



BOARD OF WATER COMMISSIONERS

Regular Meeting Agenda

Tuesday, October 21, 2025 6:15 p.m.

Meeting will be held at the Bristol Water & Sewer Department, Water Filtration Plant, 1080 Terryville Ave., Bristol, CT. or join via Zoom: Meeting ID:845 8206 0075, Passcode: 123456; Dial in: 1-929-205-6099.

1. Call to Order
2. Pledge of Allegiance
3. Moment of Silence
4. Approval of the Minutes of the September 16, 2025 Regular Board Meeting
5. Approval of the Department Reports for the Month of September 2025
6. Public Participation
7. Customer Correspondence
8. Committee Reports
9. RFQ: Replacement of Horizontal Flocculation Equipment and Sedimentation Sludge Collection System 2P26-005
10. Investments
11. Superintendent's Report
12. Chairperson's Report
13. Old Business
14. New Business
15. Adjournment

Next Meeting: Tuesday, November 18, 2025 6:15 p.m.

BOARD OF WATER COMMISSION

SEPTEMBER 16, 2025 - REGULAR MEETING

PRESENT: Chairperson Phelan; Commissioners Ferrier, Porrini and Cunningham;
Council Liaison Jacqueline Olsen.

PRESENT by videoconference: Commissioner Dunn.

STAFF PRESENT: Superintendent Longo; Assistant Superintendents Keegan; Dawn LaBella, Office Manager

1) CALL TO ORDER.

Chairperson Phelan called the meeting of the Board of Water Commission to order at 6:36 p.m.

2) PLEDGE OF ALLEGIANCE.

3) MOMENT OF SILENCE.

4) APPROVAL OF THE MINUTES OF THE AUGUST 19, 2025 REGULAR MEETING.

On motion of Commissioner Dunn and seconded; it was unanimously voted to approve the August 19, 2025 regular meeting minutes as presented.
Motion passed.

5) APPROVAL OF THE DEPARTMENT REPORTS FOR THE MONTH OF AUGUST 2025.

On motion of Commissioner Dunn and seconded; it was unanimously voted to approve the August 2025 Department Reports as presented.
Motion passed.

6) PUBLIC PARTICIPATION.

None.

7) CUSTOMER CORRESPONDENCE.

A. 20-26 Gridley Street: Requested that the Board consider one of several alternatives to his current situation rather than excavating the building's concrete flooring to inspect installed water and sewer lines.

On motion of Commissioner Ferrier and seconded; it was voted that the Board cannot approve Mr. Pio's request for any alternatives for 20 & 26 Gridley Street.

Roll Call Vote: Chairperson Phelan - Yes
Commissioner Dun - Yes
Commissioner Ferrier - Yes
Commissioner Cunningham - Yes
Commissioner Porrini - No

Motion passed.

8) COMMITTEE REPORTS.

None.

9) INVESTMENTS.

On motion of Commissioner Porrini and seconded; to bring to the table a Resolution for adoption and to waive the reading of the Resolution, but to include it as part of the minutes.

Motion passed.

On motion of Commissioner Porrini and seconded; to authorize the Chairperson and Superintendent to execute bank-related documents pertaining to Certificates of Deposit on behalf of the Bristol Water and Sewer Department.

Roll call: Chairperson Phelan - Yes.
Commissioner Dunn - Yes.
Commissioner Ferrier - Yes.
Commissioner Porrini - Yes.
Commissioner Cunningham - Yes.

Motion passed.

10) SUPERINTENDENTS REPORT.

No action taken.

11) CHAIRPERSONS REPORT.

No action taken.

12) OLD BUSINESS.

None.

13) NEW BUSINESS.

None.

14) ADJOURNMENT.

At 8:28 p.m., on motion of Commissioner Dunn and seconded; it was unanimously voted to adjourn.

ATTEST: _____

Renee M. LaMarre
Water & Sewer Administrative Assistant

BRISTOL WATER DEPARTMENT

SEPTEMBER 2025

WATER BILLING

Water Bills rendered September 2025	<u>\$1,242,154.80</u>
Water Bills remaining unpaid as of September 2025	<u>\$465,752.85</u>

PRECIPITATION

For the Month	<u>4.07 "</u>	Normal	<u>3.90 "</u>	Departure from Normal	<u>0.17 "</u>
For the Year	<u>37.00 "</u>	Normal	<u>31.30 "</u>	Departure from Normal	<u>5.70 "</u>

RESERVOIR CAPACITY

Total Available Capacity - September 2025	<u>899,860,000</u>	Gallons	<u>70.392%</u>
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PRODUCTION

Monthly Production - September 2025	<u>165,155,560</u>	Gallons
Monthly Production - September 2024	<u>184,446,660</u>	Gallons

CASH STATEMENT WATER	
BALANCE:SEP 1 2025	4,384,421.26
REVENUE:	
ACCOUNTS RECEIVABLE	1,078,878.35
SERVICE ACCOUNTS	9,836.03
FINES	
SEWER ACCOUNTS	755,560.22
LIENS	2,963.32
PENALTIES	12,253.36
REMOVE METER	1,200.00
CLOSING COSTS	9,375.00
REINSTATE FEES	7,950.00
ASSESSMENTS	
ADMIN FEE/LIENS (WPC)	
LAND LEASE	2,485.24
CELL TOWER LEASE	17,422.69
SCRAP METAL SALES	
TIMBER SALES	
STATE BOND TRANSFERS	112,585.19
TOTAL REVENUE:	2,010,509.40
TOTAL REVENUE SUPER NOW CHECKING ACCOUNT	2,010,509.40
DISBURSEMENTS (VOUCHERS):	1,864,157.54
TRANSFERS:	
SEWER TRANSFER (BWSD)	755,560.22
TRANSFER TO PROCUREMENT ACCOUNT	
<u>ACCOUNT BALANCES:</u>	
SUPER NOW CHECKING ACCOUNT	
BALANCE: SEP 30 , 2025	3,775,212.90
GOALS ENABLING FUND	
BALANCE: SEP 30 , 2025	5,758,436.44
CONSTRUCTION ACCOUNT	
BALANCE: SEP 1, 2025	210,960.62
DEPOSIT	13,100.00
DISBURSEMENTS	-
BALANCE: SEP 30, 2025	224,060.62
PAYROLL CASH ACCOUNT	
BALANCE: SEP 1, 2025	189,256.61
DEPOSIT	258,019.79
DISBURSEMENTS	(262,454.69)
BALANCE: SEP 30 , 2025	184,821.71

2025 2026 BRISTOL WATER DEPARTMENT BUDGET									
Sep-25									
	APPROVED BUDGET	EXPENDED JULY	EXPENDED AUGUST	EXPENDED SEPTEMBER	EXPENDED TO DATE	% TO DATE			
CLASSIFICATION	2025 2026	2025 2026	2025 2026	2025 2026	2025 2026	2025 2026			
SALARIES	\$ 3,107,958.00	\$212,977.01	\$231,248.87	\$240,218.10	\$684,443.98	22.02%			
FRINGE BENEFITS	\$ 1,746,690.00	\$125,920.75	\$121,582.83	\$126,653.21	\$374,156.79	21.42%			
OPERATING SERVICES	\$ 2,744,537.00	\$172,670.43	\$213,394.15	\$289,350.01	\$675,414.59	24.61%			
MATERIALS & SUPPLIES	\$ 1,286,740.00	\$44,158.64	\$127,844.79	\$78,955.21	\$250,958.64	19.50%			
CAPITAL OUTLAY	\$ 1,966,156.00	\$0.00	\$26,280.00	\$0.00	\$26,280.00	1.34%			
GRAND TOTAL	\$ 10,852,081.00	\$555,726.83	\$720,350.64	\$735,176.53	\$2,011,254.00	18.53%			
OPERATING SERVICES									
LIGHT & POWER	\$ 574,558.00	\$13,845.46	\$38,953.96	\$48,349.99	\$101,149.41	17.60%			
TELEPHONE	\$ 24,240.00	\$1,791.65	\$1,918.94	\$691.85	\$4,402.44	18.16%			
POSTAGE	\$ 32,300.00	\$4,064.36	\$4,028.00	\$8,255.86	\$16,348.22	50.61%			
ADVERTISING	\$ 1,000.00				\$0.00	0.00%			
CLOTHING/UNIFORMS	\$ 6,700.00	\$180.00	\$398.41	\$90.00	\$668.41	9.98%			
MAINTENANCE/SERVICE	\$ 97,800.00	\$5,741.54	\$7,179.07		\$12,920.61	13.21%			
LEASE	\$ 16,509.00	\$169.28	\$169.28		\$1,778.56	10.77%			
CONFERENCE & MEMBERSHIP	\$ 34,950.00	\$651.00			\$1,931.00	5.53%			
TAXES	\$ 561,185.00	\$47,289.72	\$47,289.72	\$47,289.72	\$141,869.16	25.28%			
PROFESSIONAL SERVICES	\$ 329,220.00	\$41,760.84	\$32,175.01	\$28,538.76	\$102,474.61	31.13%			
LIENS	\$ 4,300.00	\$250.00	\$370.00	\$145.00	\$765.00	17.79%			
MISCELLANEOUS	\$ 10,000.00	\$249.51	\$355.37	\$767.37	\$1,372.25	13.72%			
CONTRACTOR SERVICES	\$ 628,800.00		\$28,973.25	\$105,125.95	\$134,099.20	21.33%			
DEBT SERVICES	\$ 132,175.00	\$53,977.07	\$6,727.07	\$6,727.07	\$67,431.21	51.02%			
SEWER USE FEE	\$ 10,800.00	\$2,700.00			\$2,700.00	25.00%			
NEW BRITAIN AGREEMENT	\$ 280,000.00		\$44,856.07	\$40,648.44	\$85,504.51	30.54%			
TOTAL OPERATING SERVICES	\$ 2,744,537.00	\$172,670.43	\$213,394.15	\$289,350.01	\$675,414.59	24.61%			
SUPPLIES AND MATERIALS									
MOTOR FUELS	\$ 62,857.00		\$8,537.99		\$8,537.99	13.58%			
OFFICE SUPPLIES	\$ 33,285.00	\$742.14	\$1,521.74	\$6,338.36	\$8,602.24	25.84%			
MAINTENANCE SUP & MATERIALS	\$ 496,000.00	\$12,402.19	\$75,506.81	\$28,319.72	\$116,228.72	23.43%			
MV PARTS & SUPPLIES	\$ 15,150.00	\$823.68	\$339.98	\$977.69	\$2,141.35	14.13%			
MV SERVICE & REPAIRS	\$ 44,000.00	\$2,431.43	\$993.41	\$10,644.85	\$14,069.69	31.98%			
FUEL OIL	\$ 44,750.00	\$4,518.86	\$6,235.28	\$5,120.00	\$15,874.14	35.47%			
CHEMICAL TREATMENT	\$ 350,000.00	\$23,240.34	\$34,709.58	\$27,554.59	\$85,504.51	24.43%			
INSURANCE	\$ 240,698.00				\$0.00	0.00%			
TOTAL SUPPLIES & MATERAILS	\$ 1,286,740.00	\$44,158.64	\$127,844.79	\$78,955.21	\$250,958.64	19.50%			
CAPITAL OUTLAY									
CAPITAL EQUIPMENT	\$ 185,000.00				\$0.00	0.00%			
CAPITAL OUTLAY	\$ 761,156.00				\$0.00	0.00%			
MISC. UTILITY ASSETS	\$ 1,020,000.00		\$26,280.00		\$26,280.00	2.58%			
CAPITAL OUTLAY TOTAL	\$ 1,966,156.00	\$0.00	\$26,280.00	\$0.00	\$26,280.00	1.34%			
GRAND TOTAL	\$ 10,852,081.00	\$555,726.83	\$720,350.64	\$735,176.53	\$2,011,254.00	18.53%			

CITY OF BRISTOL WATER DEPARTMENT						
CAPITAL OUTLAY BUDGET YEAR 2025-26						
	BUDGET REQUEST 2024-25	EXPENDED JULY 2024	EXPENDED AUG 2024	EXPENDED SEPT 2024	EXPENDED TO- DATE	
<u>CAPITAL IMPROVEMENTS</u>						
WATER MAIN REPLACEMENTS	\$200,000.00					\$0.00
HYDRANT REPLACEMENTS	\$160,000.00					\$0.00
VALVE REPLACEMENT	\$120,000.00					\$0.00
REGULATOR PIT MAINTENANCE	\$80,000.00					\$0.00
REPAIR WATERSHED GARAGE DRAIN	\$10,000.00					\$0.00
MIX ST WELL #4 SURGE AND REPLACE PUMP AND MOTOR	\$70,000.00					\$0.00
REPLACE BUTTERFLY VALVES AT WOLCOTT ST PUMP STATION	\$20,000.00					\$0.00
SLUDGE DISCHARGE VALVE AIR COMPRESSOR	\$40,000.00					\$0.00
WELL REDEVELOPMENT	\$70,000.00					\$0.00
ENGINEERING TO REPLACE STEVENS ST TANK	\$250,000.00					\$0.00
TOTAL CAPITAL IMPROVEMENTS	\$1,020,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL CAPITAL OUTLAY	\$1,966,155.66	\$0.00	\$26,280.00	\$21,142.91	\$47,422.91	
SCADA IN PROGRESS	\$3,518,095.86	\$80,042.77	\$74,897.65	\$112,585.19		267,525.61
CARRY OVER FROM 2024-2025						
RESERVOIR IMPROVEMENTS						0.00
UPGRADES TO BARLOW ST PUMP STATION	250,000.00					0.00
16" AND 12" VALVE REPLACEMENT	75,000.00					0.00
FLOCCULATION AND SEDIMENTATION EQUIPMENT	30,000.00					0.00
REPLACE STEEL DOORS - WATERSHED GARAGE AND WELLS	120,000.00					0.00
UPGRADES TO FIRE ALARM SYSTEM	\$120,000.00					0.00
OPERATOR CREW TRUCK	\$150,000.00					0.00
ENGINEERING TO REPLACE CHAPEL ST TANK	\$100,000.00					0.00
SHRUB ROAD REGULATOR PIT	\$150,000.00					0.00
Rebuild Hill Street Pump	\$250,000.00					0.00
Rebuild High Service Pump	\$70,000.00					0.00
PLC and Analyzer Equipment	\$55,000.00					0.00
Chlorine Analyzer	\$15,000.00					0.00
REPLACE FLOCCULATORS AT PLANT	\$9,000.00					0.00
	\$150,000.00		5914.75			5,914.75
						0.00

**CITY OF BRISTOL WATER DEPARTMENT
CAPITAL OUTLAY BUDGET YEAR 2025-26**

WATER TREATMENT PLANT SECTION					
Blue White Chemical Feed Pump	\$10,000.00				\$0.00
Chemical Feed Maintenance Parts	\$15,000.00				\$0.00
Flow Meter	\$12,000.00				\$0.00
TOTAL UTILITY ASSETS WATER TREATMENT PLANT	\$37,000.00	\$0.00	\$0.00	\$0.00	\$0.00
WATERSHED SECTION					
Gravelly Pro Zero Turn 560 EFI992530	\$17,000.00			\$13,990.00	\$13,990.00
TOTAL UTILITY ASSETS WATERSHED SECTION	\$17,000.00	\$0.00	\$0.00	\$13,990.00	\$13,990.00
OFFICE SECTION					
REPLACE OFFICE CARPET - LABOR AND MATERIALS	\$4,000.00				\$0.00
OFFICE PAINTING	\$6,000.00				\$0.00
SECURITY UPDATES TO OFFICE	\$100,000.00				\$0.00
OFFICE DRIVEWAY PAVING	\$150,000.00				\$0.00
OFFICE ROOF REPLACEMENT	\$100,000.00				\$0.00
BUILDING REPAIRS	\$75,000.00				\$0.00
TOTAL UTILITY ASSETS OFFICE SECTION	\$435,000.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL UTILITY ASSETS	\$761,155.66	\$0.00	\$26,280.00	\$21,142.91	\$47,422.91

CITY OF BRISTOL WATER DEPARTMENT CAPITAL OUTLAY BUDGET YEAR 2025-26					
	BUDGET REQUEST 2025-2026	EXPENDED JULY 2025	EXPENDED AUG 2025	EXPENDED SEPT 2025	EXPENDED TO- DATE
<u>CAPITAL EQUIPMENT</u>					
F150 4-DOOR TO REPLACE TRUCK 16	\$65,000.00				\$0.00
F550 1 TON DUMP TRUCK W/FISHER PLOW AND SPREADER TO REPLACE TRUCK 14	\$120,000.00				\$0.00
TOTAL CAPITAL EQUIPMENT	\$185,000.00		\$0.00	\$0.00	\$0.00
<u>UTILITY ASSETS</u>					
<u>DISTRIBUTION SECTION</u>					
(2) Mueller B101 Tap Machine	\$14,000.00			\$7,152.91	\$7,152.91
(3) 2" Pump - Wacker PS2800 Sub Pump 2" - 1HP	\$2,000.00				\$0.00
(2) Trash Pump - Wacker PDT3A Diaphragm Pump 3" GX	\$4,000.00				\$0.00
Hilti Hammer Drill	\$1,800.00				\$0.00
Pipe Locators	\$2,400.00				\$0.00
Signage	\$5,000.00				\$0.00
(3) Mueller Electric Power Head	\$5,500.00				\$0.00
TOTAL UTILITY ASSETS DISTRIBUTION SECTION	\$34,700.00	\$0.00	\$0.00	\$7,152.91	\$7,152.91
<u>METER SHOP SECTION</u>					
5/8" Meters 650@158	\$102,700.00		\$9,480.00		\$9,480.00
Transmitters 500 @140.00	\$70,000.00		\$16,800.00		\$16,800.00
1 1/2" T-10 METER (10)	\$8,215.40				\$0.00
1" T-10 METER (10)	\$3,969.30				\$0.00
2" T-10 METER (10)	\$10,553.80				\$0.00
2" UME	\$17,094.00				\$0.00
3" NEPTUNE TR/FLO COMPUnd UME	\$12,820.52				\$0.00
3" NEPTUNE HP TURBINE UME	\$6,410.24				\$0.00
3/4" T-10 METER(20)	\$5,692.40				\$0.00
TOTAL UTILITY ASSETS METER SHOP SECTION	\$237,455.66	\$0.00	\$26,280.00	\$0.00	\$26,280.00

2025 SHUT-OFFS BREAKDOWN

Still off to date for non-pay: (34)

MONTH/ DISTRICT	TERMINATION LETTERS SENT	# ACCTS. OUTSTANDING @ START OF SHUT-OFF DAY	# ACCTS. ACTUALLY SHUT-OFF THROUGHOUT SHUT-OFF DAY	# ACCTS. STILL OFF @ END OF SHUT-OFF DAY	# ACCTS. THAT REMAINED OFF @ END OF MONTH
JANUARY 03	488	81	52	16	6
FEBRUARY 01	346	67	48	13	4
MARCH 02	409	64	52	11	4
APRIL 03	359	63	48	12	6
MAY 01	358	46	33	8	5
JUNE 02	354	53	40	7	3
JULY 03	413	69	48	12	2
AUGUST 01	424	63	53	20	7
SEPTEMBER 2024	400	75	57	16	9
SEPTEMBER 02	354	63	49	17	2
OCTOBER 03					
NOVEMBER 01					
DECEMBER 02					

BEFORE RECEIVING A TERMINATION LETTER, THE CUSTOMER HAS RECEIVED THEIR ORIGINAL BILL PLUS A SECOND AND THIRD NOTICE.

Example: Invoiced 8/1, 2nd Notice 9/1, 3rd Notice 10/1. THE TERMINATION LETTER IS SENT APPROX. 1 WEEK AFTER 3RD NOTICE.

Current Monthly Summary ★

Current Month Payment Summary

Payment Type	Number Of Transactions	Total Paid
PayPal	103	\$19,334.90
Credit/Debit Card	1165	\$242,441.02
PayPal Credit	4	\$1,018.64
EFT (Check)	304	\$67,569.98
Venmo	13	\$2,760.69
Online Bank Direct	267	\$42,455.00
Total	1856	\$375,580.23

Paperless Statistics

Invoice Type	Paperless
Water	7020

Customer Registration Statistics

Customer Count	Registered Count	Registered %
22369	11096	49.60

Monthly Invoice Summary

Invoice Count
No records to display.

Auto-Pay Statistics

Invoice Type	AutoPay
Water	3993

Pay By Text Registration Statistics

Customer Count	Registered Count	Registered %
5129	3927	76.56

Proposal Number 2P26-005
August 7, 2025

Ms. Nancy Haynes
Purchasing Agent
City of Bristol
Purchasing Department
111 North Main Street, 3rd Floor
Bristol, CT 06010

Re: Fee Proposal for Professional Services Relative to Design and Preparation of Construction Documents for the Replacement of Horizontal Flocculation Equipment and Sedimentation Sludge Collection System

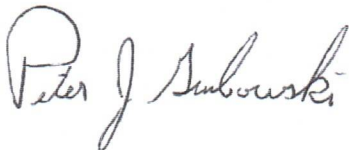
Dear Ms. Haynes:

In accordance with the City of Bristol's Request for Proposal Number 2P26-005 for the Design and Preparation of Construction Documents for the Replacement of Horizontal Flocculation Equipment and Sedimentation Sludge Collection System, we are providing our Fee Proposal. The attached table summarizes our Level of Effort (in hours), subconsultant costs, and our total fee for each task as described in the Scope of Services.

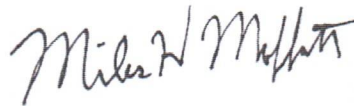
We have prepared our proposal in strict accordance with the Request for Proposals and we have read and understand the sections and provisions of the document.

If you have any questions or require any additional information regarding this fee proposal, please contact Miles Moffatt at (413) 572-3208 or mmoffatt@tighebond.com.

Very truly yours,
TIGHE & BOND, INC.



Peter J. Grabowski, PE
Senior Vice President



Miles H. Moffatt, PE
Vice President

Enclosures:
Level of Effort Table
Rate Schedule

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Bristol, CT

Tighe & Bond, Inc.

Design and Preparation of Construction Documents for the Replacement of Horizontal Flocculation Equipment and Sedimentation Sludge Collection System

Description	Vice President	Safety & Health	Principal Engineer	Senior Engineer 2	Senior Engineer 1	Project Engineer 1	Construction Observer 3	Senior Drafter/Designer	Remediation Technician 2	Total Labor Hours	Reimbursable	Labor Effort	Task Fee
Task 1 : Project Management	20	2	0	32	10	25	0	0	0	89	\$ 336.00	\$ 19,070.00	\$ 19,406.00
Task 2 : Preliminary Design	8	0	16	34	20	62	0	20	18	178	\$ 4,680.00	\$ 32,420.00	\$ 37,100.00
Task 3 : Final Design	9	2	24	106	108	164	0	168	0	581	\$ -	\$ 106,025.00	\$ 106,025.00
Task 4 : Bidding	4	0	0	15	4	30	0	16	0	69	\$ 112.00	\$ 12,345.00	\$ 12,457.00
Task 5 : Services During Construction	6	1	4	122	64	218	788	32	0	1235	\$ 6,328.00	\$ 206,150.00	\$ 212,478.00
Grand Total	47	5	44	309	206	499	788	236	18	2152	\$ 11,456.00	\$ 376,010.00	\$ 387,466.00

2025 FIXED HOURLY RATE SCHEDULE



TECHNICAL PROFESSIONALS

Senior Vice President	\$330.00
Vice President	\$295.00
Safety & Health Director	\$270.00
Senior Consultant	\$270.00
Principal Landscape Architect	\$220.00
Principal Engineer	\$255.00
Senior Project Manager	\$255.00
Project Manager 2	\$220.00
Project Manager 1	\$185.00
Senior Landscape Architect 2	\$185.00
Senior Landscape Architect 1	\$175.00
Senior Engineer 2	\$215.00
Senior Engineer 1	\$200.00
Senior MEP Professional 2	\$210.00
Senior MEP Professional 1	\$195.00
Project Engineer 2	\$170.00
Project Engineer 1	\$150.00
Project MEP Professional 2	\$170.00
Project MEP Professional 1	\$150.00
Project Landscape Architect 2	\$160.00
Project Landscape Architect 1	\$150.00
Staff Engineer 3	\$150.00
Staff Engineer 2	\$135.00
Staff Engineer 1	\$120.00
Landscape Designer 2	\$140.00
Landscape Designer 1	\$130.00
Senior Architect 2	\$200.00
Senior Architect 1	\$175.00
Project Architect 2	\$155.00
Project Architect 1	\$140.00
Principal Planner	\$210.00
Senior Planner	\$195.00
Project Planner	\$140.00
Planner 2	\$130.00
Planner 1	\$115.00
Resident Engineer	\$185.00
Construction Observer 3	\$160.00
Construction Observer 2	\$145.00
Construction Observer 1	\$120.00

TECHNICAL PROFESSIONALS

Principal Compliance Specialist	\$225.00
Senior Compliance Specialist 2	\$185.00
Senior Compliance Specialist 1	\$165.00
Project Compliance Specialist 2	\$145.00
Project Compliance Specialist 1	\$135.00
Compliance Specialist 2	\$115.00
Compliance Specialist 1	\$100.00
Senior Environmental Professional	\$280.00
Principal Environmental Scientist	\$225.00
Senior Environmental Scientist 2	\$195.00
Senior Environmental Scientist 1	\$175.00
Senior Data Management Specialist 1	\$170.00
Project Environmental Scientist 2	\$150.00
Project Environmental Scientist 1	\$140.00
Environmental Scientist 2	\$120.00
Environmental Scientist 1	\$110.00

GIS PROFESSIONALS

GIS Technical Director	\$250.00
Senior GIS Project Manager	\$210.00
GIS Project Manager 2	\$200.00
GIS Project Manager 1	\$165.00
Senior Development Engineer	\$210.00
Senior GIS Analyst 2	\$190.00
Senior GIS Analyst 1	\$165.00
GIS Analyst 2	\$145.00
GIS Analyst 1	\$125.00
GIS Technician 2	\$100.00
GIS Technician 1	\$85.00

SUPPORT

Digital Project Manager	\$220.00
Digital Project Specialist	\$150.00
BIM Manager	\$190.00
CAD Manager	\$195.00
Senior Drafter/Designer	\$165.00
Drafter/Designer *	\$135.00
Engineering Technician 3*	\$135.00
Engineering Technician 2*	\$125.00
Engineering Technician 1*	\$115.00
Remediation Technician 2*	\$115.00
Remediation Technician 1*	\$105.00
Intern*	\$80.00
Administrative Support*	\$90.00

EXPENSES

1. Automobile transportation expenses for employee travel directly related to the project shall be invoiced at the prevailing Federal rate per vehicle mile.
2. Outside reimbursable expenses and services, which are rendered to Tighe & Bond by other than direct employees, and any permitting fees paid by Tighe & Bond on behalf of the Client, shall be invoiced at Tighe & Bond's direct cost plus 10% administrative fee.
3. Reimbursable expenses such as in-house field supplies and equipment rental, tolls and parking, overnight mailings and bulk notification mailings, and in-house printing shall be invoiced at cost or unit costs as applicable.
4. Costs for items such as regular mailings of project documents, telephone or fax communications, and miscellaneous in-house printing are included in the hourly rates shown above.

PROVISIONS

1. Rates are effective until December 31, 2025, at which time rates will be increased based on annual salary review.
- * For non-salaried personnel (noted above by an "*"), time worked in excess of eight hours in any day or forty hours per calendar week shall be invoiced at 150 percent of the above rate.

Tighe&Bond

QUALIFICATIONS FOR

Flocculation and Sedimentation Equipment Replacement



SUBMITTED TO

Purchasing Department
Bristol, Connecticut

08/07/2025

B04140022

August 7, 2025

Ms. Nancy Haynes
Purchasing Agent
City of Bristol
Purchasing Department
111 North Main Street, 3rd Floor
Bristol, CT 06010

**Re: Professional Services Relative to Design and Preparation of Construction Documents
for the Replacement of Horizontal Flocculation Equipment and Sedimentation Sludge
Collection System**

Dear Ms. Haynes:

The City of Bristol is requesting proposals from qualified firms to perform design services and subsequent construction administration efforts for replacement of flocculation and sediment collection system at its water treatment plant. Our firm has been to the plant three times to review the scope of work and talk with operations staff and you to understand the various constraints to the work and the administration necessary for a successful project. We are delighted to submit this proposal and look forward to working with you on this project.

Tighe & Bond is a multi-disciplinary, full-service engineering firm with over 600 employees and 15 offices throughout the Northeast. We have the experience, resources, and technical expertise to provide the City with the engineering services identified in the RFP. Working with Tighe & Bond offers the following benefits:

In-House Resources and Technical Expertise. Our team includes Project Director **Miles Moffatt**, PE, Vice President located in our Shelton office, bringing over 35 years of project management and delivery experience with similar contracts. He works with several water treatment systems in CT, particularly with SCCRWA where he served in a supporting role of interim Director of Engineering for four years on upgrades to its four water treatment plants. **Jacob Weinrich**, PE our Project Manager, has significant experience in water processes, especially with chemical handling and sedimentation management systems. Our quality control leader **Peter Grabowski**, PE has practiced design work in water treatment facilities in Connecticut for over 30 years and is currently serving as Chair of the CTAWWA. He will ensure our deliverables meet our quality standards. In the role of technical advisor for innovation, **Ryan Fleming** has served as drinking water quality and treatment consultant on many projects in CT. He will advise as to what innovation is available in the marketplace for systems being replaced or upgraded on this project. Our in-house design team also includes electrical, SCADA, architectural, structural, and HVAC/plumbing engineers and designers who understand the operation and maintenance of water treatment systems and the supporting infrastructure. Tighe & Bond has completed several sedimentation collection system projects for various water treatment facilities, including facilities for the SCCRWA and Aquarion Water Company.

Extensive Experience in the State of Connecticut. Tighe & Bond has many contracts with clients throughout Connecticut, including Avon, Canton, Darien, Groton, Manchester, Meriden, Middletown, New Britain, Norwalk, Plainville, Plymouth, Southbury, Southington, South Windsor, Stratford, Thomaston, Trumbull, Vernon, Waterbury, Windsor Locks, Aquarion Water Company, Connecticut Water, and South Central Connecticut Regional Water Authority. With our extensive engineering experience, we have the specialized knowledge to design this project appropriately, and successfully navigate the local, state (including CTDPH) and federal regulatory requirements related to this project work.

The City is Located Within Tighe & Bond's Core Geography. Tighe & Bond has two offices in Connecticut (Shelton and Middletown), both of which are located within 30 miles of Bristol. Therefore, we have a critical mass of staff and services very close by, making it easy for us to mobilize multi-disciplinary personnel efficiently to meet the needs of the project.



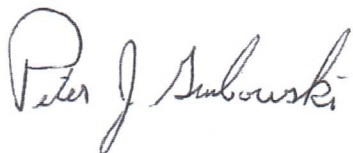
Tighe & Bond has reviewed the drawings provided in the RFP. Tighe & Bond shall be entitled to rely on the accuracy and completeness of information provided by the City and shall not be liable for errors of others. Further, the City confirms that it has full authority to provide said documents for Tighe & Bond's use and that Tighe & Bond will not be liable for the accuracy or completeness.

Tighe & Bond has reviewed the insurance requirements provided in the RFP. Tighe & Bond meets or exceeds the required insurance but please note our professional liability policy is on a claims-made basis, and not occurrence based. If selected, Tighe & Bond would like the opportunity to negotiate mutually acceptable and insurable contractual terms, including aligning the RFP indemnity obligation with those of the sample agreement. Our proposal and separately submitted Price Proposal will stay in effect for 120 days following the date of submittal.

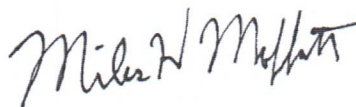
Thank you for considering our proposal. We look forward to working with you on the upgrades to your treatment plant. If you have any questions or want to discuss, please contact us at your convenience.

Very truly yours,

TIGHE & BOND, INC.



Peter J. Grabowski, PE
Senior Vice President



Miles H. Moffatt, PE
Vice President

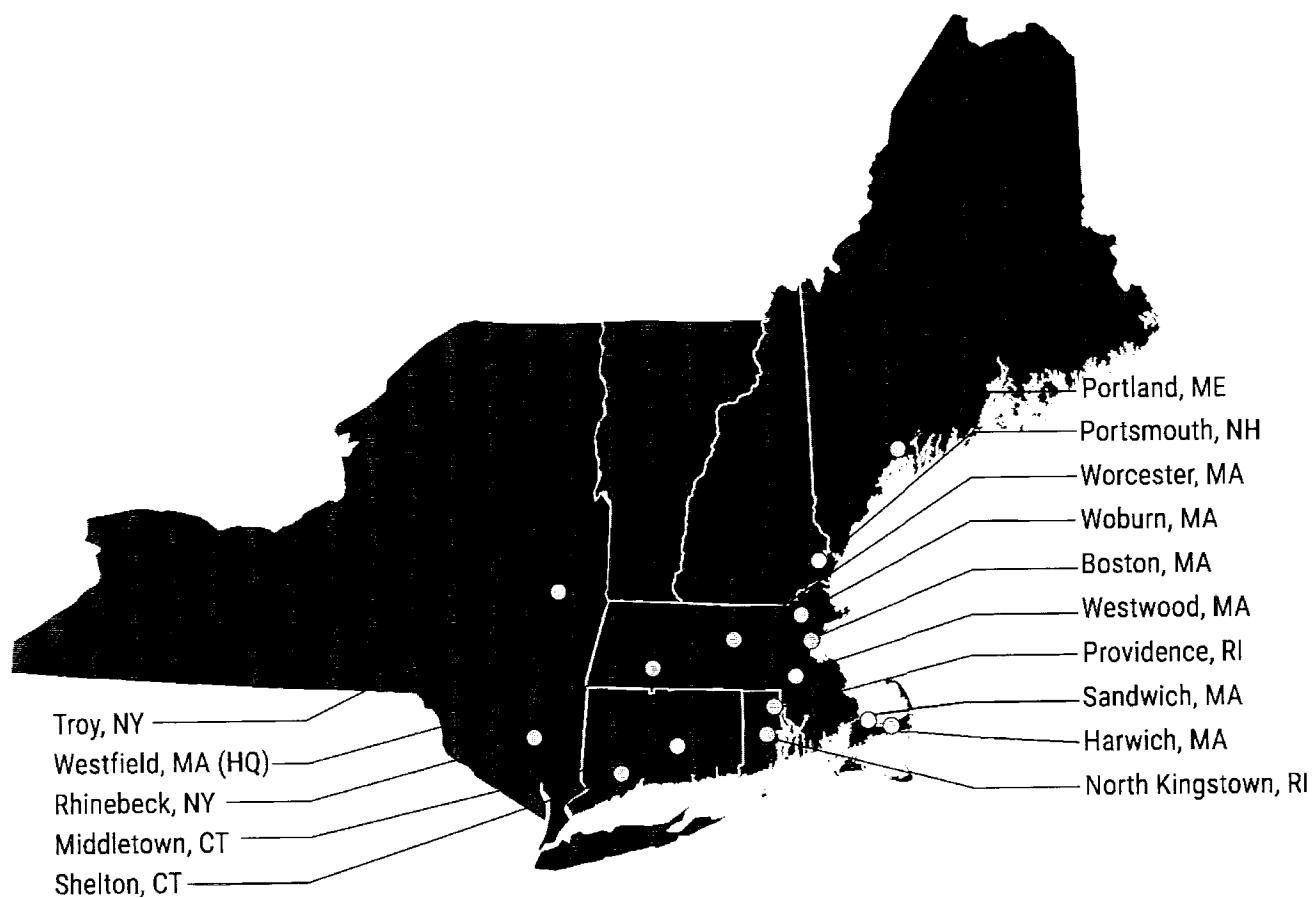
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Appendices

- A. Team Resumes
- B. Relevant Experience
- C. Required Forms

OUR LOCATIONS



With 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

FOUNDED

1911

TEAM MEMBERS

600+

ZWEIG GROUP

**BEST FIRMS
TO WORK FOR**

**BANKER AND
TRADESMAN'S
BEST of 2022**

#1

**for Engineering &
Environmental
Services**

**ENR NEW ENGLAND
TOP DESIGN FIRMS**

#8

SMPS BOSTON

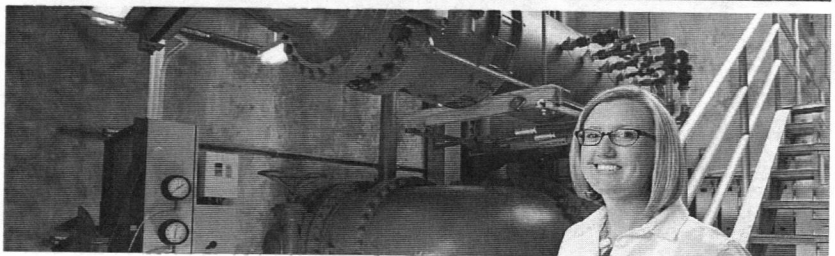
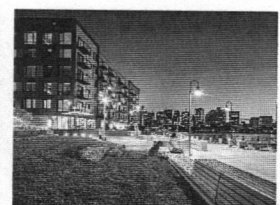
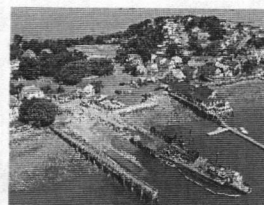
**2023
Employer of the Year**

Firm Overview

For over 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 to unlock each site's potential.

Our experienced professionals provide concept-to-completion expertise to comprehensively address our public and private clients' needs. The Tighe & Bond team develops creative, collaborative responses to complex challenges by focusing on bright ideas, green strategies, and clear solutions. We always continue evolving to keep pace with our ever-changing industry because moving forward is what we do.



Proposer Information

A. Firm Name

Tighe & Bond, Inc.

B. Permanent Main Office Address

1000 Bridgeport Avenue, Suite 320, Shelton, CT 06484

C. Date Organized

Established in 1911, Incorporated in 1984 as a C Corp

D. Legal Form of Ownership

Tighe & Bond, Inc. is a Massachusetts Corporation.

E. Years of Service

Tighe & Bond was established and has been continually operating since 1911.

F. Firm Telephone Number

Shelton, CT: 203.712.1100

G. Firm Fax Number

Shelton, CT: 203. 925.8942

H. Consultant Relationships

At this point, Tighe & Bond is not partnering with any subconsultants for this project. We do currently maintain a list of on-call subcontractors that we regularly do business with so that we can quickly respond to your needs upon project award. Among these firms are several that are certified MBE/WBE companies that we use as necessary to meet any DBE goals if required.

Experience, Expertise, and Capabilities

Our engineering services relationships often last for decades. Our very first client a century ago, the City of Holyoke, MA, still relies on Tighe & Bond today to provide responsive and quality-driven engineering services. In short: we value our client relationships, and we will work hard to maintain our standing as a trusted and reliable consultant to the City of Bristol.

Philosophy Statement and Business Focus

Tighe & Bond is an employee-owned firm that has been providing comprehensive civil engineering services to municipal clients in New England since 1911. Over the last 114 years, our firm's size, capabilities, and client base have grown significantly with traffic engineering, site engineering, environmental engineering and consulting services, and landscape architecture expanding the breadth of services available to our clients.

Tighe & Bond's engineering and environmental services are highlighted by our excellent reputation for service and value to municipalities as well as our adherence to our Core Values. These Core Values accentuate our drive for service every day, reminding us of our integrity, excellent service, reliability, our commitment to our clients as well as respect and safety.

- **Integrity – do the right thing**
Act at all times with honesty; be accountable to others for our actions; inspire trust with clients and co-workers by always being responsible, ethical, and honest.
- **Excellence – do things right**
Promote a passion for excellence with employees and clients alike; create and foster a work environment that increases individual expertise and provides for continuous learning; expect unparalleled performance, providing high quality deliverables and services that exceed expectations.
- **Reliability – you can count on us**
Do what we say we are going to do, always keep our commitments; provide services and support focusing on results and client expectations; complete projects and assignments within time requirements and with care and attention to detail.
- **Commitment – be dedicated to our clients**
Set ourselves apart from our competitors by the value and quality of services, our responsiveness, and the personal attention we provide to our clients.
- **Respect – everyone is important**
Appreciate and value clients, co-workers, colleagues and business associates; support and promote a diverse work environment; treat everyone with courtesy and importance.
- **Safety – it starts with us**
Take personal responsibility for safety; care for ourselves and each other in daily activities; implement safe practices at all times.

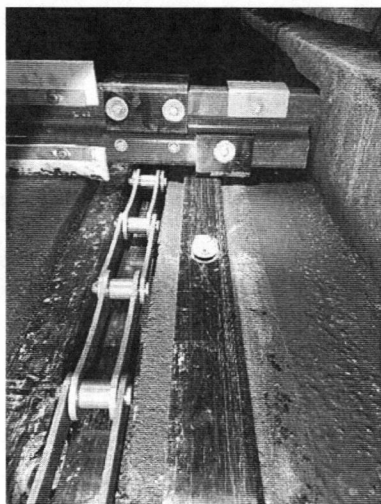
Summary of Relevant Experience

In the past several years, Tighe & Bond has completed numerous water treatment projects for municipalities throughout New England. For the Bristol Water Treatment Plant Flocculation and Sedimentation Equipment Replacement project, we will bring our experience with water treatment plant upgrades throughout New England, especially in Connecticut. We have experience with meeting with and receiving approvals from the Connecticut Department of Public Health for plant upgrades. For work at water treatment plants, our staff have the experience with collaborating with client operations, designing alternatives to building upgrades to meet code, and providing reliable solutions to meet the needs of the project. Please find below a partial listing of similar projects with services performed within the last 48 months (all projects are tracked against schedules and established milestones):

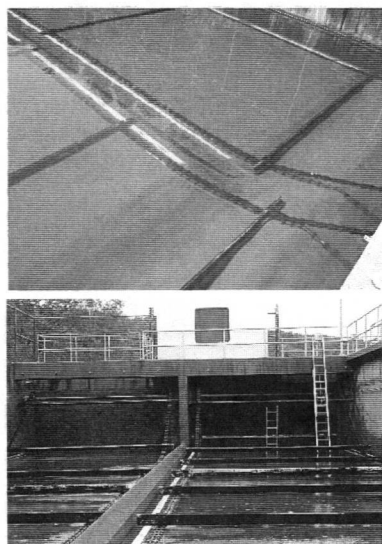
Project and Reference	Nature of services provided	Dates of services	Gross cost of agreement	Subconsultants
Aquarion Water Company of CT – Bridgeport, CT Dan Lawrence, P.E. Vice President of Engineering and Real Estate 600 Lindley Street Bridgeport, CT 06606 dlawrence@aquarionwater.com 203-362-3055 (o) 203-223-0607 (c)	Planning, design, construction support for water systems, including storage tanks, pumping stations, distribution system hydraulic modeling, treatment plant improvements, including a pneumatically driven residuals handling system (Trac-Vac).	2006 through present	Approximately \$4.0M per year	Surveying, geotechnical services and laboratory analyses firms
South Central CT Regional Water Authority On-Call Services Orville Kelly Manager of Design and Construction 90 Sargent Drive New Haven, CT 06511 okelly@rwater.com 203-401-6712	Planning, design, construction support for water systems, including storage tanks, pumping stations, treatment plant works, sedimentation tanks, plate settlers, and large pipelines	2010 through present	Approximately \$2.2M per year	Surveying and geotechnical services firms
Town of East Lyme Ben North Chief Operating Officer East Lyme Water and Sewer 108 Pennsylvania Ave Niantic CT 06357 bnorth@eltownhall.com 860-691-4108	Planning, design, permitting, bidding, construction support for water systems, including storage tanks, pumping stations, treatment plants, and pipelines. Projects included DWSRF funding and administration.	2012 to present	Approximately \$200,000 per year	Surveying and geotechnical services firms
Connecticut Water Company Scott Bonett, P.E. Director of Engineering Design & Construction Connecticut Water Company 446 Smith Street Middletown, CT 06457 scott.bonett@ctwater.com 860-575-0335	Planning, design, permitting and construction support for water systems. Projects include water supply plans, reservoir studies, safe yield evaluations, treatment facility evaluations, building structural evaluations, capital improvement plans, preliminary and final design of water pumping stations, water storage tanks, and water treatment facilities including PFAS treatment.	2015 through present	Approximately \$200,000 per year	Surveying, geotechnical, water treatment piloting services
City of Taunton Michael Arruda Water Superintendent 90 Ingell Street Taunton, MA 02780 marruda@taunton-ma.gov 508-813-5659	Replacement and design improvements for existing sedimentation basin chain and flight system at the 14 MGD water treatment plant.	2015 through present	Approximately \$750,000 per year	Surveying and geotechnical services firms

Technical Capabilities

Drinking Water Engineering



Tighe & Bond provided engineering services for the City of Taunton WTP sedimentation basin sludge removal system

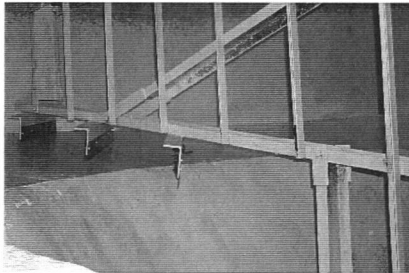
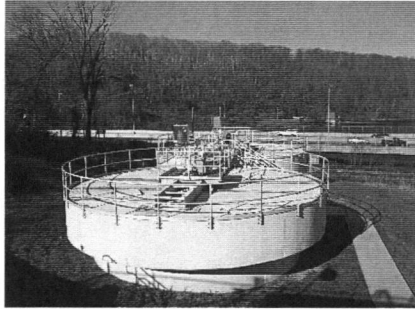


Tighe & Bond provided engineering services for the Lake Saltonstall WTP sedimentation basin chain and flight collection system in East Haven, CT

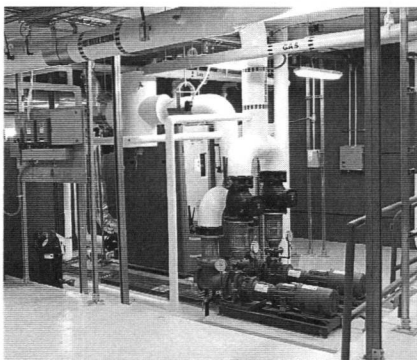
An adequate supply of high-quality drinking water is essential for healthy communities and economic growth. Tighe & Bond has worked with dozens of water suppliers, for more than a century to assess demand, evaluate existing infrastructure, and design system improvements that enhance service and plan for new regulatory requirements. In the past ten years, we have completed over 35 water treatment facility projects, 50 water pumping station projects, 30 storage tank upgrades, and hundreds of miles of water main replacement and extensions of new pipeline. We also provide process engineering, design of instrumentation and control systems, construction-phase services, the development of Operation and Maintenance (O & M) manuals and Standard Operating Procedures (SOP), start-up and optimization support, pilot testing, permitting, and asset management. We always take water rates and cost of service into consideration when planning, permitting, designing, and observing construction of treatment, storage, and distribution systems.

Drinking Water Treatment Services

- Activated Carbon Adsorption (GAC and PAC)
- Advanced Oxidation Processes
- Air Stripping and Aeration
- Biological Filtration
- Water Softening
- Water Fluoridation
- Chemical Feed Systems
- Chlorine Dioxide
- Coagulation, Precipitation & Sedimentation
- Disinfection (chlorination, ozonation, UV)
- Dissolved Air Flotation
- Emerging Contaminants (PFAS, 1,4-dioxane, perchlorate)
- Granular Filtration (slow sand, rapid sand, & multi-media)
- Ion Exchange
- Iron and Manganese Treatment
- Metals Treatment (e.g., arsenic, antimony)
- Membrane Filtration (ultrafiltration (UF), nanofiltration (NF), and reverse osmosis (RO))
- Piloting
- Package Treatment Facilities
- pH Adjustment & Corrosion Control
- Residuals Management
- Treatment Plant Evaluation (inspection/assessment and capital improvement plans)



Tighe & Bond provided engineering services for the Lake Gaillard WTP gravity thickener collection system in North Branford, CT



Tighe & Bond delivers complete system design for new construction, as well as to upgrade or replace systems in buildings undergoing renovation.

Permitting

- Compliance Studies & Reporting
- Local Building Permit Assessments
- Compliance and Permitting

Planning

- Facility Planning
- Asset Management
- Integrated Water Resource Management Planning (IWRMP)
- Hydraulic Modeling
- Condition and Performance Assessments
- Rate Studies
- Presentation to community leaders, boards and commissions

Building Services

Mechanical Engineering, Heating, Ventilation and Air Conditioning Engineering, Testing, Adjusting, Balancing, Commissioning, Electrical Engineering

Tighe & Bond has in-house staff dedicated to building system operations, and the ability to apply energy efficient designs involving the selection of efficient equipment. Our electrical engineering capabilities range from design of power distribution systems, standby and emergency power systems, indoor and outdoor lighting, fire detection and alarm systems, and utility process systems. Our design experience features:

- AutoCAD MEP, Revit, and NavisWorks
- Building Energy Modeling for LEED Compliance
- Conditions Assessment and Equipment Evaluation
- Construction Feasibility, Sequencing, and Coordination
- Design/Build or Design/Bid/Build
- Employee Training Services (NFPA 70E)
- LEED Documentation
- Life Cycle Cost Analysis
- Master Planning
- Opinion of Probable Cost and Value Engineering
- Permitting and Rebate Applications
- Startup Assistance

Structural Engineering Buildings and Walls

We provide building design and inspection for new facilities, as well as addition or renovation projects. We evaluate and design all building structural systems. This includes roof decks, beams and girders, columns, masonry bearing walls, below grade concrete walls, and structural slabs. Our structural engineers also design equipment support structures, tanks and containment structures, as well as vehicular and pedestrian bridges.

- Building Evaluations
- Capital Improvement Plans
- Code and Review Services
- Conditions Assessments
- Demolition
- Repair and Renovation Recommendations
- Structural Drawings
- Structural Repair Design

Community Outreach & Engagement



Tighe & Bond's team conducted a public meeting for the Route 25 & 111 Transportation Planning Study in Trumbull and Monroe.

Tighe & Bond has considerable experience facilitating public engagement programs in support of our infrastructure, treatment plant, and other community projects. Our outreach techniques seek to bring citizen groups, stakeholders, policy steering committees, governing bodies, etc. to the table to help gather ideas and information that guide the project development process. This engagement with each community ensures that through a comprehensive outreach program, our projects obtain broad support which is the key to ultimate project success.

Our approach to public engagement begins by working with each client and community to understand project goals and objectives. These guiding factors support the development of a public engagement approach that addresses the project's needs, budget, and level of engagement required to achieve a successful project. We work with each town to identify diverse stakeholders for each project and develop and implement a communication plan to maintain consistent communication throughout the project development process.

The execution of effective public engagement relies on several critical success factors. Tighe & Bond brings together expertise in our areas of practice, engaged staff that understand the project objectives and communities that we work in, and tools and technologies supporting engaging presentations and meetings that foster an environment of communication between our team and the public. These skills are essential during the public outreach phases of a project.

Tighe & Bond utilizes various techniques to reach project stakeholders. We have developed and conducted online surveys to readily reach broad interested populations with focused questions to support the development of both existing conditions plus a community's vision for the future. We have utilized social media to provide a consistent platform to inform the public and to gather feedback. We have conducted pop-up meetings at community events allowing our team to go to stakeholders rather than congregating in meetings. Finally, we are highly experienced in developing and delivering engaging presentations in formal meeting settings where we conduct open two-way communication with the public.

Bidding and Contract Award Assistance

During the bidding process, Tighe & Bond provides assistance to the Client from the preparation of contract documents to advertising and bid result analysis. Our bidding services typically include:

- Preparation and compilation of municipal front end contract documents such as bid forms, specifications, and drawing sets
- Bid advertisement and distribution of contract documents including utilization of our internal project bidding website to facilitate electronic tracking of contractors, electronic communications with prospective bidders, and cohesive issuance of contract changes
- Attendance at pre-bid meetings
- Preparation and issuance of addenda responding to questions and comments during the bidding period on our design deliverables
- Opening and review of bids; contacting references when appropriate; developing bid tabulations and analyses to verify that bids are compliant with requirements
- Investigating and evaluating the qualifications of the low bidders and providing recommendations to the Client as to the "lowest qualified bidder"

Construction Phase Services

As our engineering projects transition to the construction phase, we provide administrative services to carry the design through construction to substantial completion. We have provided these services on a variety of municipal drinking water treatment plant improvements projects of all sizes. Our full-time construction observers provide support to ensure

Our construction phase services include bidding and contract award assistance, construction administration, and construction observation. These services are described in more detail in the following sections.

Construction Administration

Tighe & Bond provides construction administration support services throughout the entirety of the construction phase and project close-out. At the beginning of the construction phase, our staff reviews shop drawings for conformance with project drawings and specifications, and evaluates material substitutions proposed by the contractor. During construction, Tighe & Bond maintains open communication between field personnel, the client, and contractors to relay information and answer any questions or RFI's. If necessary, additional sketches or plan revisions can be provided for clarification or field changes.

Regularly scheduled construction meetings are coordinated to review construction progress and project updates. Our project coordinators interface with our clients and field staff to develop construction meeting agendas and developing meeting summaries documenting the meeting discussions for all parties involved. With support from the field personnel, Tighe & Bond reviews contractor pay requisitions and proposed contract change orders, including reviewing both the requested changes and associated costs to evaluate whether proper value is assigned to the changes.

During close-out of the construction phase, Tighe & Bond prepares recommendations for final acceptance of the project including conducting a final site walkthrough and preparing the punch list to identify any incomplete items or corrective action items. Our construction administrators review project records to document item changes and reconcile quantities and project costs. We track materials testing results and provide guidance to the contractor with respect to non-conforming materials that were identified through the materials testing process. This process assists with conformance to the contract documents and standards.

Construction Observation

Tighe & Bond provides on-site construction observation services, both part-time or full-time based on project requirements, budgets and required level of oversight of the work to meet the construction reporting requirements. During the construction phase, Tighe & Bond field personnel document the contractor's activities with well-organized field reports and photographs. The information collected typically includes a daily summary of the work completed, contractor's staff and equipment, measurement and calculation of payment, and a summary of general site conditions and key activities.

Field staff work closely alongside the contractor to observe the construction and verify that materials are in compliance with the contract documentation. Under the scenario when unanticipated conditions are encountered, our observers provide the experience to work cooperatively with the contractor to identify the proper course of action to address issues and if needed document the extra work as cost plus or direct changes in quantities. Working in concert with office support staff, our observers understand when additional design support is needed to confirm the correct course of action is taken. Our observers are experienced in working congruently with plant operators and the contractor to make sure that day-to-day plant operations are minimally impacted during construction, and treatment is maintained. Tasks performed by office and field staff provide effective and efficient support of the project through the construction phase.

Environmental Engineering/Hazardous Waste/Abatement Services/Environmental Services

What makes for a project's environmental and regulatory success? Having a responsive champion in your court who has command of regulatory knowledge and is skilled at navigating the most complex challenges. With our signature attention to detail and project advocacy, we devise progressive solutions that meet each client's unique needs.

The key to providing environmental consulting services is an in-depth understanding of regulatory mandates and compliance across multiple markets. Our team of specialists provide expert advice to help organizations and communities comply with complex, changing federal and state regulations to avoid costly penalties and fines.



Our in-house asbestos and HBMA group is experienced with abatement and renovation/demolition of renovation efforts when a treatment facility remains occupied and in use.

Hazardous Building Materials Assessment Services

Tighe & Bond has vast experience with asbestos, lead-based paint, polychlorinated biphenyl (PCB)-containing building materials, universal waste, and other hazardous building materials. We have successfully conducted assessments and developed abatement designs and remediation plans for municipal clients throughout Connecticut. Our knowledge has been developed on projects ranging from the demolition of existing building structures for redevelopment like the former Contracting Plating and Center School facilities in Stratford, Connecticut, and former Guilford High School in Guilford, Connecticut, to complex renovation projects like South Elementary School and Saxe Middle School in New Canaan, Connecticut.

Personnel Listing

Our project team consists of engineers and designers led by our Project Director **Miles Moffatt**, and Project Manager **Jake Weinrich**. **Jake** will be the primary point-of-contact for the City of Bristol and will be responsible for mobilizing our team for assignments under this contract. Our core technical team is experienced in upgrades to water treatment facilities. Below is a table detailing our project team leads. Full resumes and licenses for all key staff can be found in Appendix A.

EMPLOYEE	DISCIPLINE LIST CATEGORY
Miles Moffatt, PE	Project Director
Peter Grabowski, PE	Quality Control
Ryan Fleming, PE	Technical Advisor
Jake Weinrich, PE	Project Manager
Zachary Weiland	Project Engineer
Matt Romano, PE	Electrical Engineer
John Frawley, PE	Structural Engineer
Ronald Smith, PE	SCADA/Controls Engineer

Understanding of the Project and Approach to the Work

We understand the Bristol Water Department is interested in replacing the flocculation equipment and sedimentation sludge collection system at its water treatment plant. Based upon the RFP language, as well as feedback from Dan Bolduc, Assistant Superintendent Water Services Coordinator, during our site visit on July 31st, 2025, our understanding of the improvements required include the following:

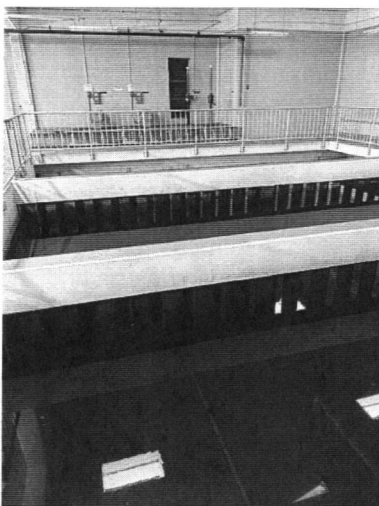
- Mechanical improvements, including:
 - Replacement of Rapid Mixers, excluding chemical feed systems
 - Replacement of Horizontal Flocculators and Drives
 - Replacement of Sedimentation Sludge Collection Mechanisms
 - Replacement of Sedimentation Plate Settlers
 - Replacement of Washwater Plate Settler
 - Replacement of sludge pumps
- Associated improvements with the new equipment above, including electrical and controls:
 - Our electrical approach assumes that the new equipment will be fed from the existing MCC or relevant power source, and investigation of MCC sizing, utility service sizing, and generator sizing are not required. Our approach also assumes that an arc flash study of the plant is not required as part of the described improvements.
 - Our controls approach assumes that new control panels will be required for the new equipment, and our controls engineer will coordinate with the SCADA system integrator on existing controls and alarms being integrated with the new SCADA system (currently under construction by others)
- Structural improvements, including:
 - Replacement of epoxy floor coating within flocculation and sedimentation room
 - Structural repairs to existing concrete tank floors and walls, as needed
 - Since access to the concrete tanks for inspection requires the tanks be fully drained and half of the treatment process be taken offline, our approach will be to provide standard repair details in the design documents, along with a bid quantity in the bidding documents. During construction, upon basin draining and cleaning, we propose our structural engineer enter the tank and mark out areas for repair per the design document repair details.

Project Scope of Work

Our approach to performing the work is outlined in the following scope of services in support of the flocculation and sedimentation improvements at the Bristol Water Treatment Plant. Tighe & Bond will provide these services using the degree of care and skill ordinarily exercised under similar circumstances by individuals providing such services in the same or similar locality for similar projects. Tighe & Bond's deliverables may be submitted in a variety of formats, including hardcopy, PDF, and writeable electronic documents, such as Word or CADD. In doing so, the City acknowledges that the signed and or signed/sealed documents will be the original documents for the project defined herein. Deliverables are not intended for reuse on other projects. Further, we will not be responsible for unauthorized use, alteration, misuse or reuse of the electronic documents provided to the City. Our steps forward at this time, and to be confirmed at the kickoff meeting, are proposed to be as follows:



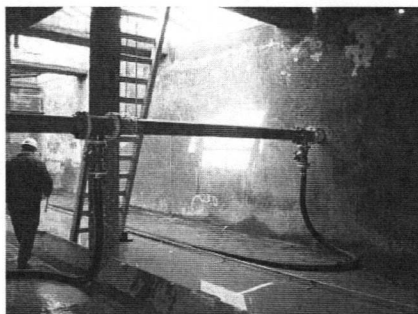
Sedimentation tanks to be retrofitted with new equipment



Rapid mix and flocculation tanks to be retrofitted with new equipment

Task 1: Project Management

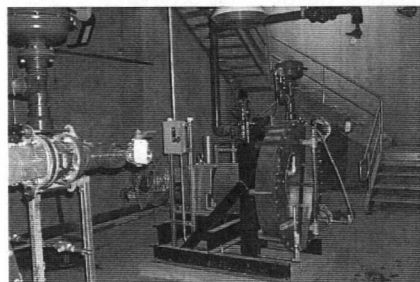
- Project Kickoff Meeting
 - Our approach to performing the work will start with a contract kick-off meeting to introduce team members, establish communications protocols, confirm schedule and detailed scope of the project. This meeting would be best held at the treatment plant so that a walk-through can support the scoping part of the project. We will use this meeting to discuss priorities with the Department, understand the currently operating methods, and collaborate on the design steps to be taken with the collective design team.
- Design Workshops
 - This task also includes design workshops at the preliminary design, 30% design, 60% design, and 90% design stages to present progress to the City and gather City comments for inclusion in the design. It is assumed that each design workshop be held remotely via Teams to allow for virtual sharing of documents and a more collaborative meeting.
- Public Meetings
 - This task includes Tighe & Bond attending two public meetings to assist in presenting the project with stakeholders, as necessary.
- Internal Project Management Tasks



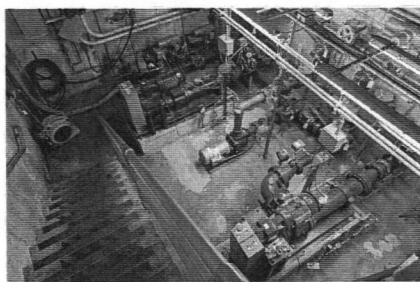
Tighe & Bond provided engineering services for residuals handling upgrades in Stonington, CT



Gravity thickener mechanism and access walkway replacement at Lake Saltonstall Water Treatment Plant



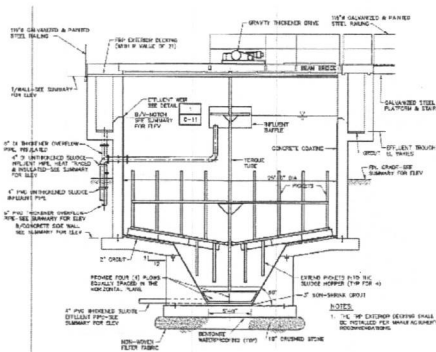
New hose sludge pump as part of residuals improvements at Lake Saltonstall Water Treatment Plant



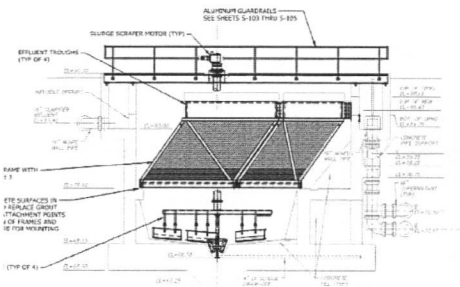
New progressing cavity sludge pumps at Lake Gaillard Water Treatment Plant in North Branford, CT

Task 2: Preliminary Design

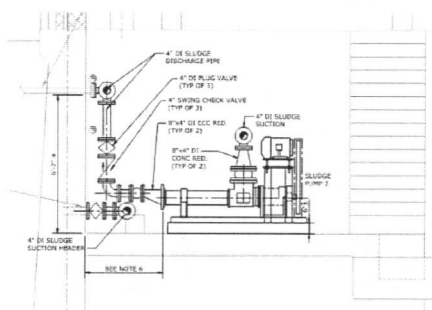
- Top-Side Condition Assessment
 - This task includes a site visit with the design team to perform a top-side condition assessment and plant walkthrough to review any observable mechanical equipment, concrete, and electrical equipment.
- Alternatives Analysis
 - Due to the existing concrete tankage being designed specifically for the existing rapid mix, flocculation, and sedimentation equipment, we anticipate that the existing equipment will be replaced in-kind. However, as part of this task, we will perform a technology review to identify potential alternative equipment or technology for the rapid mix, flocculation, and sedimentation replacement.
 - Review of alternatives will include capital and maintenance costs, potential performance, and ease of operation.
- HBMA Survey
 - As part of this task, we will also perform a Hazardous Building Material Assessment Survey to identify any potential hazardous materials requiring abatement upon demolition, including paints, caulks, and other original construction materials.
- Opinion of Probable Construction Cost
 - An AACE Class 3 Opinion of Probable Construction Cost (OPCC) will be developed based on recommended alternatives.
- Preliminary Design Technical Memorandum
 - The results and observations from the top-side condition assessment, alternatives analysis and recommendations, and OPCC will be presented as part of a Preliminary Design Technical Memorandum deliverable to the City.



Gravity thickener example drawing from the residuals improvements project at Lake Saltonstall Water Treatment Plant



Sedimentation tank and plate settler example drawing from the clarifier improvements project at Lake Gaillard Water Treatment Plant



Sludge pump example drawing from the clarifier improvements project at Lake Gaillard Water Treatment Plant

Task 3: Final Design

- 30% Design Deliverable
 - Based on City input from the Preliminary Design deliverable, Tighe & Bond will prepare 30% design documents to establish the basis of design and conceptual process and instrumentation schema. Drawings will be at a preliminary stage, likely include existing and proposed conditions for all disciplines (mechanical/process, electrical, structural, architectural, HVAC, instrumentation and controls). Demolition drawings will include notes on any hazardous material handling required. The specification table of contents will be developed under this phase.
- 60% Design Deliverable
 - Tighe & Bond will prepare 60% design documents to advance the recommended 30% design approach following input from the City. We anticipate the Drawings listed in the Anticipated Drawing List will be included in the Bid Set and will be developed to the 60% Design level for this submission. We anticipate the Project Manual specifications indicated as part of 30% Design will be further developed and included in this deliverable. We also will further develop the preliminary design OPCC.
- 90% Design Deliverable
 - Tighe & Bond will incorporate the City's 60% Design comments and further develop the Design Documents to the 90% Design level. The OPCC will also be further updated.
- Permitting
 - Upon addressing the City's 90% Design comments, the Drawings and Specifications will be submitted to CTDPH along with a permit application for review.
 - A Basis of Design Technical Memorandum will be developed to send to DPH along with the 90% Design Documents for permit approval.

Anticipated Drawing List

<i>Drawing Count</i>	<i>Drawing Title</i>
1	Cover and Index
2	General Notes, Legend, Abbreviations
3	Site Plan
4	Demolition – General Plan
5	Demolition – Rapid Mix - Typ
6	Demolition – Flocculation Basin - Typ
7	Demolition – Sedimentation Basin - Typ
8	Demolition – Backwash Plate Settler
9	Demolition – Residuals Pumps
10	Mechanical – General Plan
11	Mechanical – Rapid Mix - Typ
12	Mechanical – Flocculation Basin - Typ
13	Mechanical – Sedimentation Basin - Typ
14	Mechanical – Backwash Plate Settler
15	Mechanical – Residuals Pumps
16	Mechanical – Details 1
17	Mechanical – Details 2
18	Structural – Notes and Details
19	Structural – Notes and Details
20	Structural – Floor Plan – Floor Coating
21	Structural – Details – Floor Coating
22	Process/Instrumentation - Network Architecture and Legend
23	Electrical - Symbols, abbreviations, and general notes
24	Electrical - Floor plan
25	Electrical - Electrical Details-1
26	Electrical - Electrical Details-2
27	Electrical - Online Diagrams
28	Electrical - Electrical Schedules
29	Electrical - Wiring Diagrams

Task 4: Bidding

- Bid Package
 - Upon DPH review and incorporation of DPH comments, the design documents will be developed into a Bid Set.
- Bidding Assistance
 - Tighe & Bond will provide the following bidding assistance in support of the project
 - Prepare a bid advertisement for incorporation in the bidding documents.
 - Facilitate a pre-bid meeting at the site to review Project scope with potential bidders. We will prepare a pre-bid meeting agenda, publish meeting minutes, and record the contact information for all bidders present.
 - Respond to bidder questions and comments via addendum. We have assumed up to four addenda will be required as part of the bidding effort.
 - Tabulate, review, and analyze bid results from the bid opening, evaluate the qualifications of the apparent low bidder, and make a recommendation to the City as to the "lowest qualified bidder" to award.
 - Prepare a conformed set of construction documents for Tighe & Bond and City use.

Task 5: Services During Construction

- Pre-Construction Meeting
 - Tighe & Bond will hold a pre-construction meeting with the City, General Contractor, and Subcontractors to review project details.
- Construction Meetings
 - Tighe & Bond will hold regular meetings during active construction to review progress with the Contractor and City, up to 20 meetings, including the project manager, project engineer, and lead design engineer, as warranted.
- Submittal Reviews
 - Tighe & Bond will review the Contractor's technical submittals as required by the specifications and assess conformance with the specifications. We have assumed up to 40 submittals for this task.
- Responses to Requests for Information (RFI)
 - Tighe & Bond will review and respond to requests for information from the Contractor to clarify technical issues arising during the submittal and construction phases. We have assumed up to 15 RFIs for this task.
- Change Orders/Additional Work Authorizations
 - Tighe & Bond will assist the City in the preparation/review of change orders and additional work authorizations. We have assumed up to 6 change orders for this effort.
- Construction Observation
 - Tighe & Bond will provide a full-time on-site construction observer to work closely alongside the contractor and verify the construction and materials are in general compliance with contract documents.

- The observer will provide daily reports summarizing work completed, contractor's staff and equipment, general activities, and photos.
 - Based on currently available information, we have assumed up to 16 weeks of full-time construction, assuming that the contractor will only be able to work on half of the plant at a time, and the work will only be conducted during winter (low-demand) months. We've assumed that the work will need to span two winter month seasons.
 - Tighe & Bond's on-site observer will observe/view the Contractor's services for noticeable deficiencies from contract documents, assist in design interpretation, and confirm the construction is in general conformity with the contract documents. We are on-site for the City of Bristol's benefit and will notify the City of deficiencies in order for the City to determine if stopping the Contractor's services are appropriate and in the best interest of the Project performance. The means and methods the Contractor should use to accomplish the design element/component of the specifications will be determined by the Contractor, who will also be responsible for compliance with laws, rules, and regulations, as well as the overall supervision of the site health and safety.
 - If it is determined that the quantity of coverage needs to be adjusted upon design development, an amendment will be developed accordingly.
- Substantial Completion Inspection
 - Tighe & Bond will participate in substantial completion inspection to verify the construction is substantially complete.
 - Punchlist Development
 - Commissioning/Training Plan
 - Tighe & Bond will develop a startup/acceptance guidance for each equipment/unit process.
 - A plan for transitioning existing unit processes to new unit processes will be developed.
 - A training plan will be developed to train operators on new equipment.
 - Record Drawing Development
 - Record Drawings will be developed based upon Contractor As-Builts.

Appendix A

Team Resumes





MILES MOFFATT, PE, BCEE

VICE PRESIDENT

Miles Moffatt is vice president and technical director with extensive experience working on water and wastewater projects. He is experienced in planning, design and construction phase engineering support. His specialty has been program and project management of raw water supply, drinking water treatment and wastewater system programs. He supports the firm's project management, standardization, and quality program delivery.

PROFESSIONAL EXPERIENCE

EXPERIENCE

35 Years

SPECIALTIES

Water, Wastewater, and Stormwater
Conveyance

Treatment Facilities

Design and Construction Services

Comprehensive Wastewater Master
Planning based on Asset Management
Risk and Prioritization Assessment

Stormwater Management

Water Supply System Design

EDUCATION

Bachelor of Science
Mechanical Engineering
Rensselaer Polytechnic Institute

Master of Science
Mechanical Engineering
New York University

LICENSES & REGISTRATIONS

Professional Engineer
MA #58409
CT #34558
RI #13795
NY #063364
ME #16359
VA #0402041112
MD #32354

PROFESSIONAL AFFILIATIONS

American Academy of Environmental
Engineers and Scientists
Water Works Association
Water Environment Federation
American Water Works Association

SOUTH CENTRAL CONNECTICUT REGIONAL WATER AUTHORITY

As interim director of engineering, assist the RWA in planning several projects including: updating the Water Supply Plan; reservoir improvements including water and geotechnical studies and dam stability analyses; storage tank water quality upgrades; pump station upgrades; hydraulic modeling studies; treatment plant upgrades including filter and chemical systems. Assisted in developing short and long-term CIPs to address resiliency, redundancy and reliability goals of the RWA with its 32 surface water impoundment dams, numerous groundwater pumping stations, 1700 miles of piping and four water filtration plants.

POUGHKEEPSIES' JOINT WATER PROJECT BOARD

Project Director for studies and design of UV treatment upgrades at the WTP, including UV package and associated piping and electrical upgrades. Design included new UPS building to house UPS and battery units to supply the UV system. Also created and trained on SOPs to educate staff on optimal operation of the WTP ozone system. Assisted Board with obtaining grant funding for the project.

CITY OF PORTLAND, ME

Technical director on the project team providing holistic integrated planning program services for the City. The goal is to develop a plan for accommodating growth and providing green solutions for managing sewer and stormwater services. Work includes analyses of the City's existing infrastructure performance, stakeholder outreach, identification and prioritization of alternative infrastructure improvement solutions, methods for measuring success of implementation of solutions, and developing a post-construction monitoring plan.

PORTLAND WATER DISTRICT—PORTLAND, ME

Project Director for planning improvements to the District's East End Wastewater Treatment Facility influent screening facility. Work encompassed an analysis of the facility to achieve maximum loadings during storm conditions before activating a bypass facility, including:

- Hydraulic analysis of pipes, channels and screening units
- Constructability study of methods to pass flow through or around facility
- Life cycle cost analyses of alternatives identified
- Project director for improvements to secondary treatment facility, including 120 diameter clarifiers and return activated sludge conveyance system. Work included:
 - Physical inspection and analysis of condition of clarifiers and pumping system

- Recommendations for improvements via analysis of various affordable improvements
- Life cycle cost analysis of alternatives identified

WATER SYSTEM ASSET MANAGEMENT—EAST LONGMEADOW, MA

Project manager for the Town's water system asset management planning project. An asset management system was created from scratch to provide the Town with a defensible methodology to create its 5-year and 20-year CIP. The work included:

- Asset inventory of the system using GIS
- Evaluation of existing facilities
- Performing criticality analyses and risk-based prioritization using consequence of failure and probability of failure assigned scores
- Creating a priority list of assets along with costs for maintaining services life goals.

NARRAGANSETT BAY COMMISSION—PROVIDENCE, RI

Project manager for upgrades to 19 combined sewer structures sites to accommodate larger flows and minimizes CSO releases to receiving waters. Work included detailed design of improvements, including surveying, geotechnical studies, alternative analyses of cost savings options, permitting support and detailed estimates of probable construction costs.

WASTEWATER DISCHARGE PERMIT NEGOTIATIONS—YORKTOWN, NY

Project Director for negotiations of the Town's discharge permit for its wastewater treatment plant. The Town is experiencing increasing population growth, and the plant is reaching maximum capacity. The plant discharges into a sensitive water system that serves as raw water supply to the New York City drinking water system.

WATER TUNNEL PEER REVIEW—VALHALLA, NY

Project Director for New York City Kensico-Eastview Tunnel design peer review. New tunnel will provide an alternate source of supply to the disinfection facility for New York City's drinking water system. Work involves review of geotechnical/structural design of the 18' diameter bored tunnel, as well as site and electrical review of temporary and permanent facilities at the Kensico Reservoir site.

WATER TREATMENT FACILITY CHLORINATION IMPROVEMENTS—TAUNTON, MA

Project Manager for improvements to the City's water treatment facility's chlorination facility. Work included design services for upgrading the plant's hypochlorite facility with new storage and day tanks, transfer pumps, metering pumps, piping, valves and SCADA controls.

MASSACHUSETTS WATER RESOURCES AUTHORITY

Design coordinator for new aeration system for the 1,300 MGD Deer Island WWTP. Work included layout and design of galleries and related piping and equipment. Scope included support during startup.

DC WATER BLUE PLAINS WWTP—WASHINGTON DC

Project manager for design services for improvements, including:

- Improvements to the raw wastewater pumping station, including new pumps, controls and power supply
- Upgrades to the final filters influent pumping station, including piping, valves and actuators
- Retrofitting air scour systems
- Addition of primary clarifier enhanced coagulation system
- Remodeling historic structures on site, and managing lead paint and asbestos remediation



EXPERIENCE

30 Years

SPECIALTIES

Water

Enterprise Risk Management

Digital Project Delivery/Technology

Capital Improvement Plans

Treatment Facility Upgrades

EDUCATION

Bachelor of Science

Civil Engineering

Worcester Polytechnic Institute

Master of Science

Environmental Engineering

Worcester Polytechnic Institute

LICENSES & REGISTRATIONS

Professional Engineer

MA #41013

CT #21450

NH #13938

RI #12136

10-hour OSHA Construction

Safety & Health

Grade 3T OIT – Drinking Water Supply

Facility (#6047)

PROFESSIONAL AFFILIATIONS

American Water Works Association

New England Water Works

Association/CT Section of AWWA

New England Water Works, Inc.

Western Massachusetts Water Works

Association

Chi Epsilon (Civil Engineering Honor

Society) / Tau Beta Pi (National

PETER GRABOWSKI, PE

CHIEF OPERATING OFFICER/CHIEF RISK OFFICER

Peter Grabowski is Tighe & Bond's Chief Operating Officer, working with the firm's management to ensure optimum client service delivery across all geographic locations. He currently oversees several functions at Tighe & Bond, including contracts, safety, digital project delivery, enterprise risk management, and office administration. He serves as a Project Director for a variety of projects, covering many disciplines. His experience includes project management, planning, pilot testing, engineering evaluation, design, permitting, cost estimating, and construction project supervision. He served as the past Co-Chair of the Connecticut Section AWWA Education and Program Committee as well as the Education and Public Affairs Council Chair. He also serves on Worcester Polytechnic Institute's Environmental Engineering Advisory Board and Endicott College's Engineering Professional Advisory Committee. In addition, Peter is a frequent technical speaker at AWWA and NEWWA programs and has authored numerous technical publications. Peter also co-leads the Project Management training program at Tighe & Bond. Peter also served as an At-Large Director on Tighe & Bond's Board of Directors from 2018 to 2024, and he participates on several Board committees, including the role as Vice Chair of CT Section AWWA.

WATER RESOURCES

LAKE WHITNEY WATER TREATMENT PLANT (WTP); HAMDEN, CT

Managed design and services during construction for various disciplines (demolition, civil, structural, electrical, and process mechanical) on the demolition of an existing facility and the design of a new 15.45-MGD water treatment plant in Hamden, CT. The project included modifications to the intake structure, including an air burst system and new screens. Involved coordination between three other entities on a project team, a 45,000 CY demolition project, installation of a traffic signal, rigorous permitting requirements, a sensitive neighborhood with stakeholder commitments, an aggressive schedule, and partnering with the contractor.

CLEARWELL AND BACKWASH PUMPING STATION; WESTFIELD, MA

Served as Project Director for a fast-track design-build project at the Springfield Water and Sewer Commission's West Parish Filters. The project included a new 500,000-gallon clearwell for backwash water storage filled hydraulically via a hydraulic control structure inserted into the filtered water flow path; four separate pumping systems including backwash pumps, domestic water pumps, process water pumps, and washwater reservoir pumps; as well as a new ultraviolet disinfection system and sodium hypochlorite injection system for domestic water.

WTP IMPROVEMENTS; STONINGTON, CT

Managed design for Palmer Dam/Dean's Mill Water Treatment Plant Improvements project in Stonington, CT. This project included demolition of the existing concrete dam, construction of new concrete dam with adjustable crest gates, a new chemical treatment facility integral to the dam structure, and site accessibility and security improvements. Included a temporary intake and construction of a new intake system with bar racks and an air burst system. Developed a capital improvements plan (CIP) for the water treatment facility that addressed regulatory compliance issues, treatment process deficiencies, hydraulic capacity, and facility improvement needs that

resulted in upgrades. Project awarded Engineering Excellence Grand Award from CT ACEC in 2009.

PUMP STATION ELECTRICAL IMPROVEMENTS; NORTH BRANFORD, CT

Served as Project Director for providing design, permitting, and construction administration and observation services for the three phases of this \$9M electrical improvements project at an 80-MGD pump station in North Branford, CT. This included replacing all power generation and distribution equipment. The project included customizing the new equipment to meet the reliability and performance needs of the pump station, as well as achieve the equipment safety goals. The project was awarded the ACEC/CT's 2017 Engineering Excellence Award.

WTP DISSOLVED AIR FLOTATION SYSTEM; WOODBRIDGE, CT

Serving as the Project Director for the design of a new dissolved air flotation (DAF) system to enhance treatment at this 10.4-MGD water treatment plant in Woodbridge, CT. Winter and summer pilot testing were conducted to verify process improvements associated with the addition of DAF to the existing treatment process, including enhanced filter performance and runtimes, particularly during algae blooms in the summer. The DAF facility design included a new stand-alone building adjacent to the existing treatment facility, piping modifications, chemical feed modifications, electrical improvements, and temporary work to maintain facility operation during construction. The construction cost for the improvements was \$14M.

PRESSURE ZONE PROJECT; SOUTHTON, CT

Served as Project Director of a comprehensive master plan study for the Southington, CT Water Department. One of the recommendations of the master plan study was the creation of a new pressure zone. Managed design and construction of a new 1-MG concrete storage tank (\$1,760,000), new pump station (\$943,000) located on property of the local high school, and 1,500 LF of 12-inch diameter ductile iron transmission main (\$349,000) to serve the new East Side Pressure Zone.

WOONASQUATUCKET RIVER CROSSING; PROVIDENCE, RI

Served as the Project Director for the design, permitting, and construction phase services for Providence Water's replacement of a failed high-pressure 16-inch diameter water main across the tidal Woonasquatucket River adjacent to Providence Place. This design-build project was under a tight schedule and required the installation of sequenced cofferdams for cut and cover pipe installation to limit impacts to river and tidal flows, as well as seasonal herring runs. Construction management and inspection services were completed under permit conditions and the purview of Rhode Island Department of Environmental Management, the Coastal Regional Management Council, and the U.S. Army Corps of Engineers. Additionally, the work required coordination with ongoing adjacent projects including Viaduct Bridge & Bath Street Bridge projects with the Rhode Island Department of Transportation.

CAPITAL IMPROVEMENTS PLAN; HARTFORD, CT

Served as Project Director for the preparation of a comprehensive capital improvements plan for the Hartford Metropolitan District's three water treatment facilities, ranging in size from 1.5 MGD to 82 MGD. The plan included a comprehensive evaluation of plant hydraulics, process upgrades, and infrastructure improvements and prioritized critical needs for capital budgeting purposes.

EMERGENCY TEMPORARY BYPASS PUMPING SYSTEM; NORTH BRANFORD, CT

Served as Project Director for technical assistance with the construction of an emergency temporary bypass pumping system for an 80-MGD WTP in North Branford, CT. The system included four parallel 6,100 foot runs of 18-inch fused HDPE pipe, four 12-inch high performance butterfly valves for pressure control, nine Godwin dry-prime centrifugal pumps with VFDs, and nine 500 kW diesel generators, together capable of providing up to 40 MGD



EXPERIENCE

18 Years

SPECIALTIES

Water Treatment Process Optimization

Disinfection & Disinfection Byproducts

Sedimentation/Filtration

Iron and Manganese Removal

Corrosion Control Treatment

EDUCATION

Bachelor of Science

Civil Engineering

Colorado State University

Master of Science

Water Resources System Engineering

Cornell University

LICENSES & REGISTRATIONS

Professional Engineer

NY #089667-1

OSHA HAZWOPER 40-hour training

NYSDEC Qualified SWPPP

Construction Site Inspector

Construction Documents Technologist

RYAN FLEMING, PE

PRINCIPAL ENGINEER

Ryan is a principal engineer and technical director specializing in drinking water quality and treatment. In this role, Ryan leads multi-disciplinary design teams in the planning, design, and construction of new water treatment facilities. He also provides engineering services for retrofitting/upgrading existing facilities to enhance treatment performance and compliance with increasingly stringent water quality standards. In addition to his consulting engineering experience, Ryan was the head of hydrologic/hydraulic modeling for the NYC Department of Environmental Protection Bureau of Water and Sewer Operations and then worked as director of water quality for a large publicly traded water company where he was responsible for compliance and treatment process optimization for dozens of public water systems.

DRINKING WATER

WATER TREATMENT PLANT AND EMERGENCY PFAS TREATMENT—CHATHAM, MA

Served as the lead process treatment engineer for both the temporary/emergency PFAS treatment system as well as design of the full-scale, permanent facility, which includes iron and manganese filtration plus PFAS adsorption. He served as project manager for the permanent facility, coordinating the individual architectural, structural, mechanical/electrical/plumbing (MEP), and civil engineering design disciplines through the 30% and 60% design milestones. Ryan was responsible for developing and overseeing a pilot study as well as coordinating with MassDEP on behalf of the client for permitting and grant applications. He oversaw design, installation, and startup for a 12-ft. diameter GAC contactor to provide water from the wellfield during peak seasonal periods prior to the full-scale facility being constructed.

PFAS TREATMENT - GRAFTON ROAD TREATMENT PLANT—PORTSMOUTH, NH

Overseeing a pilot study for selection of optimal resin type and projecting costs/benefits for long-term operation of the Pease-Grafton Road Treatment Plant. The City of Portsmouth will need to enter into final appropriation agreement with the U.S. government and commissioned a study to make the best decisions based on available technology, source water quality, current and future regulated contaminants, and health and financial impacts to its customer base. Ryan helped design the pilot study and will be managing technical review of the data collected.

PILOT TESTING FOR IRON AND MANGANESE REMOVAL—HUNT WATER TREATMENT PLANT, CT WATER—EAST WINDSOR, CT

Prepared the pilot test protocol and supervised Blueleaf, Inc. as they conducted a two-week study to analyze oxidation and filtration using Greensand Plus™. He determined chemical dosing rates and developed design parameters for a backwash storage and recycle system that was replicated for the pilot study.

DESIGN OF REPLACEMENT FACILITY FOR FILTRATION AND CHEMICAL TREATMENT, HUNT WATER TREATMENT PLANT, CT WATER—EAST WINDSOR, CT

Served as the project manager for the design of a new 4.2-mgd GreensandPlus™ filtration plant for the removal of iron and manganese from seven groundwater sources with varying water quality. Ryan prepared the pilot test protocol and supervised Blueleaf, Inc. as they conducted a

two-week study to analyze oxidation and filtration using Greensand Plus™. He determined chemical dosing rates and developed design parameters for a backwash storage and recycle system that was replicated for the pilot study. He developed models to simulate plant operation, optimize chemicals usage, and estimate spent backwash water frequency and quality using data obtained during the pilot study. Managing a multi-disciplinary design team, Ryan oversaw the project through planning, design, bidding and construction phases. Startup/commissioning is scheduled for Summer 2023.

CHEMICAL TREATMENT AND WELLFIELD CONTROL FACILITY DESIGN, AQUARION WATER—NEWTOWN, CT

Served as project manager for the design of a new treatment facility for two existing groundwater wells. Design efforts included a storage and handling system to recirculate analyzer waste as well as design of chemical treatment equipment for pH adjustment, corrosion control, and disinfection. Design phases included acquisition and permitting of a new property for construction of the building, including an access road, security fencing, and other site improvements along Route 25. New facility design included integration of all new equipment and SCADA controls for the two existing wells and other Aquarion facilities in the Newtown service area.

CORROSION CONTROL TREATMENT TECHNIQUE (CCT) REVIEW, CONNECTICUT WATER COMPANY—VARIOUS SYSTEMS/STATIONS

Ryan provided on-call engineering services for review of water quality parameters and coordination with regulators and the public in response to Lead & Copper Rule (LCR) Action Level (AL) exceedances. Ryan works with members of the Water Quality, Operations, Public Relations, and Engineering departments to provide guidance and recommendations. For several systems, Ryan has provided design services for either pH adjustment (chemical feed and/or calcite contactor equipment) and/or application of a corrosion inhibitor. All projects are completed under tight deadlines and in challenging geographic locations with limited space and utility connections.

PILOT TESTING MANGANESE REMOVAL, SURFACE WATER PLANT, CT WATER—CLINTON, CT

Served as project manager for development and execution of a long-term monitoring program and pilot study with Blueleaf, Inc., to compare manganese removal from a surface water source using chlorine oxidation with other source management options. The monitoring program used automated controllers to collect sample data every three hours without staff resources. The pilot test program evaluated reaction rates and removal effectiveness in clarified and filtered water. Tests included pH adjustment and baffling in the rapid mix to increase oxidation of soluble manganese. Ryan led a team that included a partnership with Dr. John Tobiason, professor of engineering at UMass Amherst.

UNDERDRAIN, MEDIA AND AUTOMATED BACKWASH (ABW) TRAVELING BRIDGE MECHANICAL UPGRADES – NORWICH PUBLIC UTILITIES, NORWICH, CT

Managed construction administration and DWSRF reporting through CT DPH for infrastructure upgrades at this surface water treatment plant (SWTP). He coordinated on behalf of the owner with the contractor and equipment manufacturer through all work phases and led the startup/commissioning, which included extensive troubleshooting of issues with mechanical equipment and controls associated with the traveling bridge system including new filter-to-waste functionality.

TANK AERATION INFRASTRUCTURE DESIGN, AQUARION WATER COMPANY—STONINGTON, CT

Worked with Aquarion to plan, design and manage construction of a unique blower and pump system to recirculate and ventilate the 300,000-gallon elevated water storage tank to strip regulated disinfection byproducts (DBPs). Because the storage tank was located in a coastal, residential area, the project team designed a CMU block shelter to house the mechanical equipment and controls, which provided shelter from the elements as well as reduced ambient noise. Construction was completed in January 2022 and has resulted in approximately 75% lower TTHM concentrations from compliance samples that have been collected since.



JACOB WEINRICH, PE

SENIOR ENGINEER

Jacob Weinrich is a senior engineer with a focus on drinking water and wastewater projects. His drinking water experience includes design and construction management of water treatment and water storage projects. His wastewater experience includes facility evaluations, inflow/infiltration studies, as well as the design and construction management of wastewater treatment upgrades and pump station upgrades. His experience also includes facility condition assessments and asset management planning. He also has experience as a senior project engineer at both public and private utilities, managing drinking water and wastewater capital projects.

EXPERIENCE

12 Years

SPECIALTIES

Treatment Facility Upgrades

Pumping Stations

Chemical Feed Systems

Inflow/Infiltration Analysis

Asset Management Planning

EDUCATION

Bachelor of Science

Environmental Engineering

Wilkes University

Master of Science

Environmental Engineering

University of Massachusetts Amherst

LICENSES & REGISTRATIONS

Professional Engineer

MA #37491

30-Hour OSHA

Construction Safety & Health

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

American Water Works Association

New England Water Environment

Association

DRINKING WATER

PUMP STATION ASSET INVENTORY & CONDITION AUDITS—CONNECTICUT

Inventoried and provided condition assessments of equipment and components for major pump stations, water treatment facilities, and wellfields in Connecticut. Condition assessments were provided for existing piping, pumps, chemical feed systems, major electrical components, buildings and structural components, and other major components. Data from the condition assessments for each facility was formatted to be included in an integral asset inventory database.

FINISHED WATER STORAGE IMPROVEMENTS—CONNECTICUT

Assisted with design for rehabilitation of an existing seven MG reservoir in Connecticut. Improvements included joint repair, a membrane waterproofing system, and site improvements to allow drainage around a reservoir.

WATER TREATMENT PLANT CHEMICAL IMPROVEMENTS—CONNECTICUT

Designed and conducted construction administration for improvements at a major drinking water treatment facility in Connecticut. Design included new chemical fill lines for the fluoride, caustic, alum, and phosphate bulk storage systems. Improvements also included upgrades to the sodium hypochlorite system, including new sodium hypochlorite metering pumps and transfer pumps.

WELLFIELD IMPROVEMENTS—CONNECTICUT

Designed improvements for multiple wellfields in Connecticut, including chemical feed system upgrades for sodium hypochlorite, phosphate, fluoride, and sodium hydroxide, as well as addition of tepid water system for emergency showers, and chemical feed system automation upgrades. Included design, permitting, and coordination with local building and fire code officials for sprinkler system waiver.

COLD STONE SPRINGS WELL ASSESSMENT—JAFFREY, NH

Assisted in evaluation of purchase of three wells for a new source supply for the towns of Jaffrey and Peterborough, NH. Evaluation included conceptual design of perchlorate treatment, water treatment plant siting, and pipeline routing for system interconnection.

WATER TREATMENT PLANT IMPROVEMENTS—WESTFIELD, MA

Served as Project Engineer for improvements projects at Springfield Water and Sewer's West Parish Filters Facility in Westfield, MA. Projects included design and permitting for a new bulk coagulant chemical storage system and chlorine gas improvements at the West Parish Filters Facility for SWSC, including new chemical fill lines and bulk chemical storage for an alum coagulant feed system, improvements to chlorine gas storage and feed system, and temporary sodium hypochlorite system during construction; and design, permitting, and construction administration for replacement of existing buried chlorine feed lines with approximately 1,500 linear feet of double-walled feed piping with integrated leak detection.

EMERGENCY DRINKING WATER SOURCE ASSESSMENT—CONNECTICUT

Developed an alternatives analysis for an emergency drinking water source for a utility in Connecticut. Two alternatives were developed to preliminary design, including a booster pump station for an interconnection with an adjacent water system, and PFAS treatment at a deactivated wellfield, and life cycle costs developed to provide recommendations. *

SPRINGFIELD WATER AND SEWER COMMISSION

Served in the role of project engineer in the Commission's Engineering Department, managing design, permitting, bidding, construction, and startup/commissioning of municipal drinking water capital improvement projects. Served as project manager or assistant project manager for major drinking water capital improvement treatment projects, including design of a new 65 MGD DAF dual-media filter water treatment plant; design-build of a new backwash pump station to serve an 80 MGD direct filtration drinking water plant; and chemical feed systems improvements. Served as project manager for drinking water distribution and storage projects, including finished water storage tank improvements; transmission main improvements for CT monitoring; water distribution optimization modeling for water age, chlorine residual, and DBPs; and distribution leak detection. +

PENNSYLVANIA AMERICAN WATER

Served in the role of senior project engineer at Pennsylvania American Water, managing design and construction of a variety of drinking water capital projects, including: 5,000 LF of watermain to interconnect two pressure gradients; improvements to two wash water residual lagoons at a 33 MGD filtration water treatment plant; improvements to a wash water recycle system at a 4 MGD direct filtration water treatment plant; filter improvements at a 0.65 MGD water treatment plant, including underdrain replacement, media replacement, and pipe gallery improvements; and improvements to a wellfield system, including a new 100,000 gallon storage tank, chemical feed improvements, new chlorine contact main, and hydraulic improvements to allow for blending of sources for PFAS mitigation. +

**With previous firm*

+With previous utility



ZACHARY WEILAND

STAFF ENGINEER

Zach Weiland specializes in water and wastewater projects. He has experience in design, data analysis, water audits, report preparation, and design specifications preparation.

WATER

AWWA WATER AUDIT—MASSACHUSETTS

Conducted water audits for 10 Massachusetts water systems at the request of the Massachusetts Department of Environmental Protection, utilizing the AWWA free water audit software.

AWWA WATER AUDIT—NEW HAMPSHIRE

Conducted water audits for 25 New Hampshire water systems at the request of New Hampshire Department of Environmental Services, utilizing the AWWA free water audit software. Analyzed the completed water audits to provide recommendations on steps each water system can take to improve their data validity score, reduce real water losses across their system, and conduct future water audits.

AWWA WATER AUDIT—AQUARION WATER COMPANY

Conducted water audits for Aquarion Water Company water systems for the 2019 and 2020 calendar years using the AWWA water audit software and compiler. Tabulated production costs for each system and guided the client through completing the data grading questionnaires for each system to accurately assign data validity scores.

SUSTAINABILITY REPORT—AQUARION WATER COMPANY

Analyzed operational and water production data to calculate annual carbon equivalent emissions for the Aquarion Water Company. Developed a baseline for yearly comparisons from 2017 through 2019 with projections out to 2030 to achieve the company's carbon goals. Produced a sustainability report that included possible areas of carbon reduction to be achieved within the year with projections for carbon reductions by 2030.

GAC POET SYSTEM FOR PFAS REMOVAL—MASSACHUSETTS

Served as staff engineering conducting design and drafting work to install granular activated carbon point of entry treatment systems for private systems in Massachusetts. Design work included sizing GAC vessels for required empty bead contact time, system layout in various spaces, construction specification writing, construction drawing drafting, and permit application.

DRINKING WATER STORAGE TANK SERVICES

HOLYOKE WATER WORKS TANK PAINTING—HOLYOKE, MA

Conducted the bid analysis for the Holyoke Water Storage Tank Painting project for the Holyoke Water Works. Provided construction observation for the project. The project required the spot removal and reapplication of coating systems for two 2 MG "low service" tanks in the fall and two 3 MG "high service" tanks in the spring. Observation services included coordination with contractor quality manager and foreman, testing of ambient conditions, surface preparation, and intermediate thickness testing, and quality management.

EXPERIENCE

4 Year

SPECIALTIES

Wastewater Treatment

Biosolids Drying Systems

Chemical Engineering

EDUCATION

Bachelor of Science

Chemical Engineering

Worcester Polytechnic Institute

Master of Science

Chemical Engineering

Worcester Polytechnic Institute

LICENSES & REGISTRATIONS

Engineer In Training

MA# 25943

PROFESSIONAL AFFILIATIONS

American Water Works Association

New England Water Environment
Association

oSTEM

CHEMICAL ENGINEERING

WORCESTER POLYTECHNIC INSTITUTE—WORCESTER, MA

Conducted laboratory research to design and test the capabilities of utilizing F-NMR as a total fluorine test to measure the total concentration of per- and polyfluoroalkyl substances (PFAS). Conducted a literature review of PFAS compounds, existing measurement methodologies, and analysis techniques. Wrote a report and presented findings at the Major Qualifying Project presentation day and the oSTEM annual conference poster fair.

WASTEWATER

CMAR WRRF UPGRADE DESIGN—SACO, ME

Served as a staff engineer for the water resource recovery facility upgrade design. Modelled influent pumping systems, drain pumping systems, and sewer connection capacity. Conducted life-cycle cost analysis of disinfection and sludge dewatering alternatives. Developed and revised drawing process and instrumentation, mechanical, and site drawings.

FACILITIES PLAN DEVELOPMENT FOR THE WRRF—SACO, ME

Served as a staff engineer to develop alternative plan designs for a facility plan analysis for the Saco water resource recovery department. Analyzed historical wastewater treatment data and growth projections to select design flows and loads. Prepared a basis of design report pre-selection of alternatives. Sized new and upgraded unit operations including primary clarifiers, aeration tanks, secondary clarifiers, chlorine contact tanks, and alternative treatment processes such as UV disinfection, IFAS, and an aerobic granular sludge system. Drafted a facilities plan summarizing three alternatives, including wet weather hardening and retrofit of existing treatment, and two innovative alternatives. Developed opinions of probable construction costs for each of the three alternatives.

VERNON WPCF UPGRADE OBSERVATION—VERNON, CT

Provided construction observer and administration services for the Vernon Water Pollution Control Facility Upgrade for nitrogen removal. Served as construction observer during the Vernon WPCF upgrade project spring 2021 through 2022. Observation services included equipment demolition, equipment installations such as clarifier mechanisms, rotary drum thickeners, submersible, dry pit, and progressive cavity pump startup, concrete pours, and rebar inspection. Administration services included preparing and reviewing monthly pay estimates for compliance with SRF requirements, preparing work change directives, and progress meeting summaries.

CHLORINE UPGRADE—NORTH ATTLEBOROUGH, MA

Provided design and construction administration services on the Chlorine Upgrade project for North Attleborough, MA WWTP. Analyzed historical water and chlorine usage data to create design criteria for the chlorine upgrade. Drafted a design memorandum that was shared with the client. Assisted in developing 90% design specifications and drawings. Construction administration work included managing submittals, preparing monthly cost estimates and work change directives, and providing construction observation assistance.

CAPITAL IMPROVEMENTS PLAN FOR THE WWTF—ADAMS, MA

Served as a staff engineer on the Capital Improvements Plans for the Adams, MA Wastewater Treatment Facility. Conducted a site visit and recorded the status of the parts of the facility. Drafted a CIP report.

MASONIC STREET SEWER REPLACEMENT—NORTHAMPTON, MA

Served as a sub-designer to replace the sewer and water lines along Masonic Street in Northampton, MA. Collected and reviewed utility locations, surveyor data from the 1950's until early 2000's, and sewer and water locational information to draft a proposed design.

**EXPERIENCE**

20 Years

SPECIALTIES

Power Systems

Lighting Design

Fire, Intrusion, CCTV, and Public
Address Systems

Arc Flash and Electrical
Coordination Studies

Process Control and Instrumentation

Electrical Condition Analyses

EDUCATION

Bachelor of Science
Electrical and Computer Engineering
Worcester Polytechnic Institute

Master of Science
Electrical Power Engineering
Arizona State University

LICENSES & REGISTRATIONS

Professional Engineer
MA #48169
CT #27315
NH #14059
RI #11893
ME #17088
MI #6201060081

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics
Engineers

National Fire Protection Agency

Tau Beta Pi
(National Engineering
Honors Society)

Eta Kappa Nu
(National Electrical Engineering
Honors Society)

MATTHEW ROMANO, PE**SENIOR ELECTRICAL ENGINEER**

Matthew Romano's years of experience and background in electrical engineering and computers equips him to design and specify power, lighting, HVAC, fire and intrusion detection, instrumentation and control, public address, and telephone systems. He has worked on a broad array of projects focused on water resources, wastewater treatment, industrial waste, solid waste, and electrical demolition.

BUILDING**ELECTRICAL CODE INSPECTION—WEST SPRINGFIELD, MA**

Performed an electrical code inspection and analysis for a manufacturing facility in West Springfield, MA.

ELECTRICAL AND STRUCTURAL DESIGN—MASSACHUSETTS

Served as Project Manager and electrical design engineer for the design of electrical and structural portions of a senior center upgrade project.

ELECTRICAL AND STRUCTURAL DESIGN—DEERFIELD, MA

Assisted in the electrical design for a new squash court facility at this college preparatory school in Deerfield, MA.

ELECTRICAL, FIRE, AND INTRUSION SYSTEMS—HARTFORD, CT

Designed the electrical, fire, and intrusion systems for a customer service facility in Hartford, CT.

ELECTRICAL, FIRE, AND INTRUSION SYSTEMS—HOLYOKE, MA

Designed the electrical, fire, and intrusion systems for a maintenance facility in Holyoke, MA.

ELECTRICAL DESIGN—DEERFIELD, MA

Participated in the electrical design team for renovations to the Deerfield Academy Main Administration Building at a college preparatory school in Deerfield, MA.

WATER RESOURCES**WATER TREATMENT FACILITIES & PUMP STATIONS—CONNECTICUT**

Performed numerous arc flash analyses and overcurrent protective device coordination studies for CT treatment facilities and pump stations.

ELECTRICAL, HVAC, AND CONTROL SYSTEMS—HARTFORD, CT

Designed the electrical, HVAC, and control systems for booster pump station located in Hartford and East Hartford, CT.

**ELECTRICAL, HVAC, FIRE AND INTRUSION DETECTION SYSTEMS
BLANDFORD, MA**

Designed the electrical, HVAC, and fire and intrusion detection systems for a water treatment facility in Blandford, MA. Also assisted in the design of the facility's instrumentation and control system.

ELECTRICAL SYSTEM FOR PUMPING STATION—SOUTH HADLEY, MA

Designed the new electrical system for a dry well pumping station in South Hadley, MA.

WATER TREATMENT PLANT UPGRADES—STONINGTON, CT

Served as electrical design engineer for major upgrades to a water treatment plant in Stonington, CT. Included planning and organization of electrical demolition and renovations to an existing building as well as the design of new electrical, HVAC, and fire detection systems for a new chemical building.

ELECTRICAL MODIFICATIONS AND DEMOLITION PLANS—BARNSTABLE, MA

Assisted in the design of electrical modifications and demolition plans for a pumping station in Barnstable, MA.

WASTEWATER TREATMENT

BIOSOLIDS DRYER FACILITY UPGRADE—DETROIT, MI

Served as lead electrical engineer for a \$132M sludge dryer facility for the City of Detroit, MI, which is the largest facility of its kind in North America. Design work included power distribution, controls, lighting, fire detection, security, telephone, public address, and lightning protection systems. Other electrical engineering work included arc flash analyses, coordination studies, harmonics analyses, and electrical construction administration

WATER POLLUTION CONTROL FACILITY—VERNON, CT

Serving as lead senior electrical engineer for a \$70M upgrades project at a water pollution control facility in Vernon, CT. Design work included 15kV and 480V power distribution, normal and backup power systems, electrical safety enhancements, instrumentation and controls, lighting and fire detection. Other electrical engineering work includes arc flash analyses, coordination study, and electrical harmonics review.

NEW COMBINED SEWER OVERFLOW (CSO) DESIGN—CHICOPEE, MA

Designed the electrical systems for a new combined sewer overflow facility in Chicopee, MA. Tasks included design and coordination of the electrical distribution and backup power generation systems as well as the fire detection, security, and various other controls and communications systems.

WATER POLLUTION CONTROL FACILITY—SOUTHINGTON, CT

Served as lead electrical engineer for a \$45M water pollution control facility upgrades project in Southington, CT. Design work included normal and backup power capacity analyses, arc flash study and design of power distribution systems, electrical safety enhancements, controls, lighting, fire detection, security, telephone, public address, and lightning protection.

NEW PUMP STATION DESIGN—MIDDLETOWN, CT

Designed the electrical distribution and controls systems for a new pump station in Middletown, CT.

WATER POLLUTION CONTROL FACILITY UPGRADES—REDDING, CT

Designed the electrical and HVAC systems for a major upgrades project at a water pollution control facility in Redding, CT. The design included the integration of a backup power generation system as well as an odor control system.

WASTEWATER TREATMENT PLANT UPGRADES—SOUTH HADLEY, MA

Served as electrical design engineer and assisted with construction coordination for upgrades to a wastewater treatment plant and pump station in South Hadley, MA.

**EXPERIENCE**

37 Years

SPECIALTIES

Structural Design

Water Treatment Facilities

Capital Improvements

Bridges & Culverts

Dams

EDUCATION

Bachelor of Science

Civil Engineering Technology

Wentworth Institute of Technology

LICENSES & REGISTRATIONS

Professional Engineer

MA #41817

CT #25302

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

JOHN FRAWLEY, PE**SENIOR STRUCTURAL ENGINEER**

John Frawley is a design engineer with experience in design of a variety of building types and structures, conducting condition assessments for existing building and structures, and providing construction oversight for a wide range of building and infrastructure projects. John has analyzed and designed structures constructed of various building materials including reinforced concrete, reinforced masonry, structural steel, and wood. Over his career, John has been the structural engineer for projects that include the design or retrofit of water and waste-water structures including, building foundations, building superstructures, water retaining structures, equipment platforms and pads, retaining walls, dams, and spillways.

WATER TREATMENT FACILITIES**METROPOLITAN DISTRICT'S RESERVOIR NO. 6 WATER TREATMENT FACILITY—BLOOMFIELD, CT**

Provided structural design for concrete repairs to the flocculation basin tank deck at the Metropolitan District's Reservoir 6 Water Treatment Facility. The \$856,000.00 project included PCB abatement along an expansion joint. The abatement includes demolition, removal, and disposal of contaminated concrete surfaces on both sides of the expansion joint, spalled concrete surface repairs, concrete crack repairs, and the reconstruction of demolished concrete surfaces along both sides of the expansion joint. The project also included the demolition and reconstruction of a reinforced concrete stair up to the flash mixers, and a new reinforced concrete ramp between the driveway and the flocculation tank deck. A non-slip polyurea coating system will be applied to the concrete flocculation tank deck, stairs, and ramp upon completion of the concrete repairs.

METROPOLITAN DISTRICT'S RESERVOIR NO. 6 WATER TREATMENT FACILITY—BLOOMFIELD, CT

Provided structural design for a new building at the District's Reservoir No. 6 Water Treatment Facility to house the blowers that are used to back wash the filters. The project included a reinforced concrete frost wall foundation, a reinforced concrete slab-on-grade floor, reinforced masonry cavity walls which consisted of concrete masonry unit interior wythe and a brick exterior façade, and a precast concrete roof.

LAKE WHITNEY WATER TREATMENT FACILITY—HAMDEN, CT

Designed portions of the \$53M, 140,000 SF water treatment facility located in Hamden, CT. The majority of the building was located below grade in order to blend the facility into a residential setting. The project included cast-in-place concrete walls and floor systems, a precast concrete roof system and six rectangular underground water storage tanks.

METROPOLITAN DISTRICT'S RESERVOIR NO. 1 BUILDING RENOVATIONS—WEST HARTFORD, CT

Provided structural design for the renovations to the chemical building at the Metropolitan District's Reservoir No. 1 in West Hartford, CT. Included structural steel support framing for existing elevated concrete floor slabs, masonry wall repairs and demolition, and the addition of an 11' x 11' double leaf access hatch to the existing roof.

DEAN'S MILL WATER TREATMENT PLANT—STONINGTON, CT

Provided structural design for the chemical building at this water treatment plant in Stonington, CT. The structure consisted of a reinforced concrete, light gage metal-framed second story and a wood truss hip roof.

WASTEWATER

SLUDGE DRYER FACILITY—DETROIT, MI

Provided structural design for the design-build team for a \$140M sludge dryer facility for the City of Detroit. The sludge dryer facility, with a design capacity of 420 dry tons per day, is the largest facility of its kind in North America. The project included a 270-ft x 175-ft structural steel building with architectural precast concrete walls that enclosed the process equipment, chemical scrubbers for odor control, offices, chemical storage room, and maintenance and storage areas. Tighe & Bond won the American Council of Engineering Companies (ACEC) Gold Award for Engineering Excellence in 2017 for contributions to this project.

QUINCY SLUDGE PELLETIZATION FACILITY—QUINCY, MA

Oversaw construction of the \$77M sludge pelletization facility at the Fore River Staging Area in Quincy, MA for the Massachusetts Water Resources Authority. Inspected pile driving, formwork, reinforcing steel placement, concrete placement, HVAC work, plumbing, and miscellaneous metals installation. During plant startup, monitored the operation of various components to ensure compliance with contract performance requirements.

BRONX SLUDGE PELLETIZATION FACILITY—BRONX, NY

Oversaw the construction of the \$110M sludge pelletization facility at Hunts Point in the Bronx, NY. Inspected pile driving, concrete work, HVAC work, plumbing, and miscellaneous metals installation. Used engineering abilities to make changes as they arose in the field in order to keep project on fast-track schedule.

CHICOPEE WATER POLLUTION CONTROL FACILITY—CHICOPEE, MA

Provided structural design for a \$3M water pollution control facility project in Chicopee, MA. The project included the design of a reinforced concrete chlorine contact chamber, by-pass pump station, and the design of a reinforced masonry de-chlorination building.

JONES FERRY CSO TREATMENT FACILITY

Provided structural design for a \$15M combined sewer overflow water treatment facility project in Chicopee, MA. The treatment building included the design of a reinforced concrete screen channels for the removal of grit, an influent wet well chamber and a chlorine contact chamber. The building exterior was constructed of reinforced masonry walls. The building roof featured several different types of construction including precast concrete columns, beams and double tee's with a membrane roof system over the chlorine contact chamber area, wood trusses and an asphalt shingle roof system above the screen room and garage area and bar joists, metal decking and a membrane roof system above the office area of the building.

WATER RESOURCES

TRANSMISSION MAIN—SOUTHAMPTON & HOLYOKE, MA

Designed the \$5.25M transmission main between the Tighe-Carmody Reservoir in Southampton, MA and McLean Reservoir in Holyoke, MA. Responsibilities included the vertical and horizontal alignment of 33,500 LF of 42-inch diameter prestressed concrete cylinder pipe and thrust restraint design.



EXPERIENCE

34 Years

SPECIALTIES

Electrical Hardware System Design &
Specification

Electromechanical Software Control &
Programming Systems

Systems Integration

Instrumentation & Controls

SCADA Systems

Water Treatment Facilities

Wastewater Treatment Facilities

EDUCATION

Bachelor of Science

Basic Engineering (Electrical Specialty)
Colorado School of Mines

40-Hour OSHA HAZWOPER Training

30-Hour OSHA Construction Safety &
Health Training

10-Hour OSHA Construction Safety &
Health Training

First Responder Training

Electrical Safety for Unqualified Person
and Contractor

Requirements for Hazardous Energy
Control Training Course

Instrument Society of American Member

Certified Automation Professional
Course (ISA EC00E)

Secure Industrial Networks Training
Course (ISA IC32C)

LICENSES & REGISTRATIONS

Professional Engineer Control Systems
NY #096953
MA #47361
CT #26888

RONALD SMITH, PE

SENIOR CONTROL SYSTEMS ENGINEER

Ronald Smith brings extensive experience in systems integration, electrical hardware system design and specification, electromechanical software control and programming systems, troubleshooting, and field repair to the Tighe & Bond Instrumentation and Controls Group. He specializes in control systems with PLCs and custom PC operator interfaces and has designed and commissioned many different types of fully-automatic electromechanical industrial equipment, frequently integrating multiple control platforms to provide customized control and operator interface and supervisory control.

INSTRUMENTATION AND CONTROLS

WATER AND WASTEWATER TREATMENT FACILITIES

Provided complete systems integration with Allen Bradley ControlLogix Control systems using RSLogix5000 including start up and commissioning. Communications system designed as a Distributed Control System with fiber optic linking and Industrial Ethernet and Device-Net communications protocols. Systems are fully automatic with operator selectable timing and flow set points. Operator interface screen design on Allen Bradley Color Panelview Plus using RSView Studio ME.

WASTEWATER TREATMENT PLANT—PLAINVILLE, CT

Provided programming, startup, and commissioning for a municipal wastewater treatment plant using multiple Modicon PLCs types including Quantum, Momentums, M340, and M580 Processors. Systems Integration of all components using Aveva Citect 2018 SCADA Software on a fiber optic Ethernet network. All PLC programming in Schneider's Unity Pro software using ladder logic, structured text and function block programming languages. Aveva Citect2 SCADA software configured as a DDE server to automatically send data to WIN911Alarming software and ALLMax Operator 10 Maintenance Software. Win911 alarming software configured to dial plant personnel when a configurable alarm condition occurs.

WASTEWATER TREATMENT PLANT—WINCHENDON, MA

Provided programming, startup, and commissioning for a municipal wastewater treatment plant using multiple Allen Bradley SLC500 Processors and Rockwell Automation Rview32 Supervisory Control and Data Acquisition (SCADA) Software on a fiber optic Ethernet network. All PLC programming in RSLogix500 Ladder Logic. RSView32 SCADA software configured as a DDE server to automatically send data to WIN911Alarming software and ALLMax Operator 10 Maintenance Software. Win911 alarming software configured to dial plant personnel when a configurable alarm condition occurs. The ALLMax Operator 10 Software configured to monitor equipment usage and alert plant personnel when scheduled preventive maintenance needs to be performed. The SCADA system is also set up with GoTo My PC to allow plant personnel to remotely check plant operation via a home computer system.

WATER TANKS—SOUTH HADLEY, MA

Provided design and systems integration including start up and commissioning of a radio telemetry monitoring and control system to automatically control water level in two tanks for a municipal water department. System automatically adjusts a pressure reducing valve to

throttle the incoming water and maintain water tank levels to operator selected setpoints. System also allows the system to drain a selected water level amount from the tanks to cycle the water in the tanks. System controllers programmed in RSLogix500. SCADA system developed in RSView32 and interfaced to WIN911 telephone alarming software.

WATER TREATMENT FACILITY—GROTON, MA

Programmed water treatment facility using Modicon Momentum PLC Control system and ProWorx32. Communications system linked to Modicon PLC network via Modbus link (RS232 Serial). Addition of two remote telemetry units for control and remote monitoring. SCADA system design using National Instruments Lookout development software.

EMERGENCY SERVICES

Provide on-call field engineering support for clients including nights and weekends, including electrical troubleshooting of wiring and hard wired devices, instrumentation set up and calibration, and software support including PLC programming and debugging.

SCADA/SYSTEMS INTEGRATION

Designed and implemented PC-based SCADA systems using Wonderware, GE iFix, Rockwell Software FactoryTalk View, Aveva CiTect 2018, National Instruments Lookout and Visual Basic. PLC programming in Ladder Logic, Structured Text, and Function Block programming languages.

COMMUNICATIONS

Developed and installed communications networks using Ethernet, Fiber Optic networks, licensed frequency radios, spread spectrum radios, serial and Device-Net communication protocols. Communication network implementation of 30+ PLCs, 5+ PCs, multiple printers, Ethernet switches, fiber optic convertors, and radios to remote pump stations.

SPECIFICATIONS

Prepared comprehensive specifications for a PLC-based controls system for a new water treatment facility with a PC-based SCADA system. Handled electrical submittal review and construction administration for pumping stations.

CUSTOM SOFTWARE

Developed custom software using Visual Basic, Turbo Pascal, and C++ programming languages for PC-based control systems and Aerotech motion control cards and servo amplifiers for the motion control and machine tool industries. Developed automatic test station using Visual Basic for servo amplifiers and power modules for Windows-based PC systems.

CNC SPRING COILING EQUIPMENT

Designed electrical panels, wiring diagrams, PLCs, pneumatic valves, and component specifications for high-speed, multi-axis PC based CNC spring coiling equipment using Delta Tau and Aerotech motion controllers. Oversaw startup, troubleshooting, installation, and repair of designed systems to component level. Designed and implemented machine using concurrent PLC and PC-based controls with communication via serial and digital data links.

OPERATOR INTERFACE & CONTROL SCREENS

Developed operator interface and control screens using Allen Bradley Panelbuilder (for Panelview), Schneider Electric Vijeo Designer (for Majelis), Allen Bradley FactoryTalk View ME (for Panelview Plus) for pump stations, water tanks, paper mill winders, coaters, and sheeters. Programmed and debugged high-speed paper converting equipment using Ladder Logic. Developed custom SCADA programs for operator interface and data tracking using Visual Basic and Borland C++.

Appendix B

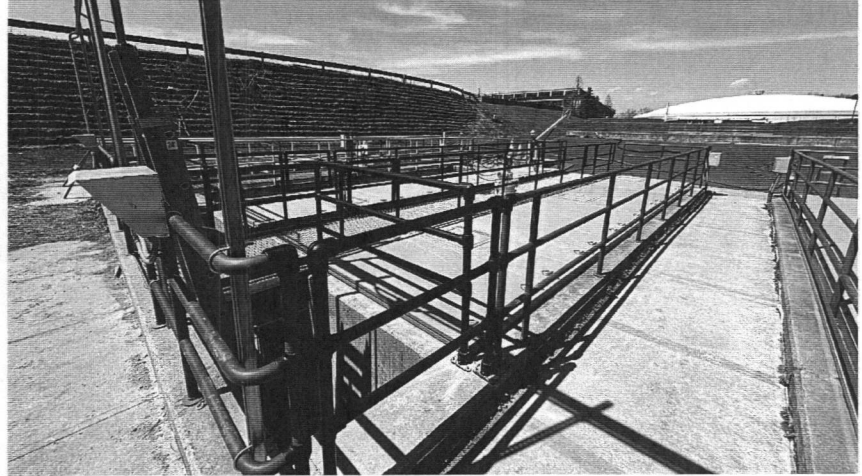
Relevant Experience



LAKE GAILLARD WATER TREATMENT PLANT UPGRADES NORTH BRANFORD, CT

OWNER

South Central Connecticut
Regional Water Authority



SERVICES

Replacement of four washwater clarifier plate settlers and frames

Replacement of four washwater clarifier sludge rake mechanisms, drives, and controls

Installation of new FRP clarifier covers and railings

Replacement of four 40-HP recycle pumps with new VFDs

Replacement of two sludge pumps with new progressing cavity pumps

Piping modifications to support replacement pumps

Concrete repairs in the clarifier basins and in the pipe gallery

Associated electrical work

The Lake Gaillard Water Treatment Plant in North Branford, CT is an 80 MGD surface water treatment plant, providing potable water to the South Central Connecticut Regional Water Authority's New Haven and North Branford service areas. It is the largest treatment plant in the Authority's system. The washwater clarifiers and associated pumping systems were in need of replacement due to age and increasing maintenance needs. The washwater clarifiers remove solids from the backwash water, allowing the clarified water to be recycled to the plant inlet and settled sludge to be removed from the process. The existing inclined settlers required frequent manual cleaning, and the new plate settlers are designed to promote improved solids removal such that significantly less manual cleaning is anticipated.

The scope involved replacing four washwater clarifier plate settlers, sludge rake mechanisms, and associated drives and controls, along with installing new FRP clarifier covers, railings, and upgrading pumps with VFDs and progressing cavity models. Additional work included piping modifications, concrete repairs in the basins and pipe gallery, and associated electrical upgrades. The project was designed to allow unit processes to be replaced sequentially such that the facility remained operational throughout construction.

WATER TREATMENT PLANT SEDIMENTATION BASIN IMPROVEMENTS TAUNTON, MA

OWNER

City of Taunton



SERVICES

Existing drive system and chain and flight equipment review

Mechanical, structural and electrical evaluation of existing sedimentation basin systems and concrete

Operations staff meetings to discuss performance and maintenance needs

Technical memorandum summarizing a review of existing technologies

Construction phase services

Tighe & Bond assisted the City of Taunton with engineering services to evaluate options for replacement and design improvements for their existing sedimentation basin chain and flight system at their 14 MGD water treatment plant (WTP). We assessed the existing drive system, chain, and flight equipment and performed mechanical, structural, and electrical evaluations of the sedimentation basins. We also met with operations staff to discuss the equipment performance and maintenance and provided a technical memorandum outlining applicable replacement technologies, material options, and conceptual cost estimates.

The City selected utilizing fiberglass collector flights with stainless steel collector and drive chains, new sprockets and drive shafts and drive units. The design phase included preparing drawings and specifications for replacement of the chain and flight system and concrete repairs/improvements to the sedimentation basins as well as notification to the Massachusetts Department of Environmental Protection (MassDEP) regarding proposed modifications to the WTP. As the Taunton WTP is located in the Town of Lakeville (MA), Tighe & Bond coordinated reviews and approvals with the Town's Building Inspector.

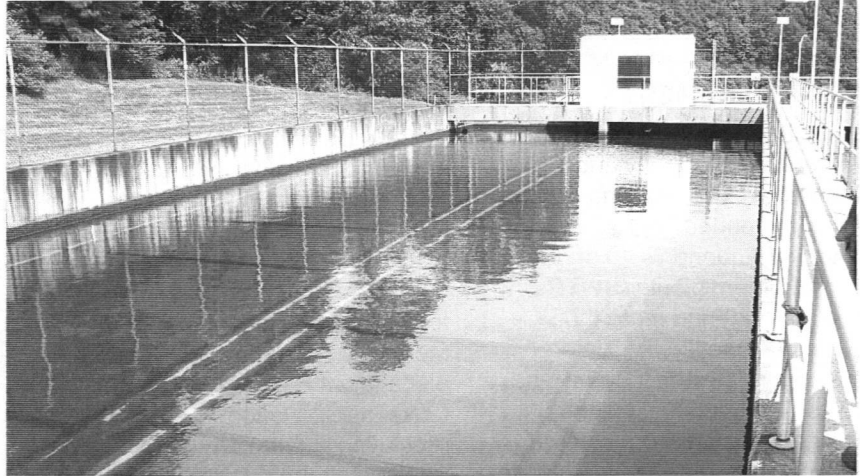
The bidding and construction phase for the project included managing the public bidding process and review, periodic on-site observation and construction administration/coordination with the selected contractor for the project. Tighe & Bond also worked closely with the City's subcontracted integration contractor regarding connection of the replacement chain and flight system into the existing plant SCADA system.

REPAIRS TO LAKE SALTONSTALL WTF SEDIMENTATION BASINS

EAST HAVEN, CT

OWNER

South Central Connecticut
Regional Water Authority



SERVICES

Structural Repairs to
Sedimentation Basins

Upgrades to Chain and Flight
Residuals Collection Systems

Tighe and Bond conducted a structural inspection of the South Central Connecticut Regional Water Authority (RWA) Lake Saltonstall Water Treatment Facility (WTF) to determine the condition of the sedimentation basin at this facility. The inspection of the basin revealed cracks and spalled concrete in the sedimentation basin walls that needed repair.

Tighe & Bond completed the structural design of the repairs and assisted RWA with completing repairs to the sedimentation basin. This included routing and sealing cracks, injecting the cracks with epoxy grout, and repairing spalled concrete using polymer modified concrete.

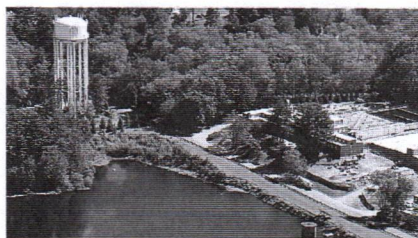
Tighe & Bond also provided design, permitting, and construction phase services for the installation of new components for the chain and flight residuals collection systems in two double decked sedimentation basins at the 12-mgd Lake Saltonstall WTP. Construction included replacing the existing chains, flights, and sprockets with non-metallic components, as well as installing new metallic shafts and bearings.

AQUARION WATER COMPANY

On-Call Engineering

WATER TREATMENT

Tighe & Bond has prepared numerous water quality and treatment evaluations, and designed the recommended improvements, for most of Aquarion's 10 surface water treatment plants (SWTPs - <1 – 50 mgd) and more than one hundred wellfields. Water Treatment related services we have provided include: evaluations of Disinfectant By-Product (DBP) reduction strategies including water quality modeling of DBP formation and evaluation of precursor removal strategies (PAC, GAC, Ozone/Biologically Active Filters) and aeration for DBP removal in distribution storage tanks, evaluation and design of Fe/Mn removal technologies, bench and pilot testing and conceptual design of GAC and Ion Exchange for PFAS removal, evaluation of arsenic removal strategies, and optimal corrosion control treatment evaluations. We have designed complete new chemical feed facilities at two SWTPs and several wellfields, and at one SWTP we are currently completing conversion from a lime feed to a sodium hydroxide feed for pH adjustment. We provided design, permitting, and construction phase services for the installation of a new pneumatically driven residuals handling system (Trac-Vac) at the 2 mgd Dean's Mill WTP in Stonington, CT.



Tighe & Bond provides capital planning, project management and on-call engineering assistance to Aquarion Water Company. Aquarion serves more than 700,000 people in 76 public water systems in Connecticut, Massachusetts, and New Hampshire. Projects have ranged in fee from \$700 to more than \$1.4M and demonstrate the depth and breadth of Tighe & Bond's on-call expertise. Below are examples of our representative project experience which correspond to the categories listed in the RFQ.

SITE CIVIL AND UTILITIES

Tighe & Bond has created hydraulic models of all of Aquarion's systems that provide fire protection and applied them to evaluate available fire flows and design related improvement plans, and to develop design criteria for new facilities and system operations plans for when facilities (storage tanks, pump stations and pressure regulating valves) are out of service for maintenance. Pump Station improvement projects include replacement of the 11 mgd Wilton Road Pump Station that was recognized architecturally by the local Historical Society, design of new facilities and mechanical, structural, and electrical upgrades at existing facilities. Our Master Plans have evaluated the adequacy of storage in Aquarion's distribution systems, and we have designed elevated spheroid, composite, and ground level atmospheric storage tanks.

ENVIRONMENTAL

Tighe & Bond's environmental team is regularly called in on Aquarion projects to provide services related to wetland delineation, sediment and erosion control, SWPPP development, and habitat protection during design and demolition support services including HBMA testing and asbestos and PCB remediation. On the current Simsbury Wellfield Centralized Treatment project, for example, our staff prepared permit applications for local wetlands approval and CT and ACOE Flood Management Certification. We are also one of Aquarion's Environmental Health and Safety training providers.

DAMS, HYDROELECTRICAL AND GEOTECHNICAL

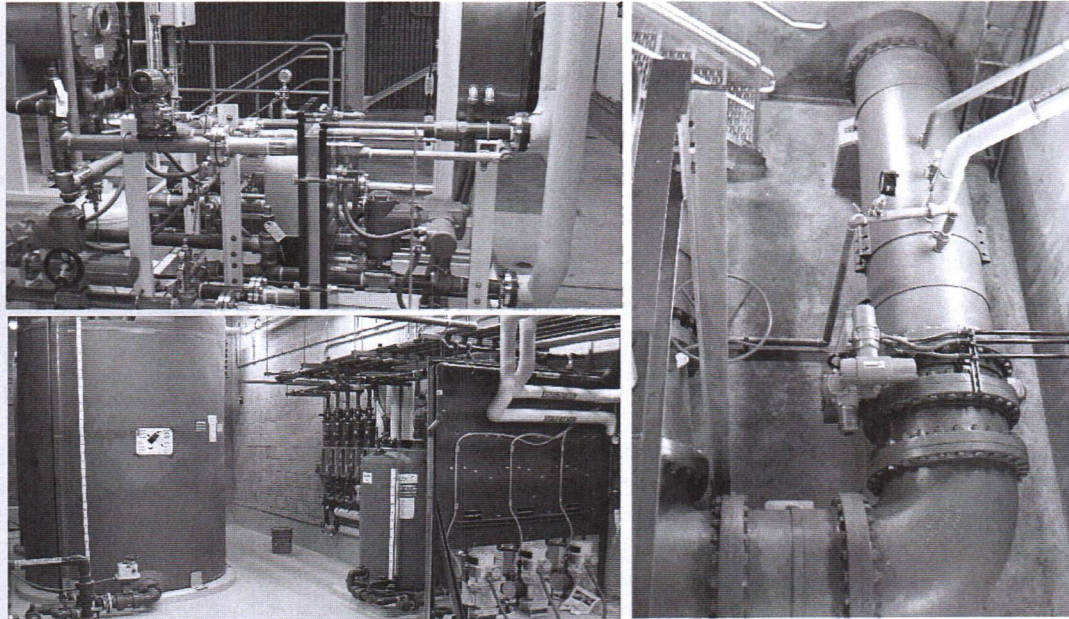
Tighe & Bond has completed H&H, stability, and improvement alternatives analyses for three of Aquarion's large concrete dams and designed and provided construction phase engineering for the recommended improvements. We are currently working on the Aspetuck Reservoir Dam improvements, which include design, permitting, and construction for raising the dam to provide additional freeboard and resurfacing the concrete spillway for added stability. A unique feature of these improvements is installation of facilities to allow downstream eel passage during the fall migration season. We have also completed a Hydroelectric Feasibility Analysis to evaluate the potential to generate hydroelectric power from reservoir to reservoir transfers including generation potential and available regulatory incentives.

STRUCTURAL

Our structural work includes evaluations of existing infrastructure, as well as design of structural improvements related to upgraded dams, water treatment plants, pump stations and water mains. At the Putnam Lake Filter Plant in Greenwich, Tighe & Bond assisted Aquarion with an inspection and condition assessment of the facility's 1.5 million gallon clearwell, which revealed spalling, hollow-sounding areas, and cracking as well as leaks. Based on our recommendation, the clearwell was demolished and a new structure was designed and constructed.

WATER TREATMENT PLANT IMPROVEMENTS & PROCESS MODIFICATIONS

Manchester, CT



PROJECT HIGHLIGHTS

Bench Scale and Pilot Testing

**Process & Safety Improvements,
Equipment Replacement, and
System Upgrades for Water
Treatment Plant**

Client

Town of Manchester

Description

The Globe Hollow Water Treatment Plant is the primary source of the Town of Manchester's water supply, with a hydraulic capacity of 12 million gallons per day. In operation since 1985, the water treatment plant drastically needed facility, equipment, and process upgrades.

The Manchester Water and Sewer Department (MWSD) desired to complete a three-phase study to examine the treatability of water at the Globe Hollow WTP. The overall objective of the study was to determine the most beneficial treatment alternative for the WTP with respect to controlling taste and odor, minimizing disinfection byproduct (DBP) formation, and providing inactivation of microbials such as Giardia and Cryptosporidium. The first phase of the study, a desktop evaluation completed in May 2001, developed recommendations for bench scale testing of alternative oxidants, in either pre- (before coagulation) or intermediate (after sedimentation, before filtration) mode, relative to their effectiveness on overall treatment plant performance as measured by filtered water turbidity and DBP formation. The second phase of the study was a bench scale testing program, completed in January 2002. The bench scale testing was performed during two seasons (April 2001 and September 2001). In the bench scale testing program, ozone and chlorine dioxide were investigated in further detail as potential oxidants at the Globe Hollow WTP. Both oxidants were examined in both pre- and intermediate modes. The third phase of the study was pilot testing based on the results and recommendations from Phases 1 and 2.

The purpose of the pilot testing program was to verify the performance of pre-ozonation at the Globe Hollow WTP and determine its impacts on filtration performance.

WATER TREATMENT PLANT IMPROVEMENTS & PROCESS MODIFICATIONS

Manchester, CT

Description

The primary goals of the pilot testing program were to:

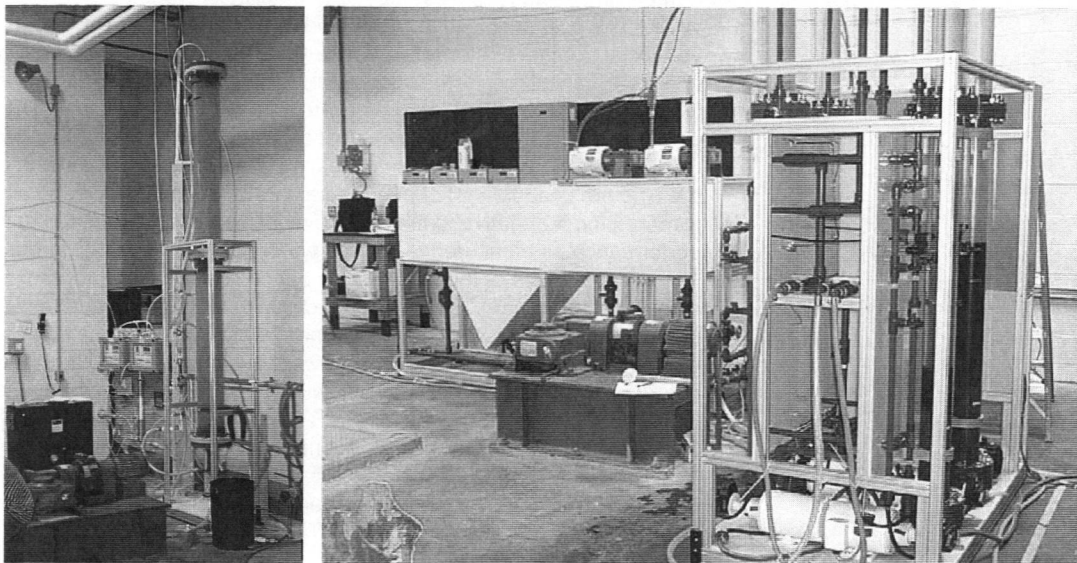
- Evaluate the performance of pre-ozonation on downstream processes (coagulation and filtration)
- Demonstrate that pre-ozonation will eliminate the need for seasonal re-institution of pre-chlorination
- Analyze the effects of pre-ozonation on taste and odors.
- Evaluate filtration performance with various media designs at current loading rates and possible higher loading rates.
- Assess the impacts of ozonation on ozonated and chlorinated disinfection by-product (DBP) formation.
- Identify potential water quality concerns that may arise due to ozonation.
- Collect sufficient information to demonstrate successful treatment to the Connecticut Department of Public Health.

The pilot plant facility included ozonation, flocculation, sedimentation, and filtration using various media configurations, including shallow media depth filters of anthracite, exhausted GAC, and virgin GAC media. The pilot plant included four filter columns, three of which received water treated through the pilot plant, and one that received settled water from the full-scale plant to serve as a control filter. The filters were run under maximum hydraulic loading rates both with and without ozone to compare the impacts of ozonation on filtration performance. Pilot testing also included an expanded aldehyde analysis program to measure high molecular weight aldehydes, which can be formed through ozonation.

Following the bench scale and pilot testing, Manchester hired Tighe & Bond as the lead firm for a \$12 million renovation project that included a new ozonation system to improve water taste/odor and provide protection from waterborne viruses. Renovations also included retrofit of the existing automatic backwash filters and chemical system upgrades. Among the upgrades was the conversion of gaseous chlorine to sodium hypochlorite to ensure a safer disinfection process.

Tighe & Bond's scope of work for this project included process and safety improvements, equipment replacement, and system upgrades. Office area renovations to meet code compliance and accommodate more staff, as well as improve overall plant efficiency and facility security, were also part of this project.

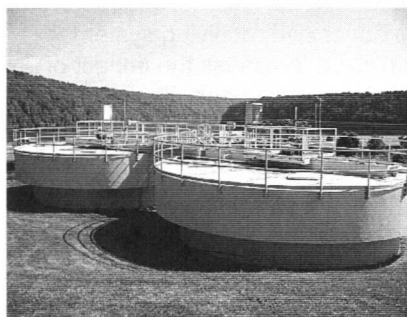
Challenges included continuing to operate a water treatment facility during major renovations, above average rainfall, as well as the depth of the ozone contactors and constructing watertight basins of this size.



RESIDUALS MANAGEMENT AND ENVIRONMENTAL IMPROVEMENTS

NEW HAVEN, CT

OWNER South Central Connecticut Regional Water Authority



The South Central Connecticut Regional Water Authority (RWA) is a non-profit public corporation and political subdivision of the State of Connecticut. It provides an average of about 60 MGD to a population of over 380,000 persons in 12 south central Connecticut municipalities, including New Haven, West Haven, Milford, Hamden, East Haven, Branford, North Haven, and Cheshire. The RWA owns and operates 15 reservoirs, six treatment plants, 27 pumping stations, 26 storage tanks, and approximately 1,500 miles of interconnected water mains.

Tighe & Bond worked with the RWA to develop a residuals management program for three surface water plants. This program included evaluation of a number of alternatives, including the use of freeze-thaw lagoons, mechanical dewatering, discharge of residuals to the sanitary sewer, hauling of thickened residuals to the wastewater treatment plant, and drying/pelletization. The evaluation included on-site pilot testing of both gravity thickening and mechanical dewatering. In addition to addressing residuals management and disposal at RWA plants, Tighe & Bond worked to address improvements needed at all three plants to comply with local, state, and EPA environmental regulations. These regulations pertain to both routine and emergency chemical containment, water treatment, wastewater discharges, and other operational practices at the facilities.

Tighe & Bond designed and provided construction oversight for environmental and residuals management improvements to the 10.4 MGD West River Water Treatment Plant (WTP). Improvements included lagoon decant structure modifications, an automated lagoon decanting system driven by programmable logic controls, chemical secondary containment, and a pH-neutralization system to treat chemical washdown.

The Lake Gaillard WTP and Lake Saltonstall WTP are the RWA's two largest treatment facilities, with capacities of 80 MGD and 12 MGD, respectively. Tighe & Bond designed and provided construction services for improvements at each of these two facilities to bring them into full compliance with current environmental regulations.

The \$5M project included polymer feed systems and gravity thickeners for storage and thickening of residuals, truck loading stations for hauling thickened solids to the wastewater treatment plant, and chemical containment and neutralization facilities for all chemical feed systems at both plants. The improvements designed for Lake Saltonstall included a gaseous chlorine scrubbing system and process improvements, incorporating hydrochloric acid and polymer addition facilities.

SERVICES

Residuals Management Program
for Three Surface Water Plants

Environmental Regulation
Compliance

Design and Construction Oversight
for Environmental & Residuals
Improvements

Construction Observation

CONNECTICUT WATER COMPANY

On-Call Engineering

Tighe & Bond has provided a variety of engineering services under a master Consulting Agreement with Connecticut Water Company (CWC). CWC is an investor owned water company serving approximately 325,000 people in 56 towns in Connecticut.

Tighe & Bond's on-call work with CWC to date includes capital improvement plans for four surface water treatment plants, as well as design and construction of system improvements.

WATER TREATMENT

Tighe & Bond prepared Capital Improvement Plans (CIPs) for CWC's four surface water treatment plants. Short and long-term capital improvements were identified and prioritized for each plant based upon comprehensive condition assessments including civil/site, security, process/mechanical, electrical, structural and HVAC systems. A Tighe & Bond safety expert also reviewed the physical infrastructure and operating practices at each plant. In addition to the conditions assessments Tighe & Bond evaluated plant performance and compared water quality to CWC goals, state design guidelines, and existing and anticipated water quality regulations. The process evaluations also included an evaluation of the costs and benefits of continued use of GAC as a primary filter media, and a feasibility study for the conversion from gas chlorine to sodium hypochlorite. A detailed review of residuals management practices and performance was also performed relative to CWC's permit conditions and anticipated regulatory changes.

SITE CIVIL AND UTILITIES

Following completion of the SWTP CIPs, CWC retained Tighe & Bond to develop similar CIPs for their 62 groundwater and distribution system pump stations. The CIPs followed a similar multi-discipline approach to that developed for the SWTPs for identifying and prioritizing improvements and a streamlined reporting method designed to enable CWC to focus on the key findings at each site and facilitate prioritizing the work between sites. Following CWC's acquisition of the Avon Water Company Tighe & Bond was again asked to prepare CIPs for their newly acquired facilities.

As described under the Project Management Category, Tighe & Bond developed an alternative for interconnecting two of CWC's separate public water systems. We subsequently provided design and are currently providing construction phase services for a pre-fabricated concrete pump station to provide supply to that interconnection.

PROJECT MANAGEMENT

Tighe & Bond evaluated the feasibility of interconnecting two CWC owned systems as a means for supplementing supply to defer or avoid the cost of capital improvements identified in the CIP for one of CWC's four surface water treatment plants. Hydraulic models of the donor and receiving systems were utilized to assess the impact of the interconnection and alternatives for pumping and storage between the two systems were identified and evaluated, including development of Opinions of Probable Construction Costs (OPCCs).

Tighe & Bond developed mass-balance operations models for CWC's Shenipsit, Stafford, Guilford and Chester reservoir systems and applied those models to determine reservoir system Safe Yield and develop four staged drought response triggers in compliance with CT Department of Public Health regulations. The impact of CT DEEP's pending increased reservoir release requirements were on reservoir drawdown, safe yield and drought frequency and duration were then evaluated.

ENVIRONMENTAL

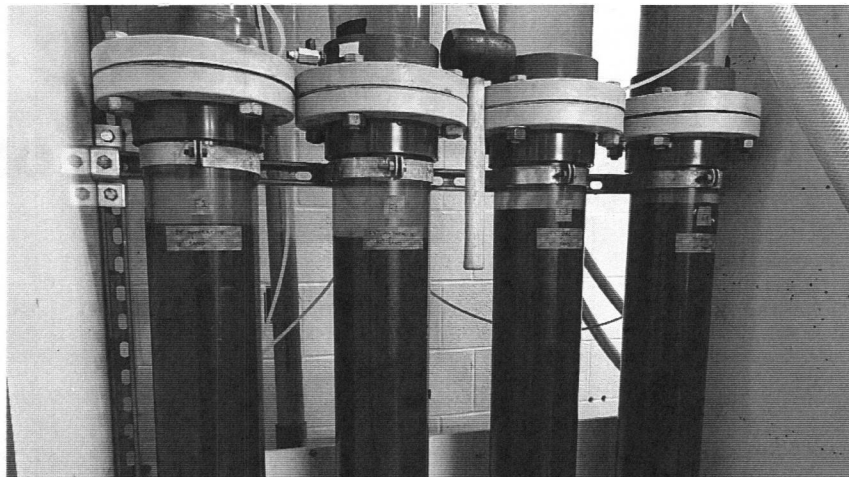
Tighe & Bond assisted CWC in developing an Excel based inventory tool for assessing regulatory compliance at six types of facilities; Groundwater and Source of Supply, Wastewater Treatment, Pump Stations and PRVs, Dams, Storage Tanks and Administrative facilities. The tool identified potentially applicable compliance programs and thresholds and provided hyperlinks to applicable regulatory citations and standards.

WEST RIVER WATER TREATMENT PLANT PROCESS IMPROVEMENTS

WOODBIDGE, CT

OWNER

South Central Connecticut
Regional Water Authority



SERVICES

Water Treatment
Process Engineering
Dissolved Air Flotation
Disinfection Byproduct Reduction

The West River Water Treatment Plant is an in-line direct filtration plant with a design capacity of 10.4 MGD and treats water from the Lake Glen, Lake Watrous, and Lake Dawson surface water impoundments of the West River. Seasonal algae blooms had impaired the capacity and water quality of the plant. The algae significantly reduced the filter runtime, reducing the plant's actual capacity to about 8 MGD. Water quality concerns included taste and odor problems and disinfection byproducts (DBPs) that are below the maximum contaminant level (MCL) but above South Central Connecticut Regional Water Authority's (RWA) goal of 80% of the MCLs.

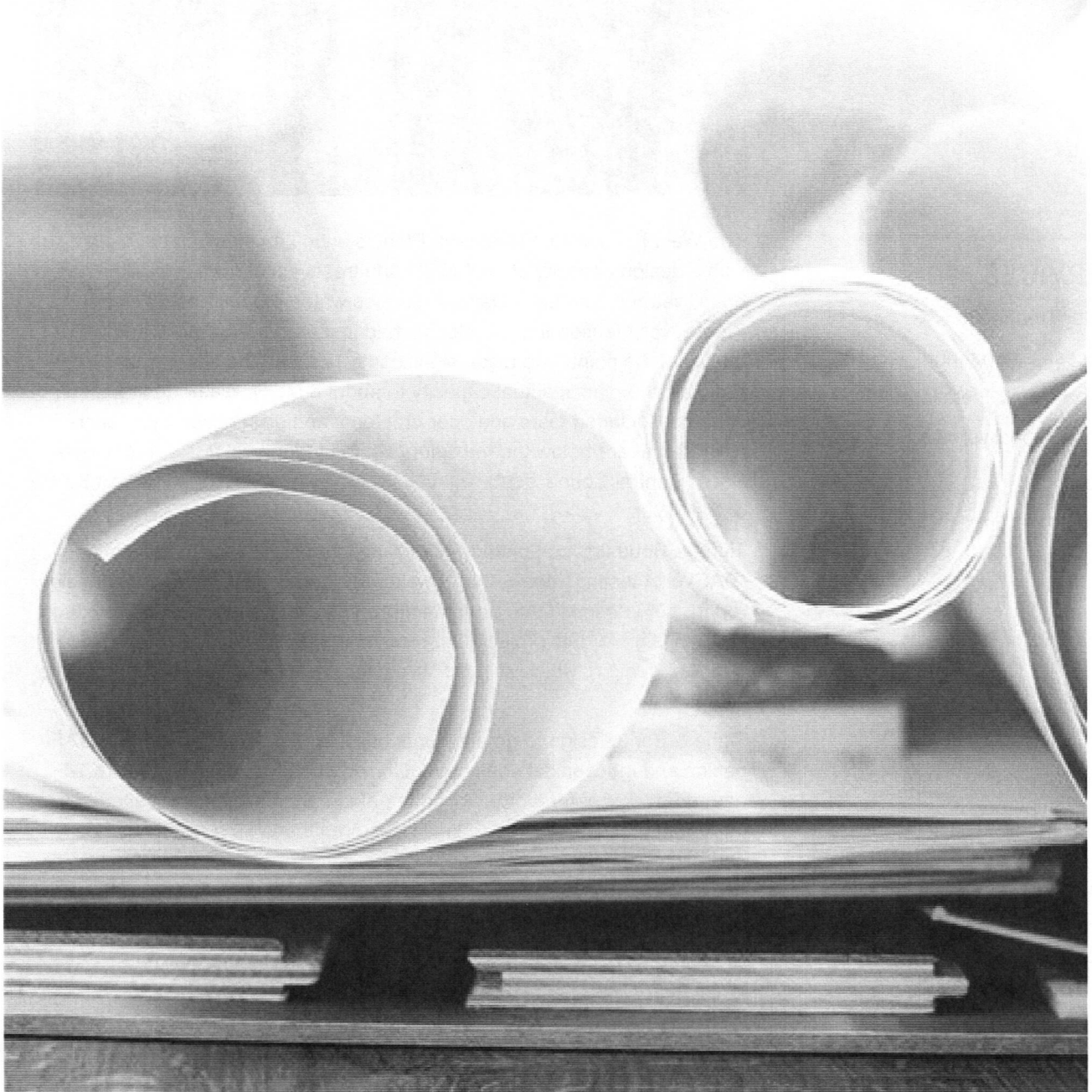
Tighe & Bond first completed winter and summer dissolved air flotation (DAF) pilot testing, followed by an alternatives analysis, preliminary design report, 50% design, DAF equipment pre-selection, and proceeded through 100% design for this project. Our recommendations included high-rate DAF (16 gpm/sf), which allows RWA to increase capacity without replacing filters.

Tighe & Bond designed an additional building to house the high-rate DAF basins and mechanical equipment. Construction was completed in 2024 and removal of natural organic matter, algae and solids has resulted in a three-fold increase in filter runtimes, restored the WTP's original capacity and decreased the concentrations of DBPs.

The project also included replacement of filter underdrains and, rapid mix tank drives and shafts, installation of an on-site hypochlorite generation system, and installation of a new standby electrical generator and switchgear.

Appendix C

Required Forms



REQUEST FOR PROPOSALS
CITY OF BRISTOL, CONNECTICUT 06010



RFP 2P26-005
Professional Services Relative to
Design and Preparation of Construction Documents
for the Replacement of
Flocculation Equipment and Sedimentation Collection System

Due date: 2:00 pm August 7, 2025

City of Bristol
Purchasing Department
111 North Main Street, 3rd Floor
Bristol, CT 06010

In accordance with the City's requirements, the undersigned agrees to provide services as defined herein.

The undersigned is familiar with the conditions surrounding this Request for Proposals, is aware that the City reserves the right to reject any and all proposals, and is making submission without collusion with any other person, individual or corporate.

Tighe & Bond, Inc.

Company Name

1000 Bridgeport Ave #320

Address

Shelton, CT 06484

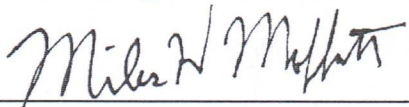
Town State Zip

04-2821431

Federal identification

MMoffatt@TigheBond.com

Email address



Signature

Miles H. Moffatt, PE

Printed Name

Vice President

Title

August 7, 2025

Date

413-644-6291

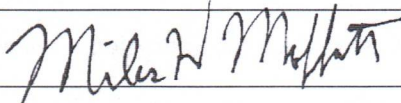
Telephone Number



City of Bristol, Connecticut Non-Collusion Certification

The undersigned certifies under penalty of false statement that this proposal or contract has been made, submitted and executed in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity or group of individuals.

I further certify that I have not provided or directed to be provided gifts, meals, or gratuities, as defined in Sec. 2-129(b) of the Bristol Code of Ordinances to any official or employee of the City of Bristol responsible for awarding or administering this bid or contract.

Signature	
Printed Name	Miles H. Moffatt, PE
Company Name	Tighe & Bond, Inc.
Dated	August 7, 2025

Reference Contract 2P26-005

OFFICES ACROSS THE NORTHEAST

Connecticut

Maine

Massachusetts

New York

New Hampshire

Rhode Island

www.tighebond.com | 800.561.0416

Tighe&Bond

INVESTMENT CALCULATIONS

DIVISION	BANK	AMOUNT	Length	Maturity Date	Interest Rate	Projected Earned Interest	This Month's Earned Interest	YTD Earned Interest
Water	Torrington	\$ 500,000.00	9 months	6/30/2026	3.92%	14,926.22	-	-
Water	Liberty	\$ 500,000.00	6 months	4/5/2026	4.15%	10,269.54	-	-
							-	-
Sewer	Liberty	\$ 500,000.00	12 months	10/7/2026	3.59%	17,950.00	-	-
Sewer	Thomaston	\$ 500,000.00	6 months	3/31/2026	4%	9,901.95	-	-
							-	-
10/1/2025					TOTAL Water & Sewer		-	-