts in Industrial Design

## Experience

264 Lynnway

Mary Ellen Welch Greenway

KSQ Interpretive Experience

Morven Park

Raymond L. Flynn Marine Park

Burr Ridge

Alfond Center for Health

Suffolk Downs Masterplan

Boston Children's Hospital

Blue Cross Blue Shield

White Plains Hospital

City of Worcester Masterplan

Aresenal Yards

Mars Wrigley

Columbia University

# JOSEPH C. PEREIRA, P.E.

Principal

Mr. Pereira is the Principal of Pereira Engineering and is responsible for the day to day operation of the firm. Mr. Pereira also assigns, oversees, and reviews all projects for the firm. Mr. Pereira has a broad background and solid foundation in engineering and construction. He is experienced in a variety of projects ranging from traditional civil engineering to environmental engineering. He specializes in the design of wastewater treatment facilities as well as site planning and development. He has been involved in all phases of design, construction, and inspection.

Duties include the design of various types of projects including municipal, industrial, commercial, and residential. Responsible for the preparation of design drawings, reports, and specifications for these projects.

**PROJECT EXPERIENCE:**

**Municipal Projects:**

- Ansonia WPCA - Upgrade to Wastewater Treatment Facility; Ansonia, CT
- Bridgeport Public Library; Newfield Library - 755 Central Avenue; Bridgeport, CT
- Bridgeport Public Library; Upper East Side Branch - 2534 East Main Street; Bridgeport, CT
- Bridgeport WPCA - CSO Contract F-4; Bridgeport, CT
- Bridgeport WPCA - CSO Contract H; Bridgeport, CT
- Bridgeport WPCA - CSO Long Term Control Plan Project; Bridgeport, CT
- Bridgeport WPCA - Development of a Preliminary Green Infrastructure Design Project; Bridgeport, CT
- Bridgeport WPCA - Genset Improvements Resident Engineering Services (Westside & Eastside) Treatment Plants; Bridgeport, CT
- Bridgeport WPCA - Interim BNR Facilities; Bridgeport, CT
- Bridgeport WPCA - New River Street Pump Station Project; Bridgeport, CT
- Bridgeport WPCA - Pump Station Rehabilitation Project; Bridgeport, CT
- Bridgeport WPCA - East & West WWTF; Bridgeport, CT
- City of Bridgeport - Bridgeport Animal Shelter; Bridgeport, CT
- City of Bridgeport - Lincoln Boulevard; Bridgeport, CT
- City of Bridgeport - Realignment of Lafayette Circle; Bridgeport, CT
- City of Bridgeport - East End Civic Block Redevelopment Project; Bridgeport, CT
- City of Bridgeport - Klein Memorial Auditorium; Bridgeport, CT
- Town of Darien - Stony Brook Pump Station - Forcemain Replacement; Darien, CT
- Woodridge Lake Sewer District – Facilities Plan Update; Goshen, CT
- Enfield WPCA; Enfield Facilities Plan; Enfield, CT
- Town of Fairfield - Replacement of Duck Farm Road Bridge Over Mill River Project; Fairfield, CT
- Town of Greenwich - Station A & D Force Main Project; Greenwich, CT
- Town of Greenwich - Station A Pump Station Rehabilitation Project; Greenwich, CT
- City of Hartford - The Hartford Public Safety Complex Project; Hartford, CT
- The Metropolitan District - Hartford WPCF – Wet Weather Expansion Project; Hartford, CT
- The Metropolitan District - Burton Street Drain Separator Project; Hartford, CT

- The Metropolitan District - Franklin Avenue Sewer Separation Package "A", Contracts 7 & 11; Hartford, CT
- The Metropolitan District - Hartford WPCF - Phase II BNR Upgrades; Hartford, CT
- The Metropolitan District - Hartford WPCF - Aeration and FST Improvement Project; Hartford, CT
- City of Meriden - Preliminary Design Plans for Traffic Improvements near Transit Center; Meriden, CT
- Town of New Fairfield - Town Wide Facilities Study; New Fairfield, CT
- Greater New Haven WPCA - CSO Reduction Utilizing Green Infrastructure - West River Watershed; New Haven, CT
- Greater New Haven WPCA – Sewer Separation Project; New Haven, CT
- Norwalk Fire Department - Apparatus Maintenance - 100 Fairfield Avenue; Norwalk, CT
- Norwalk Fire Department - Volk Fire Department - Volk Fire Station; 121 Connecticut Avenue; Norwalk, CT
- Norwalk Fire Department - Westport Station #4 - 180 Westport Avenue; Norwalk, CT
- Norwalk WPCA - Phase 1-CSO/Wet Weather Preliminary Treatment System; Norwalk, CT
- Norwalk WPCA - WPCF Main Influent Pump Replacement Project; Norwalk, CT
- Town of Oxford - Oxford Senior Center; Oxford, CT
- City of Shelton - Plumb Memorial Library; Shelton, CT
- Town of Southbury - Southbury Senior Center/Parks & Recreation Facility; Southbury, CT
- Stamford WPCA – Wastewater Engineering Services – WPCA; Stamford, CT
- Town of Stratford – Sterling House Community Center; Stratford, CT
- Town of Stratford – Stratford Historical Society; Stratford, CT
- Town of Trumbull - Department of Public Works Administration Building; Trumbull, CT
- Trumbull WPCA; Beardsley Pump Station; Trumbull, CT
- Trumbull WPCA; 2595 Reservoir Avenue; Trumbull, CT
- Trumbull WPCA; 1980 Old Town Road; Trumbull, CT
- Town of West Hartford - West Hartford Senior Center; West Hartford, CT
- Town of Weston – Weston Preservation Bridges Project; Weston, CT

**School Projects:**

- Bethlehem Elementary School - Sidewalk Re-Design Services; Bethlehem, CT
- Bolton High School - Additions and Renovations; Bolton, CT
- Bassick High School - Repair and Replacement Project; Bridgeport, CT
- Black Rock School - Expansion and Renovate-as-New Project; Bridgeport, CT
- Central High School – Expansion and Renovate-As-New Project; Bridgeport, CT
- Columbus Elementary School - Repair and Replacement Project; Bridgeport, CT
- Dunbar Elementary School - Renovations; Bridgeport, CT
- Longfellow Elementary School - Renovate as New; Bridgeport, CT
- Roosevelt Elementary School - Repair and Replacement Project; Bridgeport, CT
- Wilbur Cross Elementary School - ADA Renovations Project; Bridgeport, CT
- Western Connecticut State University – Perimeter Site Improvements – “Litchfield Park”; Danbury, CT
- Notre Dame Catholic High School - Notre Dame Field; Fairfield, CT
- Our Lady of the Assumption Church - Site Survey; Fairfield, CT

# JEFFREY R. JURZYNSKI, P.L.S.

Survey Manager

Mr. Jurzynski is the Survey Manager for Pereira Engineering and is responsible for managing the Land Surveying Department. Mr. Jurzynski performs such duties as project estimates, contract/proposal writing, survey marketing, client contact, field and office manpower scheduling, acquisition of surveying equipment, land record research, determination of boundaries, final mapping presentation and signing of all final survey mapping. In addition, he is responsible and accountable for budgetary and invoicing determination for all land surveying projects.

**PROJECT EXPERIENCE:**

**Municipal Projects:**

- Bridgeport Public Library - 2534 East Main Street; Bridgeport, CT
- Bridgeport WPCA – East & West Wastewater Treatment Plants; Bridgeport, CT
- City of Bridgeport - East End Civic Block Redevelopment Project; Bridgeport, CT
- City of Bridgeport - Klein Memorial Auditorium; Bridgeport, CT
- City of Bridgeport - Discovery Museum; Bridgeport, CT
- City of Danbury - Downtown Danbury TOD Streetscape Renaissance Project; Danbury, CT
- City of New Britain - Area S2-153 I/I Removal Project; New Britain, CT
- GNHWPCA Sewer Separation Project; New Haven, CT
- Old Lyme Shores Beach Association; Old Lyme, CT
- South Windsor Pumping Stations; South Windsor, CT
- Stamford WTP - Dewatering & Chemical Receiving Facility; Stamford, CT
- City of West Haven – Oyster River Wastewater Pumping Station; West Haven, CT

**Public Utility Companies:**

- Aquarion Water Company
- Altice USA; Connecticut
- Altice USA: New York
- The United Illuminating Company; Shelton, CT
- Verizon

**Housing Authorities:**

- Park City Communities; Bridgeport, CT
- Stratford Housing Shiloh Gardens; Stratford, CT

**Federal Projects:**

- United States Postal Service; 115 Boston Avenue; Bridgeport, CT
- United States Postal Service; Granby Post Office; Granby, CT
- United States Postal Service; New Britain Main Post Office; New Britain, CT

- **Commercial Projects:**
- People's United Bank; 2115 Dixwell Avenue; Hamden, CT

- Shelton River Front Development Project; Shelton, CT
- Webster Bank; 436 Slater Road; New Britain
- 502 Howe Avenue; Mixed Use Development; Shelton, CT
- 1180 East Main Street; Mixed Use Development; Torrington, CT
- Webster Bank; 1 Main Street; Torrington, CT
- Norwalk Marine Contractors; Stratford, CT

**REGISTRATIONS AND CERTIFICATIONS:**
Professional Land Surveyor CT, License #0014202

**HEALTH AND SAFETY TRAINING:**
OSHA 10 Hour Construction Program (2020)

**EDUCATION:**

Greater Hartford Technical College, Hartford, CT

# APPENDIX B: LICENSES

Nashua Street Park | Boston, MA

STATE OF CONNECTICUT ✦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

**ROBERT R UHLIG**

has been certified by the Department of Consumer Protection as a licensed

**LANDSCAPE ARCHITECT**

**License # LAR.0001194**

QUI TRANSTULIT SUSTINET

Effective: 08/01/2021

Expiration: 07/31/2022

Michelle Seagull, Commissioner

STATE OF CONNECTICUT ✦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

**SEAN M RAGAN**

has been certified by the Department of Consumer Protection as a licensed

**LANDSCAPE ARCHITECT**

**License # LAR.0001280**

QUI TRANSTULIT SUSTINET

Effective: 08/01/2021

Expiration: 07/31/2022

Michelle Seagull, Commissioner

STATE OF CONNECTICUT ✦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

**CHRISTOPHER D HAKER**

82 Sunset Drive

Northborough, MA 01532

has been certified by the Department of Consumer Protection as a licensed

**PROFESSIONAL ENGINEER**

**License # PEN.0028898**

Effective: 02/15/2021

Expiration: 01/31/2022

Michelle Seagull, Commissioner

STATE OF CONNECTICUT ✦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

**CRAIG S FRENCH**

6 JON DR

BELCHERTOWN, MA 01007

has been certified by the Department of Consumer Protection as a licensed

**PROFESSIONAL ENGINEER**

**License # PEN.0025836**

Effective: 02/01/2021

Expiration: 01/31/2022

Michelle Seagull, Commissioner

**STATE OF CONNECTICUT ✦ DEPARTMENT OF CONSUMER PROTECTION**

Be it known that

**JOSEPH A CANAS JR**
**105 MOUNTAIN RD**
**CHESHIRE, CT 06410-2634**

has been certified by the Department of Consumer Protection as a licensed

**PROFESSIONAL ENGINEER**

**License # PEN.0020873**

Effective: 02/01/2021
Expiration: 01/31/2022

Michelle Seagull, Commissioner

***STATE OF CONNECTICUT***
***DEPARTMENT OF ENVIRONMENTAL PROTECTION***

**Board of Examiners of Environmental Professionals**

BE IT KNOWN THAT

Nicholas Granata

Has satisfied the qualifications required by law to be a
**LICENSED ENVIRONMENTAL PROFESSIONAL**

In the State of Connecticut
In witness whereof such license was issued on July 1, 2011

LICENSE #537

CONNECTICUT DEPARTMENT ENVIRONMENTAL PROTECTION

Daniel C. Esty, Commissioner

Denise Ruzicka, Chairman

STATE OF CONNECTICUT ✦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

**CRAIG D YANNES**

**400 Drummond Road**

**Orange, CT 06477**

has been certified by the Department of Consumer Protection as a licensed

**PROFESSIONAL ENGINEER**

**License # PEN.0029075**

Effective: 02/01/2021

Expiration: 01/31/2022

Michelle Seagull

Michelle Seagull, Commissioner

# APPENDIX C: ADDENDUM

Nashua Street Park | Boston, MA

City of Shelton
54 Hill Street
Shelton, Conn. 06484

203-924-1555
Fax: 203-924-4273

August 4, 2021

## ADDENDUM # 1

BID# 42-06: RFQ Engineering Services For Shelton Canal Locks Park

Please note a date change on the 12th page into the bid packet (last page prior to the pictures),which read that:

"Letters of interest and corresponding documents must be received no later than 11:00 AM on **Thursday September 2, 2021**. Reponses received or postmarked after this date will not be considered."

The correct date is **Friday, August 27, 2021**, no later than 11:00 AM local time. Please complete and sign below and submit this Addendum # 1 with your sealed Bid to the City.

Sincerely,

Paul H. Hiller, Director of Finance
City of Shelton
203-924-1555 x 1318
p.hiller@cityofshelton.org

I have received Addendum # 1 to Bid # 42-06

Company Name: Tighe & Bond Studio, Inc.

Contact name (PRINT) : Robert R. Uhlig, FASLA, LEED AP BC + C

Contact Signature: _____

Date: August 26, 2021