ARCHITECT - ENGINEER QUALIFICATIONS

PART I - CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION *(City and State)*
Engineering Services for Ion Exchange Addition to the Water Treatment Plant for PFAS Removal, Pembroke Pines, Florida

2. PUBLIC NOTICE DATE	3. SOLICITATION OR PROJECT NUMBER
05/07/2025	RFQ# PSUT-25-06

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE
Monique Durand, PE, Senior Associate and Proposed Project Manager

5. NAME OF FIRM
Hazen and Sawyer

6. TELEPHONE NUMBER	7. FAX NUMBER	8. E-MAIL ADDRESS
(954) 987-0066	N/A	mdurand@hazenandsawyer.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all key subcontractors.)

	(Check) PRIME	(Check) J-V PARTNER	(Check) SUBCON-RACTOR	9. FIRM NAME	10. ADDRESS	11. ROLE IN THIS CONTRACT
a.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	4000 Hollywood Boulevard Suite 750N Hollywood, FL 33021	**Overall Project Management; Lime Softening Process/ Mechanical; Filter Process/ Mechanical; Hydraulics; Storage/Pumping Systems and Pipelines; Site Civil/Stormwater; Instrumentation and Automation; Permitting/Regulatory Compliance Construction Mgt./Inspections; Sequence of Construction/MOPO**
b.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	999 Ponce de Leon Boulevard Suite 1150 Coral Gables, FL 33134	**PFAS Management; Process Optimization and Pilot Testing; Treatment Plant Operations Manual/ Dashboard; Electrical Engineering**
c.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	2101 NW Corporate Boulevard Suite 301 Boca Raton, FL 33431	**Ion Exchange Process/ Mechanical; Lime Softening Process/ Mechanical; Structural; Instrumentation and Automation; Operations and Start-up Assistance**
d.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	2420 S. Lakemont Avenue Suite 325 Orlando, FL 32814	**Ion Exchange Process/ Mechanical; Filter Process/ Mechanical**
e.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	1000 N. Ashley Drive Suite 1000 Tampa, FL 33602	**QA/QC / Technical Advisory Committee; Grants/Funding; Operations and Start-up Assistance; Communications/ Public Outreach**

ARCHITECT - ENGINEER QUALIFICATIONS

PART I - CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION *(City and State)*
Engineering Services for Ion Exchange Addition to the Water Treatment Plant for PFAS Removal, Pembroke Pines, Florida

2. PUBLIC NOTICE DATE	3. SOLICITATION OR PROJECT NUMBER
05/07/2025	RFQ# PSUT-25-06

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE
Monique Durand, PE, Senior Associate and Proposed Project Manager

5. NAME OF FIRM
Hazen and Sawyer

6. TELEPHONE NUMBER	7. FAX NUMBER	8. E-MAIL ADDRESS
(954) 987-0066	N/A	mdurand@hazenandsawyer.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all key subcontractors.)

f.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	6675 Corporate Center Parkway Suite 330 Jacksonville, FL 32216	**Electrical Engineering**
g.	☒	☐	☐	**Hazen and Sawyer** ☐ CHECK IF BRANCH OFFICE	498 Seventh Avenue New York, NY 10018	**Cost Estimating and Scheduling**
h.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	1555 Roseneath Road Richmond, VA 23230	**QA/QC / Technical Advisory Committee; Corrosion Control**
i.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	4011 WestChase Boulevard Suite 500 Raleigh, NC 27607	**Architecture**
j.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	800 W. 6th Street, Suite 400 Los Angeles, CA 90017	**QA/QC / Technical Advisory Committee**
k.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	143 Union Blvd., Suite 200 Lakewood, CO 80228	**QA/QC / Technical Advisory Committee**
l.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	7870 E. Kemper Road Suite 300 Cincinnati, OH 45249	**QA/QC / Technical Advisory Committee**
m.	☒	☐	☐	**Hazen and Sawyer** ☒ CHECK IF BRANCH OFFICE	7700 Irvine Center Drive, Suite 200 Irvine, CA 92618	**QA/QC / Technical Advisory Committee; Ion Exchange Process/Mechanical**
n.	☐	☐	☒	**Craven Thompson & Associates, Inc.** ☐ CHECK IF BRANCH OFFICE	3563 NW 53rd Street Fort Lauderdale, FL 33309	**Survey/Mapping/Subsurface Utility Engineering**
o.	☐	☐	☒	**WIRX Engineering, LLC** ☐ CHECK IF BRANCH OFFICE	515 E. Las Olas Boulevard, Suite 120 Fort Lauderdale, FL 33301	**Geotechnical Engineering**

ARCHITECT - ENGINEER QUALIFICATIONS

PART I - CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION *(City and State)*
Engineering Services for Ion Exchange Addition to the Water Treatment Plant for PFAS Removal, Pembroke Pines, Florida

2. PUBLIC NOTICE DATE	3. SOLICITATION OR PROJECT NUMBER
05/07/2025	RFQ# PSUT-25-06

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE
Monique Durand, PE, Senior Associate and Proposed Project Manager

5. NAME OF FIRM
Hazen and Sawyer

6. TELEPHONE NUMBER	7. FAX NUMBER	8. E-MAIL ADDRESS
(954) 987-0066	N/A	mdurand@hazenandsawyer.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all key subcontractors.)

p.	☐	☐	☒	**Hillers Electrical Engineering, Inc.** ☐ CHECK IF BRANCH OFFICE	23257 State Road 7, Suite 100 Boca Raton, FL 33428	**Electrical Engineering**

D. ORGANIZATIONAL CHART OF PROPOSED TEAM

☒ *(Attached)*

SF330 Section D - Organizational Chart of Proposed Team

The City Of PEMBROKE PINES Florida

QA/QC; Technical Advisory Committee
Patricia Carney, PE
Erik Rosenfeldt, PhD, PE*
Paul Biscardi, PhD, PE
Nicole Blute, PhD, PE
Conner Murray, PhD, PE
Darren Lytle, PhD, PE

Project Director
Janeen Wietgrefe, PE, PMP

Project Manager
Monique Durand, PE

Deputy Project Manager
Jayson Page, PE

Planning and Design

Ion Exchange Process / Mechanical
Alex Rahimian-Pour, PE
Tyler Davis, PE
Taima Kayali, EI

Lime Softening Process / Mechanical
George Brown, PE
Jayson Page, PE
Monica Pazahanick, PE

Filter Process / Mechanical
George Brown, PE
Jennifer McMahon, PE
Taima Kayali, EI

Hydraulics
Guillermo Regalado, PE
Nandita Ahuja, PE

PFAS Management
Jayson Page, PE
Nathan Rothe, PE

Corrosion Control
Becki Rosenfeldt, PE*
Roger Arnold, PE*

Storage / Pumping Systems and Pipelines
George Brown, PE
Jennifer McMahon, PE
Zack Farmer, PE

Site Civil / Stormwater
David Bannett, PE, LEED AP
Lucia Medina, PE

Electrical
John Burke, PE
Jose Cano, PE
Thein Win, PE[3]

Instrumentation and Automation
Evan Curtis, PE
Alfredo Jimenez

Structural / Architecture
Jean Paul Silva, PE, FRSE
Samuel Smith, PE
William Russell, RA, AIA, LEED AP

Support Services

Grants / Funding
Sharon Simington

Permitting/ Regulatory Compliance
Marta Alonso, PE, ENV SP
Monique Durand, PE
Michael Robinson, EI

Cost Estimating and Scheduling
Rose Jesse, CPE
Tom Zakrzewski, PSP

Survey / Mapping / Subsurface Utility Investigation
Richard Crawford[1]

Bidding Services
Tyler Davis, PE
Daniela Diaz, PE

Geotechnical
Andrew Nixon, PE [2]

BIM / CADD
Jason Johnson
Michael Niemiec

Communications / Public Outreach
Jeffrey Neale
Stephanie Ishii, PhD, PE, ENV SP

Plant Optimization and Efficiency

Operations and Start-up Assistance
Tyler Davis, PE
Paul Biscardi, PhD, PE

Process Optimization and Pilot Testing
Bahareh Tajdini, PhD
Nathan Rothe, PE

Treatment Plant Operations Manual / Dashboard
Nathan Rothe, PE

Construction Services

Construction Management / Inspections
Elie Andary, PhD, PE
Adrian Myrie, EI
Darius Manikas

Sequence of Construction / Maintenance of Plant Operations
Elie Andary, PhD, PE
George Brown, PE



Progress Together, **Deliver** Together

Tailored expertise from completing the most lime softening retrofits in South Florida

Proven PFAS solutions, with over 30 ion exchange systems designed across the U.S.

Rapid response and local support from 142 staff based in South Florida—the region's largest water design center

Deep community connection, with a Project Director who has called Pembroke Pines home for 24 years

Shared history and trust, built through decades of collaboration on local treatment projects

Smarter designs, informed by in-house modeling and IX media testing capabilities

Faster implementation, backed by a track record of success with permitting, funding, and regulatory compliance

Subconsultants
1. Craven Thompson & Associates, Inc.
2. WIRX Engineering, LLC ** (SBE, DBE, MBE)
3. Hillers Electrical Engineering, Inc.

*Licensed in a state other than Florida
** Certified Minority, Small, County, and/or Woman Business Enterprise

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Janeen Wietgrefe, PE, PMP **Vice President**	**Project Director**	**29**	**24**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Environmental Engineering	PE / Florida – Civil Engineering (FL 57632) Project Management Professional (PMP)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Wietgrefe has managed and/or participated in a variety of water resource projects, including water supply planning and evaluation and water treatment planning and design. She has more than 29 years of experience designing, piloting, and overseeing construction of South Florida water treatment plants, including those involving or replacing lime softening. Ms. Wietgrefe has served as Lead Process Mechanical Engineer, Project Manager, Project Director, and Design Manager on such projects. Her PFAS experience in South Florida—leading evaluations, pilot testing, and alternative analyses for multiple utilities including the Cities of Hollywood, Plantation, Cooper City, Fort Lauderdale, and Delray Beach—equips her to implement the cost-effective, site-specific treatment solutions that address regulatory compliance and operational challenges. She has lived in Pembroke Pines for 24 years and has participated on multiple projects for the City of Pembroke Pines under Hazen's Continuing Services contract. **Professional Organizations**: American Water Works Association; Southeast Desalting Association; Water Environment Federation; American Society of Adaptation Professionals.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Prospect Lake Clean Water Center
City of Fort Lauderdale, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen was selected to provide Owner's Representative Services for design and construction of the proposed 50-mgd (finished water capacity) WTP. The City's existing Fiveash WTP was constructed in the 1950s and is at the end of its useful life. That study recommended replacing the Fiveash WTP with a new state-of-the-art WTP using a combination of NF and ion-exchange treatment technology. The new plant is designated as the Prospect Lake Clean Water Center. The Fiveash WTP treatment facilities will be decommissioned and used only for finished water storage and pumping. The City is procuring this project through a Public-Private-Partnership agreement. Hazen provides Owner's Representative services to review the design and oversee the construction of the $700 million WTP. Hazen's services include review of permit application and design packages, and coordination with permitting agencies and City departments. Hazen also provides technical review of process design, including optimization of corrosion control. Hazen also maintains a risk register. Hazen will provide multiple inspectors and Resident Project Representatives for the construction of the WTP and support facilities, as well as process specialists for the startup phase of the project. **Cost:** $4.7 million (est. fee); $700 million (est. construction) **Specific Role:** Project Manager

b.

(1) TITLE AND LOCATION *(City and State)*

PFAS Study and Pilot Testing
City of Margate, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of Margate's Water Treatment Plant faces elevated PFAS levels in its wells and finished water, with existing lime softening processes unable to meet new EPA standards. Ms. Wietgrefe serves as Project Director leading the effort to develop a PFAS Management Plan, including desktop evaluation of adsorptive media and membrane options in Phase 1, followed by pilot-scale testing of selected adsorbents to assess treatment longevity and effectiveness. This analysis includes pilot testing of ion exchange and granular activated carbon. The outcome of this project will guide recommendations for full-scale design, and include considerations such as operational costs, head loss accumulation, and seasonal water quality changes. **Cost:** $490,895 (fee) **Specific Role:** Project Director

c.

(1) TITLE AND LOCATION *(City and State)*

PFAS Removal and Regulatory Compliance Evaluation
City of Hollywood, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening and nanofiltration treatment plus treats the Floridan Aquifer well water through reverse osmosis treatment. PFAS has recently been detected in the City's wells. Ms. Wietgrefe serves as Project Director for the comparison of alternatives for PFAS removal. She was responsible for developing the decision criteria analysis scope and overseeing the analysis to assist the City with selecting the most appropriate treatment technique for PFAS removal. **Cost:** $395,170 (Phase 1 fee); $2 million (Phase 2 est. fee) **Specific Role:** Project Director

d.

(1) TITLE AND LOCATION *(City and State)*

Membrane Softening Facility Expansion and Remembraning
City of Plantation, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Wietgrefe served as Project Manager for remembraning services (design, contract development, bid assistance, construction oversight, and operational assistance) for the City of Plantation's East WTP 12-mgd Membrane Softening Plant and Central 12-mgd Membrane Softening Plant in 2019 ($2.5 million). Hazen also previously provided design, permitting, bidding, award, and construction management services for expansion of the existing 6-mgd East WTP to 12 mgd in 2003 ($4.6 million). These WTPs treat Biscayne Aquifer groundwater with membrane technology capable of removing PFAS. Hazen provided membrane pilot testing, data evaluation, performance projections, and operations assistance.

Cost: Varies **Specific Role:** Project Manager

e.

(1) TITLE AND LOCATION *(City and State)*

Peele-Dixie Membrane Plant, City of Fort Lauderdale, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2008	2008

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Wietgrefe served as Project Manager and Process Mechanical Engineer for the City of Fort Lauderdale's Peele-Dixie Membrane Plant. Design and construction oversight services included a 12-mgd membrane softening facility, two 4-MG storage tanks, related chemical storage and feed facilities, air strippers/clearwell, concentrate booster, and high-service transfer pump stations. Ms. Wietgrefe also completed start-up and completion activities for this facility. **Cost:** $33 million **Specific Role:** Project Manager/Process Mechanical Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Monique Durand, PE **Senior Associate**	**Project Manager; Filter Process/ Mechanical; Support Services**: *Permitting/Regulatory Compliance; Bidding Services*	**19**	**19**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BSE, Environmental Science	PE / FL – Civil Engineering (FL 71393)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Durand has 19 years of experience and currently leads PFAS evaluations, pilot testing, and alternatives analyses treatment projects for the Cities of North Lauderdale, Plantation, Margate, and Hollywood. She has managed multi-disciplinary teams in the planning, design, permitting, bidding, and construction of water treatment facilities, including projects addressing Lead and Copper Rule compliance, simultaneous groundwater rule and DBPs compliance, master planning, and water supply evaluation. She has also served as Lead Process Mechanical Engineer on chemical system upgrades for water treatment plants in Florida, including City of Plantation and Deerfield Beach. In addition to her engineering expertise, Ms. Durand excels in client communications and project leadership, which will ensure that the City's IX addition for PFAS compliance is completed successfully on time and within budget. **Professional Organizations:** American Water Works Association; Water Environment Federation, National Forum for Black Public Administrators, Taste and Odor Committee; Florida Section Utility Council; Caribbean Water and Wastewater Association.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Engineering Services for Water Treatment Plant Improvement**, **City of North Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: 2028 (est.)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening. Per- and polyfluoroalkyl substances (PFAS) have recently been detected in the City's wells. The City's existing lime softening WTP cannot remove these contaminants. Ms. Durand serves as Project Manager and will oversee professional engineering services including, but not limited to, water supply planning, water quality analysis, treatment process evaluation, pilot testing, preliminary design report, detailed design, technical specifications, contract documents, permitting, bidding, and funding identification and application assistance.
Cost: $7.7 million (est. pre-construction engineering fees) **Specific Role:** Project Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Removal and Regulatory Compliance Evaluation**, **City of Hollywood, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of Hollywood has selected Hazen to evaluate alternative treatment configurations for PFAS removal. The City owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening and nanofiltration treatment plus treats the Floridan Aquifer well water through reverse osmosis treatment. PFAS has recently been detected in the City's wells. Ms. Durand serves as Project Manager for this multi-phase project which includes planning, construction, and startup services for improvements to the existing WTP to remove PFAS to below the regulatory limits. **Cost:** $395,170 (Phase 1 fee); $2 million (Phase 2 est. fee) **Specific Role:** Project Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Study and Pilot Testing**, **City of Margate, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of Margate's Water Treatment Plant faces elevated PFAS levels in its wells and finished water, with existing lime softening processes unable to meet new EPA standards. Hazen was contracted to develop a PFAS Management Plan, including desktop evaluation of adsorptive media and membrane options in Phase 1, followed by pilot-scale testing of selected adsorbents to assess treatment longevity and effectiveness. The outcome of this project will guide recommendations for full-scale design, and include considerations such as operational costs, head loss accumulation, and seasonal water quality changes. **Cost:** $490,895 (fee) **Specific Role:** Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **West Water Treatment Plant Chemical Systems Replacement**, **City of Deerfield Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Durand serves as Project Manager and Lead Mechanical Engineer for the design of upgrades to chemical systems at the Deerfield Beach West WTP, including nanofiltration and reverse osmosis chemical facilities. Project responsibilities include preparation of preliminary Basis of Design Report, detailed design of associated improvements to chemical systems, preparation of detailed design/bid drawings and technical specifications, preparation of permitting submittals, participation in meetings with regulatory agencies and response to requests for additional information submitted by regulatory agencies. Ms. Durand is also responsible for the overall project management and multidisciplinary design coordination. **Cost:** $500,000 (fee); $5.5 million (est. construction). **Specific Role:** Project Manager and Lead Mechanical Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Winson Filter Rehabilitation and WTP Reliability Improvements**, **City of North Miami, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2017; CONSTRUCTION *(If applicable)*: 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

As Project Manager, Ms. Durand oversaw construction administration for the rehabilitation of the filters at the Winson WTP, which included replacement of filter media, surface wash agitator system, underdrains, and filter pipe gallery for four existing filter basins. Her responsibilities included project management, shop drawing and other submittal review; contract interpretation and clarification; evaluation of change orders; periodic field visits; project progress meeting coordination; startup and testing coordination; and project closeout. **Cost:** $716,500 (fee). **Specific Role:** Project Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jayson Page, PE **Vice President**	**Deputy Project Manager; Lime Softening Process; PFAS Management**	**27**	**22**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Coral Gables, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Environmental Science	PE / FL – Environmental Engineering (FL 75018), ID, NY, TX

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

With 27 years of engineering experience, Mr. Page has led major plant upgrades and optimizations—including bench-, pilot-, and full-scale lime softening systems—for some of the largest and most complex facilities in South Florida. Mr. Page performed several pilot and full-scale studies for process improvements to remove total organic carbon at WASD's 165-mgd John E. Preston Lime Softening WTP. His technical expertise includes water process design, PFAS management, advanced water/wastewater technologies, operations assistance, and pilot testing for clients throughout South Florida. Mr. Page currently serves as Project Director for WASD's PFAS Treatment Pilot, which includes pilot testing of ion exchange media. **Professional Organizations:** Society of Sigma XI (Scientific Research); American Water Works Association; Southeast Desalting Association; AIDIS

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
PFAS Treatment Pilot, Miami-Dade Water and Sewer Department (WASD), Miami-Dade County, FL	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

In response to the finalization of the National Primary PFAS Standard, Miami-Dade WASD has embarked on an aggressive piloting and technology evaluation project, designed to identify, evaluate, and select treatment technology capable of meeting the new federal standards. Mr. Page serves as the Project Director for this project which includes development of pilot protocols, review of pilot results, and development of conceptual designs for all viable treatment options at each of the Department's three water treatment facilities. **Cost:** $2.3 million (fee) **Specific Role:** Project Director

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Winson WTP Pilot and PFAS Management Plan City of North Miami, FL	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen is currently leading the development and operation of a pilot system exploring PFAS breakthrough times. The pilot system tested GAC, IX, and FLUORO-SORB® options, and through a partnership with the EPA's Technical Assistance Program, the testing was expanded to determine PFAS breakthrough at multiple empty bed contact times. The final results will allow the City to better understand the operation and maintenance costs of a full-scale PFAS treatment system, and ultimately, the project will provide the City with a recommended path to achieving compliance with the proposed EPA PFAS regulations. **Cost:** $350,000 (fee) **Specific Role:** Technical Advisor

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
John E. Preston Water Treatment Plant Bench-Scale Testing Miami-Dade County, FL	2020	2020

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen developed, designed, constructed, and operated state-of-the-art lime-softening bench-scale, pilot plant, and full-scale systems for WASD in order to test a treatment train intended to produce drinking water of a quality that could meet current and proposed regulations for the Biscayne Aquifer, an underground source of drinking water. The treatment train included high pH lime/caustic soda treatment with ferric sulfate and polymer addition. The unit processes selection were proposed to meet the very low TOC, DBPs, and color regulatory limits. **Cost:** $5 million **Specific Role:** Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Seminole Tribe of Florida (STOF) Hollywood Reservation Water Treatment Plant Improvements, Hollywood, FL	2016	2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Page oversaw design of miscellaneous improvements of a 3-mgd membrane softening facility at the STOF's Hollywood Reservation. The project included replacement of the sulfuric acid storage, feed and injection facilities; mechanical and instrumentation improvements to two raw water wells; installation of a new engine-driven high service pump; and associated fuel storage and feed system. **Cost:** $670,000 (fee); $1.3 million (construction) **Specific Role:** Project Manager

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
East 6-mgd Membrane Softening Facility Preliminary Design/Design Criteria Package Development, City of Miramar, FL	2015	2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided planning, engineering reporting, engineering design, technical specifications, contract preparation, permitting, construction management, start-up, and all other necessary engineering services. The City elected to upgrade the EWTP with addition of membrane softening treatment, which would improve finished water quality and overall treatment reliability, maximize treatment capacity of the existing site and allow ultimate decommissioning of the facility's aging lime softening infrastructure. Hazen provided civil, mechanical and process engineering for the preliminary design of a new 6-mgd membrane softening facility. The membrane facility includes new raw water wells and transmission system, pre-treatment chemical storage and feed facilities, cartridge filters, membrane skids, membrane feed pumps, concentrate and permeate pipelines, a membrane clean-in-place system and post-treatment chemical storage and feed facilities for finished water stabilization and corrosion control in the distribution system, electrical and I&C upgrades, building modifications, and site work. Hazen later developed the Design-Build Criteria Package. **Cost:** $126,530 (fee); $12.5 million (construction) **Specific Role:** Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Patricia Carney, PE, BCEE, DBIA **Vice President**	**QA/QC; Technical Advisory Committee**	**34**	**17**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
ME, Environmental Engineering BE, Civil Engineering	PE / FL – Environmental/Civil Engineering (FL 50175), NY Board Certified Environmental Engineer (BCEE) Design-Build Institute of America (DBIA)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Carney has more than 34 years of experience in the analysis, planning, design, permitting, cost estimating/scheduling, and construction management of water, wastewater, and stormwater conveyance and treatment systems in the U.S. and the Caribbean. She has managed many large programs in South Florida and provides quality control on numerous projects in the Southeast region. **Professional Organizations:** American Academy of Environmental Engineers – Diplomat; American Water Works Association; Water Environment Federation; Florida Water Environment Association; American Society of Civil Engineers; DBIA South Florida Chapter – Steering Committee Co-Chair.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Prospect Lake Clean Water Center**, **City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen was selected to provide Owner's Representative Services for design and construction of the proposed 50-mgd (finished water capacity) water treatment plant. The City's existing Fiveash WTP was constructed in the 1950s and is at the end of its useful life. That study recommended replacing the Fiveash WTP with a new state-of-the-art WTP using a combination of nanofiltration and ion-exchange treatment technology. The new plant is designated as the Prospect Lake Clean Water Center. The Fiveash WTP treatment facilities will be decommissioned and used only for finished water storage and pumping. The City is procuring this project through a Public-Private-Partnership agreement. Hazen is providing Owner's Representative services to review the design and oversee the construction of the $700 million water treatment plant. Our services also include review of permit applications and design packages, coordination with permitting agencies and City departments. Hazen will provide multiple inspectors and Resident Project Representatives for the construction, as well as process specialists for the startup phase of the project. **Cost:** $4.7 million (est. fee); $700 million (est. construction). **Specific Role:** Client Service Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **Owner's Representative for Design-Build Construction of New WTP**, **City of Delray Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

As the City's Owner Representative, Ms. Carney and the Hazen team provide technical assistance to the City throughout multiple project phases. The project will include construction of a new WTP, installation of six SAS wells, rehabilitation of a portion of the existing SAS wells, and construction of a deep injection well and monitor wells. Tasks include, but are not limited to, scope validation of the new WTP, including documentation of the treatment selection and determination of the initial capacity; evaluation of and recommendation of project delivery methods; development of progressive Design-Build documents for advertisement; assistance in the review of documents provided by the proposers; assistance in the development and technical review of proposed scope of work and fees from the selected Design-Build team; facilitating funding assistance; and managing document control. Hazen continues to partner with the City as Owner's Representative, providing technical reviews and assistance. Phase 1 support services currently being provided include engineering services during the pre-design phase, Phase 1 detailed design, and schedule and cost reviews. **Status:** The completion date is estimated to be in 2027. **Cost:** $775,000 (fee through Phase I); $130 million (project construction budget). **Specific Role:** Technical Advisor

c.

(1) TITLE AND LOCATION *(City and State)*: **Winson Water Treatment Plant Bid Package 1: Filter Rehabilitation**, **City of North Miami, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2017; CONSTRUCTION (If applicable): 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Carney served as Deputy Project Manager for the ongoing design of the upgrade and rehabilitation of the Winson Water Treatment Plant in North Miami. The project includes the rehabilitation of the 40-year-old lime softening plant including the plant filter system rehabilitation, major pump system replacement, various structural and mechanical repairs, electrical and instrumentations upgrades, miscellaneous process improvements, wellfield and storage improvements, and operations building improvements. **Cost:** $716,540 (fee). **Specific Role:** Deputy Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **South Miami Heights 20-mgd Membrane Water Treatment Plant**, **Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Carney served as Project Manager and Engineer-of-Record for Hazen on the project, which was completed in association with another consulting firm. The project included planning and design of a groundwater treatment facility that utilizes reverse osmosis and ultra-filtration membrane systems. Hazen's responsibility included pre- and post- membrane process facilities, including chemical feed systems, degasification, and vertical turbine transfer pump station. **Cost:** $180 million (est. construction cost). **Specific Role:** Project Manager and Engineer-of-Record

e.

(1) TITLE AND LOCATION *(City and State)*: **Intracoastal Waterway Horizontal Directional Drill (HDD) Crossing Design Criteria Package, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2017; CONSTRUCTION (If applicable): 2017

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Carney served as QC Reviewer and provided permitting assistance for development of a design criteria package for two 1,250-foot-long HDDs; and a 20-inch diameter water pipeline and a 16-inch diameter sewer force main crossing the Intracoastal Waterway at the Las Olas Boulevard bridge via HDD. The project won Best Overall in the Water/Wastewater Category for the 2017 Florida Region DBIA Design-Build Awards. **Cost:** $171,000 (fee), $3.1 million (construction) **Specific Role:** QC Reviewer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Erik Rosenfeldt, PhD, PE **Vice President**	**QA/QC; Technical Advisory Committee**	**25**	**14**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Richmond, Virginia

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Civil and Environmental Engineering MS, Civil and Environmental Engineering BS, Chemical Engineering	PE / MA, VA, NY, MI – Civil/Environmental Engineering

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Rosenfeldt serves as Hazen's Director of Drinking Water Process Technology and is a senior member of the firm's drinking water process and applied research groups. He has over 25 years of experience focused on evaluating, implementing, and optimizing conventional and advanced treatment processes for a variety of water quality concerns, including PFAS and other emerging concerns. As a nationally recognized PFAS treatment expert, he will leverage industry-leading PFAS research and lessons learned on past projects for the City of Pembroke Pines. Dr. Rosenfeldt is involved in many Florida PFAS projects including the Cities of North Miami, Margate, Hollywood, and North Lauderdale; and WASD. **Professional Organizations:** American Water Works Association; Organic Contaminants Research Committee; International Ozone Association; International Ultraviolet Association.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
PFAS Treatment Pilot, Miami-Dade Water and Sewer Department (WASD), Miami-Dade County, FL	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

In response to the finalization of the National Primary PFAS Standard, the Miami-Dade Water and Sewer Department (WASD) has embarked on an aggressive piloting and technology evaluation project designed to identify, evaluate, and select treatment technology capable of meeting the new federal standards. Dr. Rosenfeldt is serving as the PFAS treatment expert, developing pilot protocols, reviewing pilot results, and leading the conceptual designs for all viable treatment options at each of WASD's three water treatment facilities. **Cost:** $2.3 million (fee) **Specific Role:** PFAS Expert

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
PFAS Study and Pilot Testing **City of Margate, FL**	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen has assisted the City with multiple phases of their PFAS control strategies, initially developing a PFAS Management Plan that includes a desktop evaluation of three adsorptive media options: granular activated carbon (GAC); two ion exchange (IX) resins; and FLUORO-SORB® using Hazen PFAS Prediction Model, along with an assessment of membrane alternatives using projection software as part of Phase 1. In Phase 2, the performance of GAC, two IX products, and FLUORO-SORB® have been evaluated in a pilot-scale system to determine treatment longevity, and develop capital and O&M cost estimates for the City. **Cost:** $490,895 (fee) **Specific Role:** Technical Advisor, Quality Control

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
People's Water Service Company PFOA/PFOS Evaluation **Pensacola, FL**	2023	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The People's Water Service Company enlisted Hazen for a study to develop a treatment concept and cost opinion of a PFAS treatment system capable of reducing PFAS concentrations at one of the client's well treatment facility. The effort focused on developing a single treatment facility for the well with the highest PFAS concentration. Tasks include an analysis of PFAS data, target-level determinations, short-term mitigation efforts, technology evaluations, and concept level cost and layout development for PFAS mitigation. **Cost:** $40,000 (fee) **Specific Role:** Technical Advisor, Quality Assurance

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Cyanotoxins Response Expert Panel **City of West Palm Beach, FL**	2022	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

In response to the 2021 cylindrospermopsin event, the City convened an expert panel to review the event and look for short- and long-term solutions to improve resiliency of the treatment process for cylindrospermopsin. Hazen focused on the treatment optimization and improvements, utilizing data analysis of in-plant monitoring, process modeling using the AWWA Hazen-Adams CyanoTOX tool, and bench testing to find process optimization and low-cost process improvements to greatly increase the ability of the WTP to address cylindrospermopsin and other algal toxins. Dr. Rosenfeldt served as Technical Lead, and also served as the technical spokesperson of the panel, assisting the City in communicating the results of the holistic evaluation to the Mayor, City Council, and community groups. **Cost:** $98,000 (fee) **Specific Role:** Technical Lead

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Winson WTP Pilot and PFAS Management Plan **City of North Miami, FL**	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen assisted the City in developing a Pilot-scale PFAS Testing Plan of multiple adsorbent media (GAC, two IX products, and FLUORO-SORB®), to determine PFAS removal efficiencies along with associated life cycle costs. A unique collaboration with the EPA's Technical Assistance Program, facilitated by Hazen on behalf of the City, enabled the expansion of the pilot to include additional adsorbent media testing and improved accuracy of testing with additional sample ports throughout the media depth. With the increased the frequency and number of samples, the City was able to develop a comprehensive PFAS Management Strategy to ensure compliance. **Cost:** $350,000 (fee) **Specific Role:** Technical Advisor

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Paul Biscardi, PhD, PE **Senior Associate**	**QA/QC; Technical Advisory Committee**	**14**	**9**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Tampa, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Environmental Engineering MS, Environmental Engineering BS, Environmental Engineering	PE / FL – Environmental Engineering (FL 83510)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Biscardi serves as Hazen's National Membrane Lead and has more than 14 years of experience in drinking water quality and advanced treatment. He has significant experience with IX, GAC, and membrane processes. He brings extensive piloting and process evaluation, optimization, and design experience. He has served in key roles including Lead Water Process Expert for pilot testing of treatment technologies. Projects have included the St. Cloud WTP No. 4 Improvements project, where he led pilot testing and process selection of fixed-bed IX. He sits on the board of directors for the Southeast Desalting Association (SEDA) and the American Membrane Technology Association (AMTA). **Professional Organizations:** American Water Works Association; American Membrane Technology Association; Southeast Desalting Association.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Buenaventura Lakes WTP Process Upgrades, Toho Water Authority**
Osceola County, Florida

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable):

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Dr. Biscardi serves as the Lead Water Process Expert for this project, which includes design, permitting and construction services to improve reliability and finished water quality for the Buenaventura Lakes (BVL) WTP. The raw water for the BVL WTP has elevated levels of hydrogen sulfide, and organic matter, that can lead to challenges with disinfection by-product compliance. Hazen performed a pilot test revealing a need for advanced treatment including biologically activated carbon (BAC), and fixed-bed ion exchange to meet finished water quality goals. The scope of work included pilot testing of treatment technologies, design services, including site improvements to improve operations. **Cost:** $1.87 million (fee) **Specific Role:** Lead Water Process Expert

b.

(1) TITLE AND LOCATION *(City and State)*: **Prospect Lake Clean Water Center**
City of Fort Lauderdale, FL

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen was selected to provide Owner's Representative (OR) services for design and construction of the proposed 50-mgd (finished water capacity) water treatment plant. The City's existing Fiveash WTP was constructed in the 1950s and is at the end of its useful life. That study recommended replacing the Fiveash WTP with a new state-of-the-art WTP using a combination of nanofiltration and ion-exchange treatment technology. The new plant is designated as the Prospect Lake Clean Water Center. The Fiveash WTP treatment facilities will be decommissioned and used only for finished water storage and pumping. The City is procuring this project through a Public-Private-Partnership agreement. Hazen is providing OR services to review the design and oversee the construction of the $700 million WTP. Hazen's services include review of permit application, review of design packages, coordination with permitting agencies and City departments. Hazen also provides technical review of process design including optimization of corrosion control. Hazen also maintains a risk register. Hazen will provide multiple inspectors and Resident Project Representatives for the construction of the WTP and support facilities, as well as process specialists for the startup phase of the project. **Cost:** $4.7 million (fee); $700 million (construction) **Specific Role:** Technical Expert – Membranes

c.

(1) TITLE AND LOCATION *(City and State)*: **Water Treatment Plant Refurbishment**
City of Dunedin, FL

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of Dunedin owns and operates a 9.5-mgd RO Water Treatment Plant originally constructed in 1992. To replace aging infrastructure, the City initiated a design-build project to include a comprehensive pilot testing, design, and construction of new pre-treatment and RO treatment systems. Hazen was selected as a subconsultant to the general contractor on this design-build project. Dr. Biscardi is assisting with the bench-scale and pilot-scale testing component which includes evaluation of ozone, chlorine dioxide, potassium permanganate, sodium hypochlorite, polymeric membrane filters, ceramic membranes, RO membranes, dual-media filters, greensand filters, and pyrolusite filters. He will also assist with design of the selected full-scale pretreatment system. **Cost:** $730,000 (fee) **Specific Role:** Project Engineer (Pilot Testing)

d.

(1) TITLE AND LOCATION *(City and State)*: **Sunbridge Water Treatment Plant, Toho Water Authority**
Osceola County, FL

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2024; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Biscardi is responsible for the design, permitting, and bidding for expansion of an existing 1-mgd ozone WTP to a 3.6-mgd (nanofiltration) NF facility. A pilot program evaluated multiple technologies and NF was selected for TOC removal because of the excellent removal of high levels of organics in the raw water. The expansion project adds a 3-mgd Upper Floridan supply well and well pump, a new NF system and building, ozone generation, side stream injection of ozone, an ozone dissipation/contact chamber, chemical storage and feed facilities, hydrofluorosilicic acid and corrosion inhibitor, a 1-MG ground storage tank, a high-service pumping station and an engine generator. The NF process will include a 3-stage hybrid membrane configuration operating at 90% recovery. **Cost:** $113,000 (fee - wells); $2.9 million (fee - design); $46.6 million (est. construction) **Specific Role:** Lead Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **160-Acre Site Alternative Water Supply Project**
Toho Water Authority, FL

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Project includes planning, preliminary design, construction, and start-up of a new 8-mgd alternative water supply project. The project will include a new aquifer recharge and groundwater treatment facility. The project is in the preliminary engineering phase with ozone, GAC, and membrane technologies being evaluated as potential treatment options. **Specific Role:** Lead Process Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Nicole Blute, PhD, PE **Vice President**	**QA/QC; Technical Advisory Committee**	**28**	**13**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Los Angeles, California

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Environmental Engineering BS, Environmental Science BA, Chemistry	PE / CA, NY, WA, AZ – Chemical Engineering

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Blute serves as Hazen's Director of Drinking Water Process Technologies. She has over 28 years of experience in treatment and system planning for water agencies, including some of the largest in the U.S. Her in-depth expertise in water process technologies includes ion exchange (IX) and GAC, coagulation/filtration, and corrosion control. She has designed and managed more than a dozen pilot and bench-scale projects to assess technology performance, corrosion control, and chloramine stability. Her relevant experience includes serving as a Technical Advisor for the Santa Clarita Valley Agency's PFAS Groundwater Treatment Improvements project, where Hazen provided engineering services for sizing and layout of PFAS treatment systems, including the pre-filtration system, IX system, and chemical feed and storage system for 53 groundwater wells, as well as the design of several IX treatment systems for the removal of PFAS and other emerging contaminants.. **Professional Organizations:** AWWA Trustee (Water Science and Research Division), AWWA Inorganics Committee Chair, UCLA Industry Advisory Board, CA NV AWWA Recycled Water Committee, Society of Women Engineers.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Groundwater Treatment Improvements, Santa Clarita Valley Water Agency, Santa Clarita, CA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): 2025, others ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Blute serves as a Technical Advisor on a series of PFAS wellhead treatment projects for Santa Clarita Valley Water Agency (SCVWA) involving pretreatment and Ion Exchange. Projects have included equipment sizing for 53 wells to support equipment pre-procurement, preliminary design of wells T7 (1,200 gpm), U4 (1,000 gpm), U6 (1,250 gpm), and the E wells (4,900 gpm), and detailed design of the Santa Clara (1500 gpm) and Honby (950 gpm) wells. **Cost:** $9 million **Specific Role:** Technical Advisor

b.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Treatment Evaluation and Design, Rubidoux Community Services District, Riverside, CA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021; CONSTRUCTION (If applicable): 2022

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Blute was the water quality and permitting lead for the Hazen team, which conducted a treatment evaluation and detailed design of a 7-mgd ion exchange treatment facility. She also provided support to facility DDW permitting. **Cost:** $400,000 (fee) **Specific Role:** Water Quality and Permitting Lead

c.

(1) TITLE AND LOCATION *(City and State)*: **Williams PFAS and Softening Treatment Facilities Plan San Jose Water, San Jose, CA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Blute was the Project Manager on a feasibility study of treatment options for PFAS, iron, turbidity, and hardness from approximately 5 wells at the Williams Station. The project includes the following: bench testing of GAC, Ion Exchange, and novel sorbent media; evaluation of treatment options including innovative approaches such as high-recovery NF/RO, weak acid cation exchange with acid regeneration, and pellet softening; workshops with SJW staff to identify decision criteria and evaluate options; cost estimation of treatment alternatives; consumer testing of aesthetic acceptability of treated water; pilot testing of the leading alternatives; site survey; and geotechnical evaluation. **Cost:** $743,389 (fee) **Specific Role:** Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Desalter VOC and PFAS Treatment Facilities Chino Basin Desalter Authority, CA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2022; CONSTRUCTION (If applicable): 2022

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Blute served as Technical Advisor and Permitting Lead for the Chino Desalter Authority (CDA) evaluation and design for 1,2,3-TCP and PFAS treatment at the Chino I Desalter using GAC. Analysis included evaluation of treatment options for potential constituents of concerns that may need future treatment, such as 1,4-dioxane and short-chain PFAS compounds. Permitting included coordination with DDW for compliance with 97-005 analysis and reporting related to extremely impaired water sources. **Cost:** $1.3 million (fee) **Specific Role:** Technical Advisor and Permitting Lead

e.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Roadmap Development City of Tempe, AZ**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2024; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Blute was the Technical Advisor on the City of Tempe's development of a plan for addressing PFAS compounds in a number of wells. Each well was evaluated to determine the appropriate treatment technology based on location-specific water quality, infrastructure, and physical site constraints. Cost and non-cost factors were evaluated, site layouts prepared, and a conceptual design developed for four systems ranging from 2.9 to 12 mgd. **Cost:** $167,300 (fee) **Specific Role:** Technical Advisor

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Conner Murray, PhD, PE **Principal Engineer**	**QA/QC; Technical Advisory Committee**	**4**	**4**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Denver, Colorado

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Environmental Engineering MS, Environmental Engineering BS, Environmental Engineering	PE / CO – (#0063292)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Murray s a PFAS treatment expert with national project experience and a focus on adsorption, residuals management, and treatment optimization. In South Florida, he has led PFAS piloting and planning for WASD's major groundwater facilities, including evaluation of GAC, IX, and membrane technologies. He has designed and piloted IX systems for PFAS removal at more than a dozen utilities and has contributed to more than 30 PFAS related projects across the country including research projects related to PFAS destruction and PFAS partitioning into treatment residuals. He is an expert in PFAS adsorption processes, having authored multiple publications. **Professional Organizations:** American Water Works Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
PFAS Treatment Pilot, Miami-Dade Water and Sewer Department (WASD), Miami-Dade County, FL	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Leading PFAS piloting efforts at 3 groundwater treatment facilities. PFAS pilots include adsorption pilots for GAC, IX resin, and Fluoro-Sorb while also investigating membrane treatment alternatives at the pilot scale. Primarily responsible for the detailed design, assembly, and coordination of PFAS pilots including sampling and startup plans as well as results compilation and data interpretation. Pilots operating for 9 months to determine PFAS removal effectiveness and overall operational costs for treatment facilities **Cost:** $2.3 million (fee) **Specific Role:** Project Engineer

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Winson WTP PFAS Management Plan **North Miami, FL**	Ongoing	N/A

(3) BRIEF *DESCRIPTION* (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Assisting in a yearlong piloting campaign for PFAS adsorbents at North Miami. PFAS pilots include adsorption pilots for GAC, IX resin, and Fluoro-Sorb while also investigating preliminary design and costing of pressure vessel systems to accommodate PFAS treatment. Dr. Murray is primarily responsible for the detailed design, assembly, and coordination of PFAS pilots including sampling and startup plans as well as results compilation and data interpretation. He also provided technical assistance on the preliminary design and cost analysis of the full scale pressure vessel system.
Cost: $350,000 (fee) **Specific Role:** Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
PFAS Treatment Feasibility Study **Elsinore Valley Municipal Water District, CA**	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Dr. Murray is assisting the Elsinore Valley Municipal Water District with management of PFAS in 9 groundwater wells. The project includes review of the PFAS occurrence in conjunction with other water quality constituents, and an assessment of management alternatives, including cost estimates and treatment testing for GAC, ion exchange, and membrane treatment alternatives. The project includes multiple criteria decision analysis to determine treatment and blending recommendations for PFAS removal in tandem with management decisions required for heavy metals and TDS control. **Cost:** $800,000 (fee) **Specific Role:** Lead Project Engineer

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
PFAS Treatment Facility Schematic Design **Cherokee Metropolitan District, CO**	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Cherokee Metropolitan District operates a raw water production system, water treatment facility, and treated water distribution system which serves over 23,000 residents in its main service area as well as Schriever Space Force Base and a number of small communities in the eastern and central El Paso County. Currently assisting the District with the review of existing data, sampling plan development and implementation, bench and pilot scale testing plan development and implementation, an AACE Level 3 Cost Estimate, and a final schematic design report.
Cost: $160,000 (fee) **Specific Role:** Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Evaluation of Groundwater Treatment Alternatives **Jurupa Community Services District, CA**	2021	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Dr. Murray served as Project Engineer and is designing well-head anion exchange PFAS treatment vessels for groundwater remediation. Iterated through the feasibility of multiple treatment alternatives at each well-head focused on process mechanical and layout constraints. Project deliverables included a preliminary engineering report for anion exchange design and recommendations for future optimization of AIX treatment **Cost:** $60,000 (fee) **Specific Role:** Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Darren Lytle, PhD, PE **Vice President**	**QA/QC; Technical Advisory Committee**	**35**	**1**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Cincinnati, OH

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Environmental Engineering MS, Environmental Engineering BS, Civil Engineering	PE / OH – (E-61725)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Lytle is an expert in drinking water treatment and distribution and serves as the firm's National Water Applications Specialist. He has more than 35 years of experience in drinking water treatment and distribution research, and related federal regulatory development and technical support. Dr. Lytle previously served as an environmental engineer with the U.S. EPA's Office of Research and Development in Cincinnati, Ohio where he served in various roles including National Drinking Water Expert and manager of a large drinking water treatment branch. He brings expertise in water treatment processes and their impact on distribution system quality and material corrosion. He is heavily involved in the corrosion control study for the North Lauderdale PFAS project and is also leading the efforts to evaluate the finished water stability due to the change in treatment technology. Additionally, Dr. Lytle is providing technical advisory services on the City of Hollywood PFAS project. **Professional Organizations:** American Water Works Association (Drinking Water Distribution System Research Committee, Inorganic Contaminants Research Committee, and Biological Water Treatment Water Quality Committee)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Prospect Lake Clean Water Center**, **City of Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The new Prospect Lake Clean Water Center will utilize state-of-the-art membrane and ion exchange treatment processes. This change in treatment technology warrants a comprehensive OCCT Study to ensure it is optimized to protect the City's customers. Dr. Lytle serves as the City's subject matter expert and will provide technical oversight for the study. **Cost:** $4.7 million (fee); $700 million (estimate construction) **Specific Role:** Subject Matter Expert

b.

(1) TITLE AND LOCATION *(City and State)*: **Lead and Copper Rule Revision (LCRR) Compliance Project**, **City of North Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The City of North Lauderdale has partnered with Hazen to address its current PFAS issue. Dr. Lytle is providing post-treatment corrosion control pipe loop testing recommendations that will help the City optimize PFAS treatment plant design to protect the City from lead and copper release. **Cost:** $7.7 million **Specific Role:** Corrosion Control

c.

(1) TITLE AND LOCATION *(City and State)*: **Water Quality and Distribution**, **City of Flint, MI**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Dr. Lytle was invited by the City of Flint to join the committee and provide technical advice to the committee and City through regular meetings, calls, and other requests. The committee was established to address water quality issues in Flint's drinking water distribution system and, most recently, largely publicized and widespread cases of elevated lead in residents' tap water. Major drinking water distribution system water quality changes were triggered following a change in the City's water source. The problems in Flint captured the attention of the nation. **Specific Role:** Technical Advisory Committee

d.

(1) TITLE AND LOCATION *(City and State)*: **U.S. EPA Safe Drinking Water Act – Phase V: Lead and Copper Rule**, **Cincinnati, OH**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2024; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Integral to the EPA's LCR and the revisions to the LCR under the 6-year review process and assisted the industry by making fundamental, scientifically based recommendations regarding chemical corrosion inhibitor dosing and the water quality changes that reduce lead and copper solubility, protecting public health. **Specific Role:** Drinking Water Expert

e.

(1) TITLE AND LOCATION *(City and State)*: **U.S. EPA Safe Drinking Water Act – Phase V: Arsenic Rule**, **Cincinnati, OH**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2024; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Integral to the development of the EPA's Arsenic Rule, which has improved the drinking water industry by providing useful and insightful approaches regarding the most appropriate methods for helping water systems reduce arsenic levels to safe levels below the regulatory maximum contaminant level (MCL). Served as one of two leaders on the EPA's full-scale arsenic demonstration program, which was initiated by the EPA administrator and extended by Congress. **Specific Role:** Drinking Water Expert

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Alex Rahimian-Pour, PE **Senior Associate**	**Ion Exchange Process / Mechanical**	**28**	**8**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Irvine, California

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil and Environmental Engineering BS, Chemical Engineering	PE / CA – (#81831)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Rahimian-Pour has more than 28 years of experience in water quality evaluation and planning, design, and implementation of advanced water treatment systems for various municipal and industrial water works. His project experience has focused on the use of IX treatment systems and removal of constituents of concern such as PFAS and other emerging contaminants of concern. His extensive IX experience includes serving as Project Manager for the design of multiple IX treatment systems (3.5 and 7.0 mgd) for removal of PFOS/PFOA from multiple wells under the PFAS Groundwater Treatment Improvements project for the Santa Clarita Valley Agency. **Professional Organizations:** American Membrane Technology Association; International Desalination Institute; American Water Works Association; Water Environment Federation

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Groundwater Treatment Improvements, Santa Clarita, CA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: 2024

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Rahminian-Pour serves as Project Manager for the preliminary and final design of the Ion Exchange (IX) treatment system (3.5 MGD) for removal of PFOS/PFOA from Santa Clara and Honby Wells. The project includes preparation of final design documents, 3D model of the treatment system, hydraulic analysis of well pumps, cost estimates, permitting, bid assistance, and engineering services during construction. He also serves as Project Manager for the Ion Exchange (IX) treatment system (7.0 MGD) for removal of PFOS/PFOA from E-Wells (E-14, E-15, E-16, and E-17). The project includes preparation of preliminary design of the treatment system, site layouts, 3D model of the treatment system, hydraulic analysis of well pumps, and cost estimates. **Cost:** $9 million **Specific Role:** Project Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **Desalter VOC and PFAS Treatment Facilities, Chino Basin Desalter Authority, Chino, CA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2022; CONSTRUCTION *(If applicable)*: 2024

(3) BRIEF *DESCRIPTION* (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Rahminian-Pour served as a Project Engineer for the preliminary and final design of two (2) treatment facilities (1.7 mgd and 3.4 mgd) at the Chino I Desalter Plant for the removal of TCE and 1,2,3-TCP, and evaluation of treatment requirements for 1,4-dioxanr, cis-1,2-DCE, 1,2-CDA, PFOA, and PFOS. The goal of this project was to provide groundwater treatment for all CDA bypass wells (CDA Wells I-1 through I-4), and several treated wells (CDA I-16 through 18), plus 10 new wells that were being installed by the County of San Bernardino as part of a Cleanup and Abatement Order issued by the Santa Ana Regional Water Quality Control Board (SARWQCB). **Cost:** $1.3 million (fee) **Specific Role:** Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Treatment Feasibility Study, Elsinore Valley Municipal Water District, CA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Rahminian-Pour serves as Project Manager for the Elsinore Valley Municipal Water District with management of PFAS in 9 groundwater wells. The project includes review of the PFAS occurrence in conjunction with other water quality constituents, and an assessment of management alternatives, including cost estimates and treatment testing for GAC, ion exchange, and membrane treatment alternatives. The project includes multiple criteria decision analysis to determine treatment and blending recommendations for PFAS removal in tandem with management decisions required for heavy metals and TDS control. **Cost:** $800,000 (fee) **Specific Role:** Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Plant 30 Wellhead Treatment Design, Monte Vista Water District, Montclair, CA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2020; CONSTRUCTION *(If applicable)*: 2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Project Delivery Manager for the planning and design of a 4,000 gpm treatment system for Monte Vista Water District. Treatment includes GAC for 1,2,3-TCP and regenerable ion exchange for nitrate and perchlorate. The design includes treatment of two out of three wells and pipelines from two wells to the third well site. Future expansion for treating all 3 wells is a design consideration. **Cost:** $1.3 million (est. fee) **Specific Role:** Project Delivery Manager

e.

(1) TITLE AND LOCATION *(City and State)*: **Well 2A Wellhead Treatment Plant, Western Heights Water Company, Yucaipa, CA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2021; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Project Engineer for the preliminary and final design of WHWC's Well 2A wellhead Treatment Plant project. The project includes installation of pre-treatment system (cartridge filters), GAC treatment system to remove 1,2,3-TCP, and disinfection facility. Hazen's scope includes preparation of preliminary design report, final design, permitting, CEQA, bid phase, and construction phase assistance. **Cost:** $200,000 (fee)
Specific Role: Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Tyler Davis, PE **Senior Associate**	**Ion Exchange Process/Mechanical; Operations and Start-up Assistance; Bidding Services**	**36**	**2**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Boca Raton, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Chemical Engineering	PE / FL – Civil Engineering (FL 60051)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

With 36 years in engineering, Mr. Davis has specialized in water/wastewater for over 24 years, in the planning, design, construction and management of water, wastewater, and reuse projects and 11 years of experience in the chemical industry. His broad experience covers water and wastewater treatment, distribution, and collection systems; chemical process operations; stormwater management; construction management; regulatory compliance; and general civil engineering. His diverse roles include mechanical process design, value engineering, and project/construction management. **Professional Organizations:** American Water Works Association, Florida Section Utility Council. **Professional Recognitions:** ASCE Project of the Year, Palm Beach County AIX System; Florida Section AWWA Volunteer of the Year.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
WTP #4 Water Quality Improvements **Toho Water Authority, Osceola County, FL**	Ongoing	Pending

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Davis serves as Project Engineer for the improvements to the water quality and treatment system at WTP #4 for Toho Water Authority. The project includes operational modification support and modifications to the existing MIEX treatment plant, new mobile membrane treatment units and design and construction support of the connection package to support installation of the units, pilot activities including cartridge filters, media alternatives for existing media filters, resin washing alternatives, and long-term treatment upgrade pilot of ion exchange, pressure filters, hydrogen sulfide degass, a new water supply well, and raw water main. Project support included design services, permitting of interim membrane treatment units and piloting. **Cost:** $3.15 million (fee); $28 million (construction) **Specific Role:** Project Engineer

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Buenaventura Lakes WTP Upgrade and Improvements **Toho Water Authority, Osceola County, FL**	Ongoing	Pending

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Davis assists as a Project Engineer supporting the IX system. Hazen is providing engineering design, permitting, and construction services to improve reliability and quality of the water for the BVL WTP. This design incorporates considerations for a high growth area with raw water quality that requires advanced treatment to remove hydrogen sulfide, remove organics, and maintain disinfection by-product compliance. The scope of work includes pilot testing, design services, and site improvements to improve operations. **Cost:** $1.87 million (fee) **Specific Role:** Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Greenfield Reverse Osmosis Water Treatment Plant and Production Wells, City of West Melbourne, FL	Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Davis was responsible for the design and implementation of systems for chemical storage and dosing, hydrogen sulfide removal, odor scrubbing, and 4-Log disinfection. He also managed the design and of transfer and high-service pumps, and provided guidance and QA/QC for new raw water supply wells. Hazen was selected to provide piloting, preliminary design, final design, and bidding services for a new 5-mgd WTP. Design of the WTP has been completed. Hazen was tasked also with an expedited design of the four water supply wells to serve the plant. **Cost:** $57 million (constr. bid); $5.05 million (engineering fee). **Specific Role:** Engineer-of-Record for Process/Mechanical Design of all pretreatment and post-treatment chemical storage/feed systems.

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Sand Strainer Replacement, City of Deerfield Beach, FL	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Davis is responsible for design of a replacement of the existing sand strainers for the City of Deerfield Beach. The existing system services the nanofiltration plant, but the City desires to replace it with a larger system that can serve both the Floridan Aquifer wells (reverse osmosis) and the Biscayne Aquifer wells (nanofiltration). **Specific Role:** Design Engineer

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
WTP 8 Anion Exchange System, Design and Services During Construction, Palm Beach County Water Utilities Department, Palm Beach County, FL	2017	2017

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Mr. Davis designed a new 20-mgd fixed-bed anion exchange system at WTP 8. The new system replaced an antiquated 10 mgd ozone system. He was responsible for design of the large-diameter piping from two separate Clearwell transfer pump stations to three ground storage tanks. Mr. Davis performed hydraulic modeling of the transfer pumping system from the Clearwell through the anion exchange vessels and to the ground storage tanks. He also assisted in the selection of new larger transfer pumps and provided the layout of the above-ground piping for the new anion exchange system. **Cost:** $1.5 million (fee); $16 million (construction) **Specific Role:** Design Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Taima Kayali, EI **Assistant Engineer II**	**Ion Exchange Process / Mechanical;** **Filter Process / Mechanical**	**4**	**3**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Orlando, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Environmental Engineering	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Ms. Kayali has 4 years of water experience including mechanical and treatment process design for drinking water facilities including ion exchange (IX), WTP piloting and water quality analysis, and design, permitting, bidding, and construction services for conveyance systems. She has additional experience with wastewater, stormwater, and reuse projects. **Professional Organizations:** Engineers Without Borders FL Professionals, Florida Section American Water Works Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

St. Cloud WTP #4 Upgrades
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2025	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Kayali serves as a Project Engineer for the preliminary design, detailed design, permitting, and construction services of an IX system for St. Cloud WTP #4. The project includes the design of a 9-mgd 8-vessel fixed bed IX system, waste and brine storage for the new IX system, two 4.5-mgd dual media filter vessels for iron sulfide removal, new high-service pumps, a new CO_2 storage and feed system, modifications to the existing well pumps, a new offsite well drill and pump, raw water main piping, a booster pump station, upgraded chemical facilities, degasification and odor control system for H_2S removal and a transfer pump station. The project includes provisions for future plant expansion to 12-mgd. The design of the project has been completed and is a CMAR delivered project. **Cost:** $3.2 million (design), $58 million (construction)**Specific Role:** Project Engineer

b.

(1) TITLE AND LOCATION *(City and State)*

Buenaventura Lakes WTP Upgrade and Improvements
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2024	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Kayali assisted with the piloting studies being performed at the Buenaventura Lakes (BVL) WTP. The pilot study included IX and granular activated carbon for organic compound removal. After the pilot study concluded, fixed bed IX was selected as the primary treatment for BVL WTP. The scope of work includes pilot testing, design services, and site improvements to improve operations. The design incorporates considerations for a high growth area with raw water quality that requires advanced treatment to remove hydrogen sulfide, remove organic compounds, and maintain disinfection by-product compliance. The design has been completed, and Hazen is providing construction services. **Cost:** $1.87 million (fee) **Specific Role:** Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*

St. Cloud WTP #4 Water Quality Improvements
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2023	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Kayali assisted with the piloting studies being done at St. Cloud WTP #4. Due to water quality concerns, the pilot studies were divided into two phases: Phase 1 and Phase 2. Phase 1 included water quality analysis for onsite pilot systems that included multimedia filtration, cartridge filtration, ozonation, granular activated carbon, diffused aeration, fixed bed IX, and virgin rinsing alternatives. The results from Phase 1 identified fixed bed IX as the most cost-effective treatment process for future improvements and expansion. Additionally, Ms. Kayali assisted with Phase 2 of the pilot program which tested and analyzed the outlet water quality of four IX resins from different manufacturers. **Cost:** $750,000 (design), $1.7 million (construction) **Specific Role:** Project Engineer

d.

(1) TITLE AND LOCATION *(City and State)*

Harmony WTP Upgrade and Expansion
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2025	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Kayali assisted with the piloting study at Harmony WTP. The pilot study included nanofiltration membrane treatment, multimedia filtration and fixed bed IX for total organic compound removal on the bypass stream. Ms. Kayali and the Hazen team offered operational aid to onsite staff and performed system screenings to monitor performance for the interim system at Harmony WTP. Additionally, Ms. Kayali led and performed the backwash screening for the existing sand media filtration system at Harmony WTP. The purpose of the backwash screening was to optimize performance of the media filters with extended backwash durations. The results from the pilot study supported the full-scale design of a permanent nanofiltration system and the dual media filtration system. **Cost:** $2.6 million (fee) **Specific Role:** Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*

160-Acre Site AWS Project
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Kayali serves as a Project Engineer for the planning and piloting of a new 8-mgd drinking water treatment facility. The facility will utilize an alternative water supply via aquifer recharge by rapid infiltration basins. The pilot was constructed on a greenfield site and included innovative piloting skids, temporary structures, power supply construction and temporary supply/waste pipelines. The pilot program included ozone, granular activated carbon, biological activated carbon, nanofiltration, and UV advanced oxidation process to analyze and compare total organic carbon, PFAS and 1,4-dioxane removal. **Cost:** $5.3 million (fee) **Specific Role:** Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
George Brown, PE **Associate Vice President**	**Lime Softening Process/Mechanical; Filter Process/Mechanical; Storage/Pumping Systems and Pipelines; Sequence of Construction / Maintenance of Plant Operations**	**30**	**29**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Environmental Engineering	PE / FL – Environmental Engineering (FL 56076)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Brown has more than 30 years of experience in the study, planning, design, permitting, and services during construction of water treatment plants, pump stations, pipelines, and water supply projects primarily in Florida. He has a successful track record in the development of complex and comprehensive construction sequencing at water treatment plants, including detailed Maintenance of Plant Operations (MOPO) plans, to ensure uninterrupted water production. He served as Project Manager and Civil and Mechanical Engineer-of-Record for the design and permitting of upgrades to North Miami's 9.3-mgd Winson lime softening WTP. **Professional Organizations:** American Water Works Association, Florida Section Risk Management/Safety Committee.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Prospect Lake Clean Water Center, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen was selected to provide Owner's Representative Services for design and construction of the proposed 50-mgd (finished water capacity) water treatment plant. The City's existing Fiveash WTP was constructed in the 1950s and is at the end of its useful life. That study recommended replacing the Fiveash WTP with a new state-of-the-art WTP using a combination of nanofiltration and ion-exchange treatment technology. The new plant is designated as the Prospect Lake Clean Water Center. The Fiveash WTP treatment facilities will be decommissioned and used only for finished water storage and pumping. The City is procuring this project through a Public-Private-Partnership agreement. Hazen is providing Owner's Representative services to review the design and oversee the construction of the $700 million water treatment plant. Our services also include review of permit applications and design packages, coordination with permitting agencies and City departments. Hazen will provide multiple inspectors and Resident Project Representatives for the construction, as well as process specialists for the startup phase of the project. **Cost:** $4.7 million (est. fee); $700 million (est. construction). **Specific Role:** Deputy Project Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **Winson WTP Pilot and PFAS Management Plan, City of North Miami, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of North Miami's Winson Water Treatment Plant is a 9.3-mgd lime softening facility that is experiencing elevated PFOA and PFOS concentrations in the City's groundwater and cannot achieve the recently promulgated EPA Maximum Contaminant Levels (MCL) through existing lime softening processes. The City contracted Hazen to develop a PFAS Management Plan that will test multiple adsorbent media to determine PFAS removal efficiencies along with associated life cycle costs. The pilot testing is investigating three media options (GAC, IX, and Fluorosorb) and will be operated until PFAS breakthrough occurs. The results of the pilot testing will guide the recommendations made in the PFAS Management Plan. **Cost:** $350,000 (fee) **Specific Role:** Project Manager and Engineer-of-Record for Mechanical and Civil disciplines.

c.

(1) TITLE AND LOCATION *(City and State)*: **Fiveash Water Treatment Plant Reliability Upgrades, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: N/A (Construction cancelled)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The Fiveash WTP is a 70-mgd lime softening plant that was originally constructed in the 1950s. Many of the plant processes were at the end of their useful life. This project included the design of improvements to numerous plant processes and structures, including: a new backup power generation building (with two 1,250 kilowatt generators), renovation of the primary control room, automation of plant processes, storm hardening of key facilities, and roofing and roof drainage replacement. Additionally, the project included replacement of the 90-ton chlorine railcar system with a bulk (12%) sodium hypochlorite facility (capable of feeding 6,000 pounds per day of equivalent chlorine). **Status:** The Reliability Upgrades and Disinfection System project bid at $48 million in 2019, the City canceled the bids to reduce scope given its decision to construct a replacement WTP. **Cost:** $6.7 million (fee); $48 million (Contractor's Bid Amount) **Specific Role:** Project Manager and Engineer-of-Record

d.

(1) TITLE AND LOCATION *(City and State)*: **Membrane Softening Facility, City of Hallandale Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2008; CONSTRUCTION *(If applicable)*: 2008

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided pilot testing, design, bidding, permitting, and construction management services for a new 6-mgd membrane facility to replace an equivalent volume of existing lime softening capacity at its water treatment plant. Total buildout capacity of the new membrane facility was 13 mgd, which includes up to 4 mgd of brackish water reverse osmosis treatment capacity. Hazen completed design, permitting, and construction oversight of the membrane facility. **Cost:** $20 million (est.) **Specific Role:** Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Winson WTP Filter Rehabilitation and Reliability Improvements, City of North Miami, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2024; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of North Miami's Winson Water Treatment Plant (WTP), originally constructed in the early 1960s, is a 9.3-mgd lime softening WTP. Many of the plants processes were at the end of their useful life, and Hazen provided professional services to rehabilitate the filters at the Winson WTP, which included replacement of filter media, surface wash agitator system, underdrains, and filter pipe gallery for four existing filter basins. **Cost:** $716,500 (fee). **Specific Role:** Project Manager and Engineer-of-Record for Mechanical and Civil disciplines

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Monica Pazahanick, PE **Senior Associate**	**Lime Softening Process/Mechanical**	**17**	**8**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Boca Raton, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BE, Environmental Engineering	PE / FL – Environmental Engineering (FL 78245) PE / AR – Environmental Engineering

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Pazahanick has over 17 years of experience in the field of water treatment. Her work includes planning, design, permitting, and construction management services for treatment plants, pump stations, and chemical systems. She has worked on many Florida membrane treatment and conventional lime softening projects and has successfully permitted and worked closely with permitting agencies for water-related projects, including water treatment plant expansions, upgrades, and rehabilitations. **Professional Organizations:** American Water Works Association (AWWA); Florida Section AWWA Region VI Membership Chair; American Membrane Technology Association (AMTA) - Co-Editor of the AMTA Quarterly Newsletter "Solutions" (06/2011 to 04/2015); AMTA/AWWA Membrane Technology Conference Planning Committee (2016-Present); Southeast Desalting Association – Symposium Planning Committee (2017-Present).

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Greenfield Reverse Osmosis Water Treatment Plant and Production Wells, City of West Melbourne, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This project includes design of a new 5-mgd greenfield RO membrane WTP and four Floridan aquifer water supply wells, along with three monitoring wells. The WTP design includes four treatment trains with the ability to add a train for future expansion. The WTP will include pre-treatment systems, post-treatment systems consisting of degasifiers and clearwell, chemical feed systems, storage, and high-service pumping necessary to produce high quality, finished water. Hazen provided engineering services including design, permitting, and bidding for the water treatment plant. **Cost:** $57 million (constr. bid); $5.05 million (engineering fee). Specific Role: Process Design Lead

b.

(1) TITLE AND LOCATION *(City and State)*: **Owner's Representative for Design-Build Construction of New WTP City of Delray Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

As the City's Owner Representative, Ms. Pazahanick and the Hazen team provide technical assistance to the City throughout multiple project phases. The project will include construction of a new WTP, installation of six SAS wells, rehabilitation of a portion of the existing SAS wells, and construction of a deep injection well and monitor wells. Tasks include, but are not limited to, scope validation of the new WTP, including documentation of the treatment selection and determination of the initial capacity; evaluation of and recommendation of project delivery methods; development of progressive Design-Build documents for advertisement; assistance in the review of documents provided by the proposers; assistance in the development and technical review of proposed scope of work and fees from the selected Design-Build team; facilitating funding assistance; and managing document control. Hazen continues to partner with the City as Owner's Representative, providing technical reviews and assistance. Phase 1 support services currently being provided include engineering services during the pre-design phase, Phase 1 detailed design, and schedule and cost reviews. **Cost:** $775,000 (fee through Phase I); $130 million (project construction budget) **Specific Role:** Deputy Project Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **Alternative Water Supply Plan, City of Stuart, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen provided the City of Stuart with a recommendation for a sustainable alternative water supply that will allow the City to meet the future finished water goals through the year 2040. The initial phase includes installation of a 1-mgd finished water RO facility expandable to 3 mgd. The conceptual plan incorporates elements that provide flexibility for plant expansion. This project focused on master planning new Upper Floridan Aquifer water supply wells, reverse osmosis treatment facilities, and concentrate disposal. Wells in the Upper Permeable Zone (UPZ) of the Floridan Aquifer were recommended based upon modeling of water quality changes with time. Planning included construction cost estimating, phased implementation scheduling, bid package identifications, State Revolving Fund application assistance, and financial analysis of rate adjustment to fund the investment.
Cost: $250,000 (fee); $16.5 million (construction estimate) **Specific Role:** Deputy Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Lime Softening Versus Nanofiltration WTP Evaluation City of Pompano Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

This project included inspection of existing facilities, and evaluation of the lime softening water treatment plant current conditions and upgrade recommendations for the next 20 years. The project also included cost comparison of nanofiltration water treatment plant expansion versus upgrading the lime softening plant, including operational costs, and identification of advantages and disadvantages; and evaluation of incorporating ion exchange within the existing treatment processes. **Cost:** $52,000 (fee) **Specific Role:** Project Manager

e.

(1) TITLE AND LOCATION *(City and State)*: **Springtree Reverse Osmosis Water Treatment Plant City of Sunrise, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(If applicable)*: 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

This project included preparation of construction drawings and specifications for a 3-mgd treatment capacity with 1.5 mgd installed during Phase 1. The project design included conversion of an ASR well to a Floridan Aquifer production well, pre-treatment (sand strainers and cartridge filters), two-stage reverse osmosis membrane treatment, post-treatment (degasification and air scrubbers), and chemical systems. **Specific Role:** Design Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jennifer McMahon, PE **Vice President**	**Filter Process/Mechanical;** **Storage/Pumping Systems and Pipelines**	**27**	**20**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Civil Engineering	PE / FL – Civil Engineering (FL 56800)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. McMahon has over 27 years of experience in the water and wastewater industry with work focused on civil, mechanical, and process design. Her expertise in the design of water treatment and distribution systems and as a process/mechanical expert is of great value to this team, in addition to her knowledge of the City's infrastructure and procedures through her leadership on Hazen's Continuing Services contract with the Pembroke Pines. She served as Project Engineer for the design and permitting of upgrades to North Miami's Winson lime softening WTP project, including the plant filter system rehabilitation. She also served as Project Manager, Lead Design Engineer, and Construction Administrator for the Broward County's Districts 1A and 2A WTPs Projects. She also served as the Mechanical and Process Design Engineer for the Town of Jupiter 14.5-mgd Nanofiltration Facility and Lead Design Engineer for the Reverse Osmosis Skid Addition for the City of Hallandale Beach. She is skilled in detailed design, construction management, and project management, and provides quality control reviews for numerous design projects. **Professional Organizations**: American Society of Professional Engineers.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Reverse Osmosis Skid Addition
City of Hallandale Beach, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

This project includes a 2-mgd reverse osmosis skid addition at the City of Hallandale Beach WTP. The project also included a 350-Hp membrane feed pump, reverse osmosis membrane softening skid, chemical metering pumps, and other ancillary improvements. This innovative design includes a skid that can accommodate a range of raw water salinity. Project responsibilities included development of detailed design drawings, development of technical specifications, and multidisciplinary design coordination. **Cost:** $5 million (est. construction). **Specific Role:** Project Manager, Lead Design Engineer

b.

(1) TITLE AND LOCATION *(City and State)*

Fiveash WTP Reliability Upgrades
City of Fort Lauderdale, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. McMahon served as a Project Engineer for the City of Fort Lauderdale's Fiveash WTP Reliability Upgrades project. The Fiveash WTP is a 70-mgd lime softening plant that was originally constructed in the 1950s. Many of the plant processes are at the end of their useful life. This project included the design of improvements to numerous plant processes and structures, including: a new backup power generation building (with two 1,250 kilowatt generators), renovation of the primary control room, automation of plant processes (including Profibus communication to valves, mag meters and remote I/O) and storm hardening of key facilities. Additionally, the project includes replacement of the 90-ton chlorine railcar system with a bulk (12%) sodium hypochlorite facility (capable of feeding 6,000 pounds per day of equivalent chlorine) and a carbon dioxide dosing system. **Status:** In 2019, the City canceled the bids to reduce the scope given its decision to construct a replacement WTP. **Cost:** $49 million (bid). **Specific Role:** Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*

Winson Filter Rehabilitation and WTP Reliability Improvements
City of North Miami, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. McMahon served as Project Engineer for the ongoing design of the upgrade and rehabilitation of the Winson Water Treatment Plant in North Miami. The project includes the rehabilitation of the 40-year-old lime softening plant including the plant filter system re-habilitation, major pump system replacement, various structural and mechanical repairs, electrical and instrumentations upgrades, mis-cellaneous process improvements, wellfield and storage improvements, and operations building improvements. **Cost:** $716,500 (fee). **Specific Role:** Project Engineer

d.

(1) TITLE AND LOCATION *(City and State)*

14.5-mgd Nanofiltration Facility
Town of Jupiter, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2010	2010

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. McMahon's responsibilities included development of detailed design drawings, development of technical specifications, and multidisciplinary design coordination. New facilities included nanofiltration membrane skids, membrane feed pumps, cartridge filters, degasifiers, chemical feed systems, odor control, chemical blend chamber, high-service pumps, and new fuel storage tanks for the existing emergency generator. This facility also incorporates pretreatment pressure filters and associated booster pumps, air scour system, and filter flushing system. Four new horizontal split case booster pumps sized at 4,800 gpm and 200-HP each were housed within a pump station building that included an electrical room and a small room for a polymer feed system. **Cost:** $37 million. **Specific Role:** Mechanical and Process Design Engineer

e.

(1) TITLE AND LOCATION *(City and State)*

Broward County Water and Wastewater Services District 2A Water Treatment Plant Hypochlorite System, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2009	2009

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. McMahon served as Project Manager, Lead Design Engineer, and Construction Administrator for the replacement of an existing gas chlorine disinfection system with a bulk purchased sodium hypochlorite system sized for the 40-mgd District 2A Water Treatment Plant. In addition, the project included a liquid carbon dioxide chemical feed system for pH control. The project also included six 14,000 gal FRP tanks where hypochlorite is diluted to 6% and stored to reduce degradation **Cost:** $4 million (construction). **Specific Role:** Project Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Guillermo Regalado, PE **Associate Vice President**	**Hydraulics**	**36**	**7**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Irrigation Engineering BS, Civil Engineering	PE / FL – Civil Engineering (FL 64905), NY, Columbia, Puerto Rico

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Regalado has more than 36 years of experience in developing and updating hydraulic, hydrologic, and water quality engineering models for both large and small-scale projects. His experience spans analysis, planning, engineering design, and project management, including hydraulic and hydrologic analysis and modeling of water distribution networks, wastewater collection and transmission systems, and wastewater pump stations. Recently, he led the technical team in the update and verification of WASD's Water Distribution System model (InfoWater). **Professional Organizations:** American Water Works Association; American Water Resources Association; South Florida Hydrologic Society; American Association of Colombian Engineers.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Water Master Plan, City of Plantation, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project included development of a Water Master Plan to define both short-term and long-range planning goals through the year 2040 including goals that serve to optimize operation and management of the City's entire water system. A key task for this project included development and calibration of a new water distribution system hydraulic model using the InfoWater modeling platform. The model was used to identify capacity issues within the distribution network to evaluate recommended improvements and address possible water quality concerns. Mr. Regalado led the modeling team in the development of the InfoWater model. Cost: $243,000 (fees) Specific Role: Modeling Technical Lead

b.

(1) TITLE AND LOCATION *(City and State)*: **Stormwater Master Plan Modeling and Design Implementation Services, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project included the development of a 1D and 2D integrated groundwater – surface water model (ICPR4) for the study area. ICPR4 relies heavily on GIS information during the model development phase. The project includes the development of several models for each watershed within the City. Models were prepared to simulate the existing and proposed conditions under a variety of scenarios including multiple sea level rise conditions. Proposed conditions included pump stations and detention storage (ponds). **Cost:** $30 million (est. fee); $200 million (est. construction).

Specific Role: Lead Modeler

c.

(1) TITLE AND LOCATION *(City and State)*: **2020 Water & Wastewater Master Plan Update City of Sunrise, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project included development of updated Water and Sewer Master Plans that will reflect and evaluate the current land use development, water demands, asset conditions, treatment plant capacities, and wastewater flows. The project involved update and calibration of the WaterGEMS Hydraulic Model to analyze the existing water distribution. The project also included the application of the City's water hydraulic model for general network performance evaluation, fire flow availability assessment, water age mapping, finished water storage availability evaluation, and definition of methods to reduce water age. The project also included update and calibration of the sewer force main model to include flows and boundary conditions imposed by the connection with an adjacent municipality. **Cost:** $768,000 (overall master plan) **Specific Role:** Technical Lead

d.

(1) TITLE AND LOCATION *(City and State)*: **Water Hydraulic Model City of Miami Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project involved development and calibration of a GIS-based Water Distribution System Hydraulic Model in InfoWater for the City of Miami Beach (estimated population of 92,000) and the InfoWorks Force Main transmission model. The City receives treated water from Miami-Dade Water and Sewer Department (WASD) through 5 points of entrance that were used as boundary conditions in the model. Additionally, the model includes 180 miles of piping, six booster pump stations, four water storage tanks, and approximately 1,400 hydrants. Due to the commercial and touristic nature of the City, variation in water demand patterns imposes operational challenges to the system. Model development activities included extensive use of SCADA information to accurately represent operational strategy in the InfoWater model. The model was used to define the hydraulic capacity of the existing water distribution system and its components under different fire flow and operational scenarios, and to evaluate the impact of proposed developments in the service area. **Cost:** $243,000 (design) **Specific Role:** Technical Lead

e.

(1) TITLE AND LOCATION *(City and State)*: **Water and Wastewater Services Countywide Risk Assessment and Resilience Plan, Broward County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2025; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The Plan included development of actionable, resilient infrastructure improvements and redevelopment strategies consisting of a visualization platform. The plan provides the foundation for collective mitigation of future flooding, inclusive of water management infrastructure, transportation systems, critical infrastructure, green infrastructure, land use, basin-scale redevelopment, and land use planning based on a comprehensive countywide risk assessment. Mr. Regalado served as Deputy Project Manager for the development and execution of the technical approach, including hydrologic and hydraulic modeling, exposure, vulnerability and risk assessments; and also developed the components of the resilience plan. He directed the model (MIKE SHE/MIKE HYDRO) model refinement phase and the evaluation of flooding hazards under the current or no-action conditions. Cost: $3 million (est. fee) Specific Role: Deputy Project Manager.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Nandita Ahuja, PE **Associate**	**Hydraulics**	**10**	**9**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil Engineering BE, Environmental Engineering	PE / FL– Civil Engineering (FL 86687)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Ahuja has over 10 years of experience in water and wastewater infrastructure related projects including hydraulic modeling for master planning and design of water distribution systems and wastewater conveyance systems. **Professional Organizations:** Water Environment Federation; American Water Works Association; Society of Women Engineers

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Water Master Plan – General Utilities Engineering Services, City of Plantation, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2018; CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project includes development of a Water Master Plan to define both short-term and long-term planning goals through the year 2040 including goals that serve to optimize operation and management of the City's entire water system. A key task for this project includes development and calibration of a new water distribution system hydraulic model using the InfoWater modeling platform. The model is used to identify capacity issues within the distribution network, evaluate recommended improvements, and address possible water quality concerns. Ms. Ahuja's role in the project involved development of the InfoWater model and using the calibrated model to evaluate short-term and long-term distribution system projects for the City. **Cost:** $592,610 **Specific Role:** Hydraulic Modeler

b.

(1) TITLE AND LOCATION *(City and State)*: **Water Hydraulic Model Development, City of Miami Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2019; CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project includes the development of updated Water and Wastewater Master Plans which will reflect and evaluate the current land use development, water demands, asset conditions, treatment plant capacities, and wastewater flows. The project includes the update and calibration of the WaterCAD Water Hydraulic Model to analyze the existing water distribution. The water hydraulic model application includes general network performance evaluation, fire flow availability assessment, water age mapping, storage availability evaluation, and definition of methods to reduce water age. The project also includes the update and calibration of the wastewater force main model to include flows and boundary conditions imposed by the connection with an adjacent municipality**. Cost:** $768,000 (overall master plan) **Specific Role**: Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **Sewer Design and Implementation Program, Citywide Water Distribution System Hydraulic Modeling and Evaluation, Fort Lauderdale Public Works Department, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2022; CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project included development of a calibrated water distribution system hydraulic model for the 780 miles of water mains serving a population of ~231,000 people. The calibrated model was used to evaluate system deficiencies and propose improvements needed to serve the City for a 20-year planning horizon. The model will also used for developing a unidirectional flushing plan for the water mains in the distribution system. Ms. Ahuja was responsible for development and calibration of the hydraulic model. **Cost:** $1,553,000 (approx. fee) **Specific Role:** Hydraulic Modeler

d.

(1) TITLE AND LOCATION *(City and State)*: **Ocean Outfall Legislation Program, Miami-Dade Water and Sewer Department, Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing; CONSTRUCTION *(If applicable)* Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

This $2.3 billion, 11-year program includes upgrades to the three existing wastewater treatment plants, including the addition of injection wells for effluent disposal. The scope of work consists of the delivery of a comprehensive, technically sound, long-term program that encompasses the planning, design, procurement, construction, and commissioning of over 20 capital projects. As a part of the project, process and hydraulic models were developed for WASD's three existing wastewater treatment plants to serve as fundamental tools for the assessment of current infrastructure and analysis of future improvements. Ms. Ahuja is serving as the Project Engineer for evaluating process alternatives for expansion of the three facilities to meet the projected loads for the 2035 planning horizon. **Status:** The project is ongoing. **Cost:** $2 billion **Specific Role:** Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **2020 Water and Wastewater Master Plan Update, City of Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2020; CONSTRUCTION *(If applicable)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project includes the development of updated Water and Wastewater Master Plans which will reflect and evaluate the current land use development, water demands, asset conditions, treatment plant capacities, and wastewater flows. The project includes the update and calibration of the WaterCAD Water Hydraulic Model to analyze the existing water distribution. The City of Sunrise's water hydraulic model application includes general network performance evaluation, fire flow availability assessment, water age mapping, storage availability evaluation, and definition of methods to reduce water age. The project also includes the update and calibration of the wastewater force main model to include flows and boundary conditions imposed by the connection with an adjacent municipality. Ms. Ahuja serves as the Project Engineer to assist in data collection, demand pattern development and the water hydraulic model development tasks. **Cost:** $768,000 (overall master plan) **Specific Role:** Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Nathan Rothe, PE **Senior Principal Engineer**	**PFAS Management; Process Optimization and Pilot Testing; Treatment Plant Operations Manual/Dashboard**	**13**	**2**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Coral Cables, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Science and Engineering BS, Engineering with an Environmental Specialty	PE / FL – Environmental Engineering (FL 99847)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Rothe has 13 years of experience focused on water and wastewater treatment processes, beneficial reuse of alternative waste streams, and water-related analytical applications. His previous experience as Laboratory Director at the Colorado School of Mines, one of the premier universities conducting water-related research projects, provided an in-depth look at cutting-edge technologies focused on PFAS treatment and destruction, novel membrane applications, and state of the art piloting systems. At Hazen, he has served as Lead Engineer and/or Project Manager on multiple projects focused on evaluation of PFAS treatment technologies, including GAC, IX, and membrane alternatives. Mr. Rothe also led projects focused on lime softening optimization and led Hazen's Florida lead and copper efforts leading up to the regulatory deadline in 2024. **Professional Organizations**: American Water Works Association.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Treatment Pilot, Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This PFAS Demonstration Project is designed to develop a holistic evaluation of PFAS treatment and management approaches to determine the most beneficial and cost-effective manner for WASD to ensure compliance with the updated PFAS Rule. Hazen's role will include demonstration procurement and construction, adsorption demonstration testing at the Alexander Orr, Jr. Water Treatment Plant, membrane demonstration testing at Orr and Preston-Hialeah WTPs, and post-testing comparison. Hazen will also provide supplemental pre-treatment bench testing, treatment life cycle and feasibility assessment, assessment of alternative approaches, multi-criteria decision analysis, joint holistic evaluation report, and communications support. Hazen will also perform a desktop evaluation of currently available NF/RO membranes using the manufacturer's software. The membrane(s) with projected lowest life cycle costs will be shortlisted for pilot testing and one of these membranes will be selected for demonstration testing based on availability. **Cost:** $2.3 million (fee) **Specific Role:** Technical Lead

b.

(1) TITLE AND LOCATION *(City and State)*: **Softening Process Optimization, SOPs, and Training**
Miami Dade Water and Sewer Department, Miami, FL

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2024; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen provided a bench scale testing of multiple softener-related parameters, including polymer, mixing energies, and settled solids recycling. Mr. Rothe led the full-scale testing of the recycling of settled solids into the raw water feed for one hydrotreater unit. The softened water turbidities were reduced by over 50%, improving downstream treatment processes performance and providing additional operational flexibility to the treatment plant. Hazen is currently expanding the full-scale testing to additional hydrotreater units, which will lead to increased plant optimization.

Cost: $195,000 (fee) **Specific Role:** Technical Lead and Project Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **Winson WTP Pilot and PFAS Management Plan**
City of North Miami, FL

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Rothe led the Hazen team in the development and operation of a pilot system exploring PFAS breakthrough times. The pilot system tested GAC, IX, and FLUORO-SORB® options, and through a partnership with the EPA's Technical Assistance Program, the testing was expanded to determine PFAS breakthrough at multiple empty bed contact times. The final results will allow the City to better understand the operation and maintenance costs of a full-scale PFAS treatment system, and ultimately, the project will provide the City with a recommended path to achieving compliance with the proposed EPA PFAS regulations. **Cost:** $350,000 (fee) **Specific Role:** Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Study and Pilot Testing**
City of Margate, Florida

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The City of Margate's Water Treatment Plant faces elevated PFAS levels in its wells and finished water, with existing lime softening processes unable to meet new EPA standards. Hazen was contracted to develop a PFAS Management Plan, including desktop evaluation of adsorptive media and membrane options in Phase 1, followed by pilot-scale testing of selected adsorbents to assess treatment longevity and effectiveness. The outcome of this project will guide recommendations for full-scale design, and include considerations such as operational costs, head loss accumulation, and seasonal water quality changes. **Cost:** $490,895 (fee) **Specific Role:** Deputy Project Manager

e.

(1) TITLE AND LOCATION *(City and State)*: **Hialeah and Preston Water Treatment Plants Comprehensive Operations Manuals, WASD, Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Rothe serves as Lead Engineer for this project, which is converting operational information into an online, user-friendly platform to serve as a central location detailing personnel training, daily operational information, and regulated plant operations record keeping. Mr. Rothe has been integral in the development of the site interface, ensuring a user-friendly, operator-focused design was delivered to the client. He also collected the relevant operational information and translated it into a concise, easy-to-understand online manual. Mr. Rothe will lead the subsequent phase that will incorporate the Alexander Orr WTP and all three WASD WWTPs into the online platform. **Cost:** $417,000 (fee) **Specific Role:** Lead Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Becki Rosenfeldt, PE **Associate Vice President**	**Corrosion Control**	**22**	**20**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Richmond, Virginia

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Civil Engineering	PE / MA – Civil Engineering

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Ms. Rosenfeldt specializes in corrosion studies including lead and copper leaching, bacterial regrowth, and the corrosion of bronze, brass, and cast iron. She has performed numerous studies comparing the effects of disinfection with chloramines to free chlorine, and has helped many clients make the transition to chloramines and implement facilities for corrosion control. Ms. Rosenfeldt also assists utilities across the country in compliance with the US EPA's Lead and Copper Rule Revisions (LCRR), which includes development of service line inventories, service line identification and replacement programs, sampling plans, and customer communication. She serves as Hazen's Technical Lead for corrosion control and LCR compliance. **Professional Organizations:** American Water Works Association.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Port Everglades Corrosion Control, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2017; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This project was an extensive effort in response to a Lead Action Level exceedance. The purpose of the evaluation was to review and recommend the optimal corrosion control strategy to mitigate lead corrosion in Port Everglades. A desktop evaluation of historical lead levels and water quality data in Port Everglades and Fort Lauderdale was completed. To obtain additional information on current water quality conditions in the Port, Hazen assisted Port Everglades in an extensive water quality data collection sampling program that included sequential sampling to evaluate lead profiles and determine specific sources of lead in the system. Distribution system blending of different water sources was also evaluated to determine the impacts of blending on corrosion control. Detailed recommendations for both short- and long-term corrosion control strategies were provided **Cost:** 96,162 (fee). **Specific Role:** Corrosion Expert and Technical Reviewer

b.

(1) TITLE AND LOCATION *(City and State)*: **Corrosion Control Pilot Study and Corrosion Inhibitor Design, Charlotte, NC**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2018; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen was retained to evaluate the utility's transition from a pH-based corrosion strategy to adding a phosphate inhibitor at neutral pH. This study included pilot testing of the transition period using a lead-soldered copper loop and standing 8-hour aqueous lead and copper samples, metal coupon corrosion rate testing, and bench-scale testing of cement-mortar lining corrosion and phosphate reactivity. Additional pilot testing was completed using harvested lead service lines (LSLs). **Cost:** $350,000 (fee). **Specific Role:** Technical Lead

c.

(1) TITLE AND LOCATION *(City and State)*: **Corrosion Control Study, Greensboro, NC**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2018; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project involved an extensive treatment program to assess optimal corrosion inhibition prior to conversion from free chlorine to chloramine disinfection. Water quality sampling was performed to assess the effectiveness of four different phosphate-based inhibitors and their ability to meet the LCR requirements. Both long-term corrosion and passivation periods were evaluated as well as the mixing of waters from different sources within the distribution system. **Cost:** $75,000 (fee). **Specific Role:** Project Engineer.

d.

(1) TITLE AND LOCATION *(City and State)*: **Phase 1 – LSL Replacement Plan and Inventory Assistance, Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Miami-Dade County is one of the largest public utilities in the United States, serving 2.3 million residents. Hazen is assisting the County with developing an LSL Inventory and Replacement Plan. This includes development of a service line identification strategy using a likelihood analysis, extensive collaboration with the County to develop identification criteria, and establishment of a detailed replacement strategy. **Cost:** $370,500 (fee, Phase 1). **Specific Role:** Program Advisor and Technical Expert.

e.

(1) TITLE AND LOCATION *(City and State)*: **Corrosion Control Pipe Loop, Buffalo, NY**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2024; CONSTRUCTION (If applicable) $370,000

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The Erie County Water Authority is conducting a pilot study to optimize corrosion control and proactively prepare for LCRR compliance. Having completed over 15 corrosion pilot studies, Ms. Rosenfeldt is overseeing the design of both the on-site and laboratory scale pilot loops. She will continue to provide guidance through the construction and operation of the pilot loops and will be a key asset in the interpretation and analysis of study results. **Cost:** $150,000 (fee); $370,000 (construction). **Specific Role:** Corrosion Expert and Pilot Loop Designer.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Roger Arnold, PE **Senior Associate**	**Corrosion Control**	**14**	**9**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Richmond, Virginia

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Civil Engineering	PE / VA – Environmental Engineering

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Arnold's experience encompasses water supply and treatment, wastewater treatment and infrastructure, and stormwater management, and he has led multiple design projects as associate project manager or task manager. Areas of particular technological expertise include hydraulic analysis and modeling, corrosion control treatment, water supply planning, and conveyance infrastructure design. **Professional Organizations:** American Water Works Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Corrosion Control Evaluation, Port Everglades, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 — CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Mr. Arnold evaluated corrosion control modifications prior to blending water from different sources, including a surface water treatment plant, and groundwater nanofiltration plant, and multiple groundwater wells. He completed a comprehensive evaluation of corrosion control and water quality to identify opportunities to optimize corrosion control in the distribution system. Mr. Arnold used the distribution system hydraulic model to determine the locations of the proposed blending zones and evaluate blending patterns that would affect water quality variability. Corrosion control recommendations included adjusting finished water pH, changing blended corrosion inhibitor project, and adjusting orthophosphate doses. Implementation of recommended corrosion control improvements. **Specific Role:** Lead Project Engineer

b.

(1) TITLE AND LOCATION *(City and State)*: **Spring Hollow Water Treatment Facility Long-Term Plan, Roanoke, VA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021 — CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Arnold led an evaluation for the Western Virginia Water Authority's long-term facility upgrades to the Spring Hollow WTF. He evaluated improvements to the raw water and finished water pump stations to improve reliability and efficiency, and conducted on-site testing of coagulation and GAC performance, and developed a plan for GAC treatment of emerging contaminants. A conceptual design was developed for key facility upgrades including sodium hypochlorite system, a secondary clearwell, and a newly finished water pump station. **Cost:** $229,000 (fee) **Specific Role:** Project Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **Water Treatment Plant Filter Surveillance, City of Richmond, VA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020 — CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Led an on-site assessment of the filters at the City's water treatment plant. Conducted tests to evaluate filter performance and backwash effectiveness. Developed recommendations for filter optimization. Coordinated two on-site training workshops to assist operators with implementing a filter surveillance program. **Specific Role:** Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Corrosion Control Treatment and Finished Water Blending Evaluation, Wilmington, NC**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 — CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Mr. Arnold evaluated corrosion control modifications prior to blending water from different sources, including a surface water treatment plant, and groundwater nanofiltration plant, and multiple groundwater wells. He completed a comprehensive evaluation of corrosion control and water quality to identify opportunities to optimize corrosion control in the distribution system, using the distribution system hydraulic model to determine the locations of the proposed blending zones and evaluating blending patterns that would affect water quality variability. Corrosion control recommendations to the Cape Fear Public Utility Authority included adjusting finished water pH, changing blended corrosion inhibitor project, and adjusting orthophosphate doses. **Specific Role:** Lead Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Doswell WTP Groundwater Quality Monitoring Plan, Hanover County, VA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021 — CONSTRUCTION (If applicable): 2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Developed a Groundwater Quality Monitoring Plan for the residuals lagoon and sludge drying area at the Doswell WTP for compliance with the County's VPDES permit renewal. The Plan was updated to follow the latest groundwater monitoring guidelines from DEQ, which increased monitoring needs compared to prior VPDES permit terms. Reviewed historical water quality monitoring data around the lagoon. Reviewed the WTP process and chemical addition to identify appropriate parameters from monitoring the integrity of the lagoon. Developed an aquifer characterization plan to optimize monitoring well placement. **Specific Role:** Project Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Zack Farmer, PE, ENV SP **Principal Engineer**	**Storage/Pumping Systems and Pipelines**	**3**	**3**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Atlanta, GA

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil Engineering BS, Civil Engineering	PE / FL – Civil Engineering (FL#100706)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Farmer's recent work in Florida includes assignments for the Cities of Pembroke Pines, Homestead, Fort Lauderdale, Plantation, Hollywood, Cooper City, Daytona Beach, Margate, Sunrise, West Melbourne, and West Palm Beach, Town of Jupiter, and Village of Wellington, the Miami-Dade Water and Sewer Department, Broward County Water and Wastewater Services, Orange County Utilities, Loxahatchee River District, Toho Water Authority, Seminole Tribe of Florida, and Fort Pierce Utilities Authority. In 2023, he published "Water System Condition and Asset Replacement Prioritization", Journal of Water Resource and Protection, Vol.15 No. 5, 2023.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of West Melbourne Water Treatment Plant Preliminary Design Report and Pilot Testing, West Melbourne, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2022; CONSTRUCTION (If applicable) Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen prepared a preliminary basis of design report (BODR) to provide an overview of the design criteria for the proposed reverse osmosis WTP. The purpose of the report was to provide the foundational elements necessary to proceed with detailed and final designs and begin preparation of an FDEP PWS permit application package for the proposed facilities. The BODR also served as supporting documentation for permitting efforts. **Cost:** $429,950 (fee). **Specific Role:** Project Engineer.

b.

(1) TITLE AND LOCATION *(City and State)*: **City of Fort Lauderdale George T. Lohmeyer Clarifier Rehabilitation Fort Lauderdale, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing; CONSTRUCTION (If applicable) TBD

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen performed condition assessments to assess the current condition of the clarifier mechanisms, structures, and ancillary components. Clarifier performance testing was performed to evaluate clarifier performance under various flow simulations by placing units out of service. A computational fluid dynamics (CFD) model is being developed and calibrated using stress testing data to determine clarifier capacity. The calibrated CFD model will then be used to simulate optimization scenarios to improve clarifier performance and increase clarifier capacity. The optimal configuration predicted by the CFD model will be implemented in the final rehabilitation design. Construction drawings and technical specifications were provided at the 90% Design level and will be reissued at 100% Design level. **Cost:** $800,744 (fee). **Specific Role:** Project Engineer.

c.

(1) TITLE AND LOCATION *(City and State)*: **City of Margate Design Criteria Package for the West WWTP Upgrades, Margate, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen developed a Design Criteria Package (DCP) for the rehabilitation and expansion of the City's wastewater treatment facility. The DCP included design criteria for headworks rehabilitation, replacement of RBCs with a fine-bubble activated sludge system, and expansion of secondary clarifiers and RAS pumping capacity. Conceptual civil plans were also prepared for new roads, sidewalks, and zoning setbacks. **Cost:** $349,180 (fee). **Specific Role:** Project Engineer.

d.

(1) TITLE AND LOCATION *(City and State)*: **City of Pembroke Pines Process Aeration Evaluation Pembroke Pines, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2022; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen evaluated the aeration process system at the City of Pembroke Pines Wastewater Treatment Plant. Operation of the existing aeration system presented challenges of providing process air to multiple treatment units, surge tanks, aerobic digesters and sludge holding tanks, which operate at varying liquid levels. The WWTP currently lacks the ability to automatically balance and control process air to the different unit processes, and manual control is required. In addition to operations challenges, the existing turbo blowers have been unreliable with multiple instances of failure after only nine years of installation. **Cost:** $85,011 (fee). **Specific Role:** Project Engineer.

e.

(1) TITLE AND LOCATION *(City and State)*: **City of Sunrise Sawgrass WWTP Dissolved Air Flotation Thickening Process Improvements Design, Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) TBD

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen prepared a Preliminary Technical Analysis Memorandum (PATM), which included the summary of existing conditions, proposed system rehabilitation, and cost estimate. Provided design services for the rehabilitation of the City's Dissolved Air Flotation (DAF) Thickening system, waste-activated sludge (WAS) pumps, thickened-WAS pumps, and process mechanical piping. Conversion of existing dry polymer system to emulsion polymer skid for biosolids thickening applications. **Cost:** $319,791 (fee). **Specific Role:** Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
David Bannett, PE, LEED AP **Senior Associate**	**Site Civil/Stormwater**	**32**	**4**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil Engineering BS, Architectural Engineering	PE / FL – Civil Engineering LEED Accredited Professional (LEED AP) FDEP Certified Storm Water Management Inspector

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Bannett has over 32 years of experience serving municipal and private-sector clients. He provides expertise in project management, including leading the design, permitting, and construction of water, wastewater, stormwater, sewer, and roadway projects. **Professional Organization:** American Water Works Association, American Society of Civil Engineers, Florida Engineering Society, Florida Engineering Leadership Institute, Class of 2007.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Greenfield Reverse Osmosis Water Treatment Plant and Production Wells, City of West Melbourne, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Bannett is assisting with design and construction of a stormwater collection and conveyance system to support a 9-acre WTP consisting of approximately 0.68 acres of open and closed roof spaces, 0.67 acres of roadways, parking and sidewalks, and 1.85 acres of green space/water management areas to support multiple processes on the site. The site is proposed to include an area for a future administration building with associated parking. Services include surveying, geotechnical engineering, civil engineering design, permitting, coordination with utility providers for adjustments and or relocations, preparing quantity calculations, engineers estimates of probable costs, and bidding assistance. Construction administration and observation will be provided during construction. **Cost:** $57 million (Construction Bid); $5.05 million (Engineering fee) **Specific Role:** Senior Project Engineer

b.

(1) TITLE AND LOCATION *(City and State)*: **Atlantic Sapphire, LLC, USA Salmon Farm Unincorporated Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

This Construction Manager-at-Risk (CMAR) project involves design and construction of over 85 acres of buildings, 17 acres of roadways and parking facilities and 60 acres of green space to support multiple functions on the site including Administration, Employee Health and Wellness, Process, Feed, SMOLT and Research Buildings, Warehouses and Work Shops, Salt and Fresh Water Treatment Facilities, Oxygen and Chiller Plant, a free-standing Generator Building and FPL Substation. The design will include stormwater catch basins, inlets, piping, manholes, exfiltration trenches and gravity drainage wells as well as water mains and force mains within the project area. The professional services include stormwater analysis, civil engineering design, preparing quantity calculations, and engineers estimates of probable costs. Construction activities will include observing utility tie-ins, pavement, sidewalk and roadway construction, monitoring of erosion and sedimentation controls, the removal and disposal of unsuitable soils, startup and testing of the new facilities, review of operation and maintenance manuals, record documents, as-builts, testing and other miscellaneous responsibilities required for completion of the work. **Status:** Expected completion year is 2028. **Cost:** $13 million (design and CMS fee, est.); $350 million (construction, est.) **Specific Role:** Senior Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **Fort Pierce Utility Authority Mainland Water Reclamation Facility City of Fort Pierce, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Bannett served as Senior Project Manager for the design-build and construction of a 25-acre water reclamation facility consisting of multiple processes on the site including an Administration and Maintenance Building, pretreatment (influent screening and grit removal), secondary treatment (SBR process), Blower Building with common wall electrical and generator rooms, tertiary filters, chlorine contact chamber, chemical storage facility (bulk sodium hypochlorite), aerated sludge holding, biosolids processing, HLD reuse storage tank (for cooling tower blowdown and onsite plant service water), and industrial and municipal deep wells with pump station. Work included design, permitting and construction services of water, sewer, paving, grading and drainage improvements in support of the project. **Cost:** $6.4 million (fee) **Specific Role:** Senior Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Edgewood Neighborhood Stormwater Improvements City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

This project involves installation of stormwater catch basins, manholes, conflict structures, piping and outfalls, inline check valves, exfiltration trenches and gravity drainage wells as well as replacement of select water mains and force mains within the project area. Professional services include stormwater analysis, design, permitting, coordination with utility providers, preparing quantity calculations, and engineers estimates of probable costs. Construction services will include observation, responding to RFIs, review of shop drawings, as-builts and testing for the site. **Cost:** $14.5 million (construction) **Specific Role:** Senior Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Southwest Wastewater Treatment Plant Water Main Replacement Hydraulic Evaluation, City of Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2021; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

This project involved evaluation of multiple impact scenarios that would involve abandoning of an existing 12-inch water main located at the Southwest WWTP and neighboring residential community and replacing with one of three water main improvement scenarios. The work included analyzing peak hour water pressures, water velocity, available fire flows and identification of areas of stagnation. The work involved using the City's water system model and GIS database as a guide. Deliverables for the project included providing conceptual pipe size layouts on aerials and preparing class 5 cost estimates for each scenario. This information was summarized and presented in a detailed technical memorandum to the City complete with recommendations for implementing the improvements. **Cost:** $21,300 (fee) **Specific Role:** Senior Project Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Lucia Medina, PE **Associate**	**Site Civil/Stormwater**	**11**	**10**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
ME, Civil Engineering and Project Management BE, Civil Engineering	PE / FL - Civil Engineering (FL 83664)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Medina's 11 years of experience includes hydrologic and hydraulic modeling, stormwater management, civil, stormwater and process design, as well as project coordination and management. She is also proficient in several platforms including AutoCAD, Civil3D, ArcGIS, and Interconnected Channel and Pond Routing (ICPR4) modeling.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Stormwater Master Plan Update and Flood Vulnerability Assessment, City of Oakland Park, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Medina is managing the development of a stormwater master plan and a city-wide flood vulnerability assessment for the City. The analysis is based on both a hydrologic & hydraulic model and a geospatial model. The models utilize various data sources and provide a comprehensive stormwater flooding assessment for both current and future projected climatological conditions. She is coordinating with the City to understand the City's composition, known vulnerabilities and to identify critical and important assets. Modeling results have facilitated the identification and prioritization of specific vulnerabilities throughout the City, which directed recommendations for adaptation strategies and effective solutions to increase resiliency to climate change. Ms. Medina is currently finalizing the stormwater master plan portion of this project due to inform the City in the development of future capital improvement projects. **Cost:** $292,000. **Specific Role:** Modeling/Project Manager.

b.

(1) TITLE AND LOCATION *(City and State)*: **Stormwater Master Plan Modeling and Design Implementation Services, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The Fort Lauderdale program consists of the delivery of a new stormwater master plan and design implementation to address chronic flooding and other stormwater management issues in the city. The program focuses on resilient adaptation to climate change and inclusion of innovative and regional solutions. Ms. Medina is coordinating with the modeling team to develop the hydraulic, hydrologic, and groundwater modeling used to inform the design teams. She has hands-on experience with ICPR4, the modeling software selected by the City as well as various ArcGIS applications used to dovetail raw data into modeling inputs and parameters. Her role includes collecting and organizing supporting data from agencies, developing detailed modeling workflows to streamline coordination and consistency amongst project partners, and providing modeling support for the design teams by providing models that showcase both existing and future scenarios with variable time horizons. **Cost:** $22.1 million (fee to date) $200 million (est. construction for initial 7 neighborhoods). The City expects to authorize funding another $200 million in 2026. **Specific Role:** Modeling/Project Supervisor.

c.

(1) TITLE AND LOCATION *(City and State)*: **Village of North Palm Beach Stormwater Master Plan Modeling and Design Implementation, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Medina served as Project Manager for the development of the Stormwater Master Plan Modeling and Design Implementation for the Village of North Palm Beach. Ms. Medina led the team to gather data pertaining to the City's stormwater management system, develop a hydrologic and hydraulic model to inform and vet capital improvement recommendations that include detailed cost and duration estimates as well as implementation considerations. **Cost:** $187,980 (fee). **Specific Role:** Project Manager.

d.

(1) TITLE AND LOCATION *(City and State)*: **City of Coral Gables Assessment of Sea Level Rise (SLR) Impacts on Existing Infrastructure and Adaptation Plan, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Medina assisted in evaluating the potential impacts of SLR on specific existing City infrastructure. Critical infrastructure was identified, and a risk assessment conducted under various scenarios. Adaptation strategies, consisting of physical improvements, policy changes, and emergency response were developed. Her role included the development of the ICPR4 model used to gauge the effects of storm surge and king tide on critical infrastructure within the City of Coral Gables. Ms. Medina used data provided by various agencies and sources to carve out a hydraulic and hydrologic model that would inform the City of its stormwater vulnerabilities. **Cost:** $30,000. **Specific Role:** Modeling.

e.

(1) TITLE AND LOCATION *(City and State)*: **Town of Jupiter Seminole Basin Improvements – Phase I, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen assisted the Town in improving the Seminole Basin drainage system by determining the benefits associated with proposing a second pump station and outfall. The need for additional attenuation, water quality improvements, and/or conveyance improvements within the basin were also evaluated. Ms. Medina updated the existing ICPR model of the Seminole Avenue Basin to incorporate the proposed pump station and proposed connections into the existing drainage system. Modifications to existing components of the conveyance system were also considered to ensure the most effective use of the proposed pump station. **Cost**: $33,735. **Specific Role:** Modeling.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
John Burke, PE **Senior Associate**	**Electrical**	**59**	**21**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Jacksonville, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Electrical Engineering	PE / FL – Electrical Engineering (FL 17301)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Burke has 59 years of experience in the planning, design, and project management of power, control and instrumentation systems associated with new and upgraded water and wastewater facilities. His capabilities range from concept through final design and extend to construction management and power systems analysis. He led design of the electrical systems at the City of Pembroke Pines' 12-mgd WTP expansion over 20 years ago as a subconsultant. Mr. Burke has provided electrical design quality assurance/quality control review for many Hazen water projects including the City of Hallandale Beach 6-mgd Membrane Softening Facility, Town of Jupiter 14.5-mgd Nanofiltration Facility, and the Seminole Tribe of Florida (STOF) Water Treatment Plant Process Improvements, Brighton, FL**. Professional Organizations:** National Society of Professional Engineers; Florida Engineering Society.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
6-mgd Membrane Softening Facility **City of Hallandale Beach, FL**	2009	2008

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided design, bidding, permitting, and construction management services to replace an equivalent volume of existing lime softening capacity at its water treatment plant to provide the required higher level of treatment for the Piccolo wellfield supply. Hazen provided design, bidding, permitting, and construction management services, as well as oversight, pilot testing, start-up coordination, and first-year operational assistance for the new 6-mgd membrane facility (2008 Project of Year Award, American Public Works Association) to replace an equivalent volume of existing lime softening capacity at its water treatment plant and provide the required higher level of treatment for the Piccolo wellfield supply. Total build-out capacity of the new membrane facility is 13 mgd, which includes up to 4 mgd of brackish water reverse osmosis treatment capacity. Hazen also completed design, permitting, and construction oversight of the injection well. **Cost:** $20 million (inclusive of membrane facility, concentrate disposal well, and engineering and administration fees). **Specific Role:** QA/QC.

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
14.5-mgd Nanofiltration Facility **Town of Jupiter, FL**	2010	2010

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided design, permitting, and pilot testing oversight services for the 14.5-mgd Nanofiltration Facility (expandable to 17 mgd). The design included preparation of contract documents for construction of a new nanofiltration facility and ancillary facilities. The Town operated a water treatment plant with three independent treatment processes: lime softening, ion exchange, and reverse osmosis (RO). The Town added a nanofiltration facility (NF) to produce potable water from the surficial aquifer. The NF treatment continues ongoing product water quality improvement and ultimately allowed retirement of the lime softening treatment plant. The design included preparation of contract documents for construction of the new nanofiltration facility and ancillary facilities. The bid package included detailed design drawings and technical specifications. **Cost:** $2 million (fee); $37 million (Bid); $37 million (project cost). **Specific Role:** Electrical Engineer-of-Record

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
East WTP Chemical Storage Facility **City of Plantation, FL**	2023	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided engineering and construction management services for the design and construction of replacement of several chemical storage and feed facilities at the City of Plantation East Water Treatment Plant. The chemical storage and feed facilities included fluoride, sodium hydroxide, sodium hypochlorite, corrosion inhibitor, scale inhibitor and sodium hexametaphosphate. The replacement included all bulk storage and day tanks, transfer pumps and metering pumps, chemical loading stations, all chemical transmission piping and double containment, and all chemical injection points and quill assemblies. The project also included all chemical system SCADA and electrical upgrades needed for a new state-of-the-art facility. **Cost:** $290,784 (fee); $298,787 (construction management – Phase I); $533,270 (construction management – Phase II). **Specific Role**: Electrical Engineer-of-Record

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Seminole Tribe of Florida (STOF) Water Treatment Plant Process Improvements, Brighton, FL	Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The Seminole Tribe of Florida (STOF) owns and operates the Brighton WTP (rated capacity of 1.6 mgd), which is supplied by surficial aquifer wells. The existing process uses microfiltration and reverse osmosis membranes. To improve water treatment operations and overall water quality, STOF decided to transition to Upper Floridan Aquifer wells as a new water supply source. Hazen assisted with the detailed design of new treatment facilities and reconfiguration of the existing process to treat this new brackish groundwater supply. **Cost:** $520,000 (fee). **Specific Role:** Electrical Engineer-of-Record

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Membrane Softening Facility RO Skid Addition **City of Hallandale Beach, FL**	Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided design, permitting, construction management services for water supply well PW-9, three saltwater monitor wells, and a brackish water reverse osmosis (RO) train addition. The RO train, with a capacity of 2 mgd, was designed for a maximum feed water salinity of 5,000 mg/L. Pretreatment included sand separators, five-micron cartridge filtration, and chemical additions. The flexible RO skid accommodates raw water from Broward County South Regional Wellfield or City wells with PFAS and potential saltwater intrusion. The skid, designed for varying salinities, features an energy recovery turbine for cost-effective feed pumping. **Cost:** $1.7 million (project cost). **Specific Role:** Electrical Engineer-of-Record

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jose Cano, PE **Senior Principal Engineer**	**Electrical**	**8**	**3**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Coral Gables, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Electrical Engineering	PE / FL – Electrical Engineering (FL 92167)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Cano specializes in the design of electrical power distribution systems for water and wastewater treatment and pumping facilities. He is also experienced in the evaluation of existing electrical systems at operational facilities. His expertise includes lighting design, fire alarm systems, building automation systems, and grounding and lightning protection. Mr. Cano's experience also includes creating LDARS and PDARS and preparing CADD plans using MicroStation 3D software. **Professional Organizations:** American Water Works Association; Florida Water Environment Association; Cuban American Association of Civil Engineers.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **North District WWTP Electrical Distribution Building No. 3 Design, Miami-Dade Water and Sewer Department, Miami-Dade County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Cano is responsible for the design of the new Electrical Distribution Building No. 3, which will replace the existing Electrical Distribution Building No. 1 at the North District WWTP. Design includes new medium and low voltage arc resistant switchgears with main-tie-tie-main configurations, nine medium voltage generators, medium voltage transformers and low voltage motor control centers, and other low voltage distribution equipment. **Status:** The project is estimated for completion in 2028. Cost: $10.5 million (design and CMS est. fee); $180 million (est. construction) **Specific Role:** Electrical Engineer

b.

(1) TITLE AND LOCATION *(City and State)*: **S-8 Upgrades, South Florida Water Management District (SFWMD), City of West Palm Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Cano is responsible for the design of all electrical improvements at the SFWMD's existing pump station. Upgrades include replacement of two existing generators and associated power distribution equipment, power and controls for a new fuel farm facility and new lift station, new layout of site and security lighting, and addition of lightning protection system to the building and other outdoor facilities. **Status:** Construction is estimated for completion in 38 months in July of 2027. **Cost:** $1,460,000 (est. fee) **Specific Role:** Electrical Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **Greenfield Reverse Osmosis Water Treatment Plant and Production Wells, City of West Melbourne, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen was selected to conduct piloting, preliminary design, final design and bidding services for a new 5-mgd drinking water plant utilizing membrane treatment. With the design of the WTP currently under way, Hazen was also tasked with an expedited design of the four water supply wells to serve the plant. The project included feasibility analysis to determine the feasibility of developing a new WTP and related infrastructure in lieu of obtaining potable water from an outside entity. Hazen designed and implemented a detailed testing plan to identify aquifer characteristics; and detailed testing to assess production capacity with depth, as well as consumptive use permitting. **Status:** Recommendations for additional production wells include 30 feet of surficial casing, additional casing near sewer lines, a final casing depth of 320 feet, and a 24-inch diameter for maximum surface area with an estimated completion date of 2026. **Cost:** $57 million (Construction Bid); $5.05 million (Engineering Fee) **Specific Role:** Electrical Engineer

d.

(1) TITLE AND LOCATION *(City and State)*: **Springtree Water Treatment Plant Electrical Improvements, City of Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Cano is responsible for the construction phase services associated with the project. This includes reviewing electrical-related shop drawings and requests for information, construction inspections, progress review meetings, and change management. The project consists of replacement of the plant's 5-kV electrical distribution system and replacement/modifications to the paralleling generator equipment. **Status:** Completion of construction is estimated for 2026. **Cost:** $500,000 (fee) **Specific Role:** Electrical Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Sawgrass Wastewater Treatment Plant – DAF Thickening Process Improvements Design and Bidding Services, City of Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2023; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Cano is responsible for the design of all electrical improvements at the City's WWTP's existing dissolved air flotation (DAF) thickening building. Improvements include new VFDs for existing pumps, control panels for DAF system, and lighting system for the building. **Statius:** Construction is estimated for completion in 2025 (est.). **Cost:** $284,000 (est. fee) **Specific Role:** Electrical Engineer

10E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each person)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Thein Win, PE	**Electrical Engineering**	**24**	**24**

15. FIRM NAME AND LOCATION *(City and State)*

Hillers Electrical Engineering, Inc, Boca Raton, Florida

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
BSEE, Electrical Engineering	**Florida Professional Engineer-65722**

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Institute of Electrical and Electronic Engineers (IEEE), Instrument Society of America (ISA), LEED AP

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Pembroke Pines WTP Electrical Improvements and Hurricane Hardening, Pembroke Pines, FL

(2) YEAR COMPLETED:	
PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
2022	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Senior Electrical/I&C Engineer – Electrical and instrumentation & control design, and construction inspection services for the water treatment plant electrical improvements and hurricane hardening project. The project consisted of two main breakers, two automatic transfer switches, two new manual transfer switches with portable generator termination boxes, two main 2000A switchboards, new motor control centers, new distribution panels, new step-down transformers, new lighting panels, etc. to replace the existing electrical distribution system while maintaining plant operation. The project also includes demolition of old control panel, cleanup the abandoned wires, and relocating the remaining signals to the nearest PLC/RIO panels.

b.

(1) TITLE AND LOCATION *(City and State)*

Pembroke Pines WWTP Effluent Pump Station Improvements Pembroke Pines, FL

(2) YEAR COMPLETED:	
PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
2020	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Senior Electrical/I&C Engineer – Electrical and instrumentation & control design, and construction inspection services for the effluent pump station improvements. Included the design of a new main-tie-main switchgear, new 300HP, 200HP, and 100HP VFD units for effluent pumps, new 4160V underground power feed with step-up and step-down transformers, new pump vibration and temperature monitoring system, new floats, and modification of the existing Controllogix PLC system.

c.

(1) TITLE AND LOCATION *(City and State)*

Pembroke Pines WTP SCADA Improvements Pembroke Pines, FL

(2) YEAR COMPLETED:	
PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
2017	2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Senior Project Engineer – Electrical and instrumentation & control systems design and construction inspection services for the construction of the Pembroke Pines WTP CO_2 injection system. The project consisted of a new power feed to the CO_2 storage tank, vaporizer, heater, carrier water booster pumps, dilution system, etc., and new instrument and control implementation for the Plant PLC and SCADA system related to the CO_2 system.

d.

(1) TITLE AND LOCATION *(City and State)*

Palm Beach County WUD – WTP 8 Anion Exchange Improvements West Palm Beach, FL

(2) YEAR COMPLETED:	
PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
2015	2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Senior Electrical/I&C Engineer – Electrical, fire alarm, and instrumentation & control design and construction inspection services for the new Anion Exchange System at WTP 8. Included designing a new electrical distribution for the AIX Electrical Building and process, new switchboard, new motor control center (MCC), new variable frequency drives (VFDs), and starters. Instrumentation and control/SCADA service included new PLC control panel, RIO panel, and new instruments. A new fire alarm system and access control system compliant with the County ESS Department requirements were also included.

e.

(1) TITLE AND LOCATION *(City and State)*

Palm Beach County WUD – WTP 2 Treatment and Disposal Improvements, Palm Beach County, FL

(2) YEAR COMPLETED:	
PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
2020	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Senior Electrical and I&C Engineer – Provided electrical, fire alarm, access control, and instrumentation & control design and construction inspection services for the PBC WTP 2 Treatment and Disposal Improvements. The project consisted of a new lime treatment unit, filter backwash recovery pump station, hypochlorite metering pumps system, a new aeration system for each ground storage tank to reduce THMs (Trihalomethanes) level in water, new raw water wells, etc. The project also included a new fiber optic ring for the plant PLC and SCADA network, as well as new RIO panels, new field instruments associated with the process improvements, and modification of the fire alarm and access control systems.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Evan Curtis, PE **Associate Vice President**	**Instrumentation and Automation**	**30**	**23**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Boca Raton, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	PE / FL – Civil Engineering (FL 69657)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Curtis has extensive experience designing and commissioning various water and wastewater utility projects, most significantly in the area of instrumentation and controls. These projects involve existing system evaluations, design of improvements and construction phase services, as well as hands-on design/build services, including equipment procurement, programming, training, and startup. **Professional Organizations:** Instrumentation, Systems and Automation Society; American Water Works Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Owner's Representative for Design-Build Construction of New Water Treatment Plant, City of Delray Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

As the City's Owner Representative, Mr. Curtis and the Hazen team provide technical assistance to the City throughout multiple project phases. The project will include construction of a new WTP, installation of six SAS wells, rehabilitation of a portion of the existing SAS wells, and construction of a deep injection well and monitor wells. Phase 1 support services currently being provided include engineering services during the pre-design phase, Phase 1 detailed design, and schedule and cost reviews. **Cost:** $775,000 (fee through Phase I); $250 million (project construction estimate). **Specific Role:** I&C Engineer

b.

(1) TITLE AND LOCATION *(City and State)*: **Fiveash Water Treatment Plant Phase 1 Improvements Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Curtis served as an Instrumentation and Controls Engineer responsible for construction-phase services including shop drawing review, responding to contractor questions, designing and negotiating change orders, control system testing, startup assistance, and operator training. Key improvements to the existing 70-mgd lime softening treatment plant included: automating plant flow rate and level controls, replacing four lime slakers, automating 22 existing conventional sand filters and backwashing pumps, adding aqueous ammonia and coagulant polymer feed systems, integration of new sludge pumping systems, and establishing a new digital control system using fiber optic Profibus and Ethernet networking and wireless tablet HMI computers. **Cost:** $6.7 million (fee); $48 million (Contractor's Bid Amount) **Specific Role:** Instrumentation and Controls Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **Prospect Lake Clean Water Center City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen was selected to provide Owner's Representative Services for design and construction of the proposed 50-mgd (finished water capacity) WTP. The City is procuring this project through a Public-Private-Partnership (P3) agreement. Hazen provides Owner's Representative services to review the design and oversee the construction of the $700 million WTP. Mr. Curtis serves as I&C Engineer and is responsible for reviewing design documents and providing specialty inspections of construction work. **Cost:** $4.7 million (est. fee); $700 million (est. construction) **Specific Role:** Instrumentation and Controls Engineer

d.

(1) TITLE AND LOCATION *(City and State)*: **Greenfield Reverse Osmosis Water Treatment Plant and Production Wells, City of West Melbourne, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen led the design of a new 4-mgd reverse osmosis water treatment plant. The design includes four treatment trains, each with a treatment capacity of 1.1 mgd of permeate water. The WTP will include pre-treatment systems, post-treatment systems consisting of degasifiers and clearwell, chemical feed systems, storage, and high service pumping necessary to produce high quality, finished water delivered to the City's residents. This project includes engineering services for final design, permitting, and bidding for the WTP. **Cost:** $57 million (Construction bid); $5.05 million (Engineering fee). **Specific Role:** Instrumentation and Controls Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Hallandale Beach Membrane Softening Plant Hallandale Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2009; CONSTRUCTION *(If applicable)*: 2009

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Curtis was responsible for inspection services during startup and first year operational assistance. The project included a 6-mgd membrane softening facility, pre-treatment facilities, related chemical storage and feed facilities, air strippers/clearwell, concentrate booster pump station, and integration of the existing lime softening water treatment plant control system. **Cost:** $565,790 (design fee); $4.6 million (construction) **Specific Role:** Instrumentation and Controls Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Alfredo Jimenez **Senior Principal Scientist**	**Instrumentation and Automation**	**15**	**3**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BE, Electrical Engineering	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Jimenez brings 15 years of experience providing automation and control services for treatment facilities within both the public and private sectors. He is an expert in PLC programming and shop drawing reviews with extensive knowledge of instrumentation and control procedures. Mr. Jimenez's expertise includes instrumentation and control, PLC and HMI programming, SCADA system design, control panel design, telemetry, and networks and start-up of new WTP facilities. **Professional Organizations:** International Society of Automation; Underwriting Laboratories.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of Deerfield Beach West Water Treatment Plant Chemical Line Replacement, Deerfield Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Jimenez serves as Instrumentation and Controls Engineer for this project that included design of a new chemical system for the City. The design includes a modern control strategy for the chemical system, modifications to the existing network as well as SCADA system improvements. Mr. Jimenez was responsible for designing all P&IDs processes, controls descriptions, and specifications. information submitted by regulatory agencies. **Cost:** $500,000 (fee); $1.7 million (construction, est.). **Specific Role:** Instrumentation and Controls Engineer.

b.

(1) TITLE AND LOCATION *(City and State)*: **City of Coral Springs Water Treatment Supply Wells Rehabilitation, Coral Springs, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018; CONSTRUCTION (If applicable): 2018

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Mr. Jimenez provided integration of the newly rehabilitated supply wells with the existing SCADA system. This project required a multi-protocol converter to be able to send data via Modbus RTU through the existing telemetry infrastructure, and HMI graphics modifications to incorporate historical data, reports, and security features. Another key feature of the project included the configuration and integration of the pump's VFD over the network. **Specific Role:** Instrumentation and Controls Engineer.

c.

(1) TITLE AND LOCATION *(City and State)*: **Atlantic Sapphire Salmon Farm Phase 1, Homestead, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Mr. Jimenez was responsible for implementing control strategies for supply and injection wells, cooling water wells, saltwater filtration system, odor control, and chemical dosing. These included: DLR Network configuration, which provides means to detect, manage, and recover from single faults in a ring-based network; VFD communication table configurations to provide pump controls over EtherNet/IP™ protocol; and a network-based instrumentation and control system, including flow meters, ultrasonic level transmitters, and salinity analyzers. **Status:** Completion is estimated for 2028. **Cost:** $13 million (design and CMS fee); $350 million (est. construction). **Specific Role:** Lead Instrumentation and Controls Engineer.

d.

(1) TITLE AND LOCATION *(City and State)*: **City of Hallandale Beach High-Service Pump Station Replacement, Hallandale Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020; CONSTRUCTION (If applicable): 2020

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

This project required the implementation of a modern control strategy for the pump station. The project also involved the design of a new PLC control panel with a state-of-the-art monitoring system; integration of third-party equipment (pressure transmitters, pressure switches, flow meters, VFDs and analytical instrumentation) with the existing SCADA system; development of new graphics for the pump station local HMI; deployment of modified and new graphics to the existing SCADA system; and modification of the existing PLC logic to provide a comprehensive control strategy. **Cost:** $4.68 million (construction). **Specific Role:** Lead Instrumentation and Controls Engineer.

e.

(1) TITLE AND LOCATION *(City and State)*: **Town of Manalapan Water Treatment Plant, Manalapan, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION (If applicable): 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Mr. Jimenez implemented plant-wide upgrades involving booster station telemetry and instrumentation integration. The project included PLC control strategy, local HMI, and SCADA design as well as redesign of the telemetry system to optimize communications with remote sites. He also integrated remote sites with the existing SCADA system and upgraded the booster station controls and local HMI. **Specific Role:** Project Engineer.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jean Paul Silva, PE, FRSE **Senior Associate**	**Structural / Architecture**	**30**	**23**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Boca Raton, Florida

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil Engineering BS, Structural Engineering	PE / FL – Civil Engineering (FL 66522)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Silva serves as Hazen's Regional Manager for structural engineering in Florida, in charge of coordinating all structural assignments in the region. He has over 30 years of experience in structural design and construction administration of water and wastewater facilities, stormwater collection, storage tanks, and pump stations. Mr. Silva's experience includes design of new facilities, structural condition assessments, design of rehabilitation/upgrade of existing facilities, and structural/special inspections. **Professional Organizations:** American Water Works Association; American Institute of Steel Construction; Florida Engineering Society; American Concrete Institute; American Society of Civil Engineers.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Owner's Representative for Design-Build Construction of New Water Treatment Plant, City of Delray Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(if applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

As the City's Owner Representative, the Hazen team provide technical assistance to the City throughout multiple project phases. The project will include construction of a new WTP, installation of six SAS wells, rehabilitation of a portion of the existing SAS wells, and construction of a deep injection well and monitor wells. Tasks include, but are not limited to, scope validation of the new WTP, including documentation of the treatment selection and determination of the initial capacity; evaluation of and recommendation of project delivery methods; development of progressive Design-Build documents for advertisement; assistance in the review of documents provided by the proposers; assistance in the development and technical review of proposed scope of work and fees from the selected Design-Build team; facilitating funding assistance; and managing document control. Phase 1 support services currently being provided include engineering services during the pre-design phase, Phase 1 detailed design, and schedule and cost reviews. **Cost:** $775,000 (fee through Phase I); $250 million (project construction estimate) **Specific Role:** Structural Engineer

b.

(1) TITLE AND LOCATION *(City and State)*: **Fiveash Water Treatment Plant Reliability Upgrades City of Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(if applicable)*: N/A (Construction cancelled)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The Fiveash WTP is a 70-mgd lime softening plant that was originally constructed in the 1950s. Many of the plant processes were at the end of their useful life. This project included the design of improvements to numerous plant processes and structures, including: a new backup power generation building (with two 1,250 kilowatt generators), renovation of the primary control room, automation of plant processes, storm hardening of key facilities, and roofing and roof drainage replacement. Additionally, the project included replacement of the 90-ton chlorine railcar system with a bulk (12%) sodium hypochlorite facility (capable of feeding 6,000 pounds per day of equivalent chlorine). **Status:** The Reliability Upgrades and Disinfection System project bid at $48 million in 2019, the City canceled the bids to reduce scope given its decision to construct a replacement WTP. **Cost:** $48 million (Contractor's Bid Amount) **Specific Role:** Structural Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **North Miami Winson WTP Filter Rehabilitation Project City of North Miami, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017; CONSTRUCTION *(if applicable)*: 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Silva served as the Structural Engineer for the design of upgrades and rehabilitation of an existing 9.3-mgd lime softening WTP originally constructed in the early 1960s. The project included replacement of water storage tanks, new high service pump, backwash and transfer pump station, new chemical storage and feed facility, replacement of lime contactor mechanism, and a new two-story administration building that will also function as an emergency operating center and meets LEED requirements for Silver classification. **Cost:** $716,540 (fee). **Specific Role:** Structural Engineer

d.

(1) TITLE AND LOCATION *(City and State)*: **City of Fort Lauderdale Dixie Wellfield Improvements Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2008; CONSTRUCTION *(if applicable)*: 2008

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This project involved a reverse osmosis water treatment system. The City replaced their existing lime softening facilities at the Peele-Dixie WTP with a 12-mgd finished water capacity nanofiltration water treatment plant. The City retained the services of Hazen to evaluate, permit, and design wellfield improvements for the Dixie Wellfield. **Cost:** $785,000 (design fee); $720,400 (construction management fee); $9.2 million (construction). **Specific Role:** Structural Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Seminole Tribe of Florida (STOF) Hollywood Reservation Membrane WTP, Hollywood, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016; CONSTRUCTION *(if applicable)*: 2016

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Silva provided quality control for the design of miscellaneous improvements for a 3-mgd membrane softening facility. The project included the replacement of the sulfuric acid storage, feed and injection facilities, mechanical and instrumentation improvements to two raw water wells and the installation of a new engine-driven high service pump and associated fuel storage and feed system. In addition, Mr. Silva served as Structural Engineer of Record for the Hollywood reservation's electrical reliability upgrades in addition to reviewing shop drawings. **Cost:** $670,000 (fee); $1.3 million (construction). **Specific Role:** Structural Engineer-of-Record

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Samuel Smith, PE **Senior Associate**	**Structural / Architecture**	**17**	**9**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Boca Raton, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
ME, Civil Engineering BS, Civil Engineering	PE / FL – Structural Engineering (FL 73430)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Smith's structural engineering experience includes performing design and analysis calculations, preparing condition evaluation reports, conducting structural inspections, performing construction administration services; and developing details, plans, and cost estimates for various projects. This includes water and wastewater treatment plants, pump stations, seawalls, piers, and bridges. He has also provided special inspections, shop drawing review, and requests for information review for various municipal/governmental projects. **Professional Organizations:** American Society of Civil Engineers.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of Boca Raton Water Treatment Plant Ammonia System Evaluation, Boca Raton, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The City requested that Hazen provide engineering services to determine code compliance for the installation of two new 1,000-gallon anhydrous ammonia tanks. The work included evaluation of code compliance of the existing ammoniator room. Mr. Smith provided structural inspection, analysis, and recommendations presented in a report. **Cost:** $19,890 (fee**)**. **Specific Role:** Structural Engineer.

b.

(1) TITLE AND LOCATION *(City and State)*: **City of Plantation East Water Treatment Plant Chemical Storage and Feed Facility Improvements, Plantation, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF *DESCRIPTION* (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen was selected to provide design services to relocate and enhance the fluoride chemical storage and feed facility. Mr. Smith provided structural engineering design for the addition of a 16-foot x 26-foot x 25-foot-high interior masonry fluoride room within the existing chemical building. This included design of reinforced concrete foundations, containment walls, masonry walls, stairs, trenches, coatings, and other miscellaneous items. He also prepared technical specifications and construction cost estimates. **Cost:** $289,000 (fee); $4.5 million (est. construction). **Specific Role:** Structural Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **City of Dunedin Water Treatment Plant Refurbishment, Dunedin, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: 2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Smith provided structural design and consulting services on this design-build project. His work included providing practical structural design improvements for plant serviceability and supporting the capacity for upgrades. Specific items included upgrades to a floor grating framing system to support proposed forklift loads, design of various pipe and electrical structural support systems, modification to floors/walls (new openings, closures, demolition, or repairs), modifications and design of containment for an existing building to introduce sodium hypochlorite storage, and design of a davit crane foundation. Work also included the structural support slab for the modular carbon absorption system, with an operational weight of over 100 tons. **Cost:** $730,000 (fees). **Specific Role:** Structural Engineer.

d.

(1) TITLE AND LOCATION *(City and State)*: **City of Fort Lauderdale Second Avenue Tank Restoration, Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016; CONSTRUCTION *(If applicable)*: 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Smith was responsible for structural design improvements to the existing Northwest Second Avenue Water Supply Tank. The improvements included the removal and design of new handrailing and fall protection devices, ladders, lighting supports and access hatches for the 157 feet high by 78 feet wide water tank. **Cost:** $1.9 million (construction). **Specific Role:** Structural Engineer.

e.

(1) TITLE AND LOCATION *(City and State)*: **Miccosukee Tribe of Florida Water Treatment Plant Upgrades, Hialeah, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION *(If applicable)*: 2020

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen was selected to provide design improvements, including the addition of pellet softening units, rectangular gravity filters, and other upgrades for the Miccosukee Tribe of Florida. Mr. Smith provided multi-level platform design under schedule constraints, which provides egress and access to the pellet softeners and filters for staff. The platform design provided linked access to both the pellet softeners and filters. **Cost:** $3.3 million (construction). **Specific Role:** Structural Engineer.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
William Russell, RA, AIA, LEED AP **Associate Vice President**	**Architecture**	**41**	**30**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Raleigh, North Carolina

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BA, Design	Registered Architect / FL (AR102588), NC, VA, IL, MD, CT, NY, NH, TX, OH, CA, ME, CO, AZ, NM, WV, AR, UT, GA American Institute of Architects (AIA) LEED Accredited Professional (LEED AP)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Russell has more than 41 years of experience in the architectural design of water and wastewater treatment plants, maintenance buildings, laboratories, and other industrial facilities. This includes preliminary and final design, technical specifications, cost estimation, and project administration during construction. **Professional Organizations:** The Society for Protective Coatings; International Code Congress

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Winson Water Treatment Plant Rehabilitation and Reliability Improvements, City of North Miami, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2024	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Russell provided design services and served as the Building Sustainability Coordinator. The project included process modifications and a new administration building with control room, laboratory, office, emergency operations center, and other common facilities, as well as modification to existing buildings. The new administration building was designed to incorporate sustainable strategies. **Cost**: $716,500 (fee); $3.3 million (construction) **Specific Role:** Architect and Building Sustainability Coordinator

b.

(1) TITLE AND LOCATION *(City and State)*

Middle Fork Water Treatment Plant Design
Indiana American Water, Richmond, IN

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	2020

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Russel provided design and construction administration for the WTP and associated facilities. The project included a new treatment building that encompassed administrative and laboratory spaces; flocculation, sedimentation and filter room, chemical rooms; and UV room. The administrative area included a control room, SCADA room, offices, restroom/locker room, break area, training room and laboratory. The chemical areas housed ferric chloride, liquid ammonium, coagulant, polymer, sodium hydroxide, sodium hypochlorite, phosphoric acid, fluoride, permanganate, and analyzer room. The chemical areas were separated by a common drive that was utilized for filling. The project included a clearwell with a single-ply roofing system. The building utilized architectural concrete masonry for the façade, low slope single ply roofing system, aluminum windows and doors. Removable translucent panels provided access to the chemical rooms. **Cost:** $31 million **Specific Role:** QA/QC Reviewer for Architectural Design

c.

(1) TITLE AND LOCATION *(City and State)*

Plant 30 Wellhead Treatment Design
Monte Vista Water District, Montclair, CA

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2020	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Architecture Lead for the planning and design of a 4,000 gpm treatment system for Monte Vista Water District. Treatment includes GAC for 1,2,3-TCP and regenerable ion exchange for nitrate and perchlorate. The design includes treatment of two out of three wells and pipelines from two wells to the third well site. Future expansion for treating all 3 wells is a design consideration. **Cost:** $1.3 million (est. fee) **Specific Role:** Architecture Lead

d.

(1) TITLE AND LOCATION *(City and State)*

Eugene Hickson Ion Exchange WTP and Well Improvements
City of Arcadia, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	2015

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen provided engineering services for the study, design, permitting, construction administration, and start-up for a new 1.5-mgd ion exchange WTP and well improvements. Mr. Russell provided preliminary architectural design and final QA/QC services. The project included a new high service pump station building, which also housed a control room, operator's laboratory, office, toilet facilities, and mechanical spaces. The building utilized masonry walls with a stucco finish. **Cost:** $7.7 million (construction) **Specific Role:** QA/QC Reviewer for Architectural Design; Preliminary Design

e.

(1) TITLE AND LOCATION *(City and State)*

Eastside Water Treatment Facility Expansion
City of Chino, CA

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2020	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

For this project, Mr. Russell designed a 3,500 gpm treatment expansion at the Eastside WTF. Treatment includes GAC for 1,2,3-TCP and ion exchange for nitrate. The design includes treatment of three wells, with potential for a fourth, pipelines, buildings and control systems. This design required careful integration of the new equipment with existing treatment on site. The project utilized a metal building system with factory foamed metal wall panels. Provided construction administration services related to the building systems. **Cost:** $7 million **Specific Role:** Architect

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Bahareh Tajdini, PhD **Scientist**	**Process Optimization and Pilot Testing**	**4**	**<1**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Coral Gables, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Civil and Environmental Engineering MS, Water Resources and Environmental Management BS, Chemical Engineering	-

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Tajdini is a scientist with over four years of experience in PFAS analysis and treatment. She earned her Ph.D. in Civil and Environmental Engineering from the Colorado School of Mines, where her research focused on the removal of PFAS from complex water matrices using sorption-based processes including granular activated carbon, ion exchange resins and emerging adsorbents. Prior to her doctoral studies, she worked on quantitative microbial risk assessment related to water and wastewater reuse applications. Dr. Tajdini has received several prestigious awards, including the Best Doctoral Dissertation Award from the Department of Civil and Environmental Engineering at the Colorado School of Mines, the Martha Hahn Water Reuse Colorado Scholarship, and the American Water Works Association (AWWA) Bryant Bench–Carollo Engineers Scholarship. Her research has led to multiple peer-reviewed publications on PFAS target and non-target analysis, as well as innovative treatment strategies using both sorption and membrane processes.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Study and Pilot Testing WTP**, **City of Margate, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of Margate's Water Treatment Plant faces elevated PFAS levels in its wells and finished water, with existing lime softening processes unable to meet new EPA standards. Hazen was contracted to develop a PFAS Management Plan, including desktop evaluation of adsorptive media and membrane options in Phase 1, followed by pilot-scale testing of selected adsorbents to assess treatment longevity and effectiveness. The outcome of this project will guide recommendations for full-scale design, and include considerations such as operational costs, head loss accumulation, and seasonal water quality changes. **Cost:** $490,895 (fee) **Specific Role:** Pilot-scale operation and PFAS subject matter expert

b.

(1) TITLE AND LOCATION *(City and State)*: **Winson WTP PFAS Management Plan**, **City of North Miami, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen was selected to develop and operate a pilot system exploring PFAS breakthrough times. The pilot system results will allow the City to better understand the operation and maintenance costs of a full-scale PFAS treatment system, and ultimately, the project will provide the City a recommended path to achieving compliance with the proposed EPA PFAS regulations. **Cost:** $350,000 (fee) **Specific Role:** Pilot-scale operation and PFAS subject matter expert

c.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Treatment Pilot, Miami-Dade Water and Sewer Department (WASD), Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

This PFAS Demonstration Project is designed to develop a holistic evaluation of PFAS treatment and management approaches to determine the most beneficial and cost-effective manner for WASD to ensure compliance with the updated PFAS Rule. Hazen's role will include demonstration procurement and construction, adsorption demonstration testing at the Alexander Orr, Jr. Water Treatment Plant, membrane demonstration testing at Orr and Preston-Hialeah WTPs, and post-testing comparison. Hazen will also provide supplemental pre-treatment bench testing, treatment life cycle and feasibility assessment, assessment of alternative approaches, multi-criteria decision analysis, joint holistic evaluation report, and communications support. Hazen will also perform a desktop evaluation of currently available NF/RO membranes using the manufacturer's software. The membrane(s) with projected lowest life cycle costs will be shortlisted for pilot testing and one of these membranes will be selected for demonstration testing based on availability. **Cost:** $2.3 million (fee) **Specific Role:** Pilot-scale operation and PFAS subject matter expert

d.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Removal Regulatory Compliance Evaluation**, **City of Hollywood, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The City of Hollywood has selected Hazen to evaluate alternative treatment configurations for PFAS removal. Although the City currently operates membrane-based technologies (reverse osmosis and nanofiltration) part of the treatment train includes conventional lime softening, which does not remove PFAS. As a result, the blend water from these three treatment process units has PFAS levels above the regulatory limits. Hazen will support decision-making on the final treatment configuration to ensure that PFAS concentrations remain below regulatory limits. A mass balance model was developed to estimate PFAS concentrations and associate water quality parameters under each treatment scenario. Additionally, a multi-criteria decision analysis tool was expanded using the mass balance outputs to identify the optimal scenario for achieving PFAS compliance. **Cost:** $385,200 (fee) **Specific Role:** PFAS subject matter expert/mass balance tool development

e.

(1) TITLE AND LOCATION *(City and State)*: **Porous Polymer Networks and Membranes for Selective PFAS Removal from Water**, **Golden, CO and Berkeley, CA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2025; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☐ Check if project performed with current firm

During this project, funded by the U.S. Department of Energy (DOE), a collaboration was established between the Colorado School of Mines and the University of California, Berkeley to develop a new generation of adsorbents with higher capacity and selectivity for PFAS removal from complex water matrices. The project has led to a patent and a peer-reviewed journal article currently under review. **Cost:** $1.2 million **Specific Role:** Lead researcher for PFAS experimental design/analysis

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Elie Andary, PhD, PE **Associate Vice President**	**Construction Management/ Inspections; Sequence of Construction/Maintenance of Plant Operations**	**22**	**21**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD and ME, Civil Engineering – Construction Management MS, Construction Management; BE, Civil Engineering	PE / FL – Civil Engineering (FL 67503)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Andary has over 22 years of experience in construction management and inspections. He has a proven track record managing complex projects and resolving conflicts/issues. Dr. Andary has been involved in developing contingency plans and monitoring construction schedules to ensure progress while maintaining existing plant operations. **Professional Organizations**: American Society of Civil Engineers, American Water Works Association, Construction Management Association of America

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **South District Wastewater Treatment Plant High Level Disinfection Project, Miami-Dade Water and Sewer Dept., Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013 — CONSTRUCTION (If applicable): 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Andary served as a Construction Manager on the High Level Disinfection (HLD) Project to upgrade the South District WWTP from 225 mgd to 285 mgd. The HLD upgrades consisted of 14 separate contracts, each responsible for construction of a portion of the overall system. The HLD Program was successfully placed in service 15 months ahead of schedule and roughly $58 million under the $618 million budget. The overall program integrated a complex construction schedule to plan, define contract coordination/milestone needs, and to ensure phased implementation throughout construction. Dr. Andary's duties included, but were not limited to, conducting construction phase meetings, supervising staff and field tests, defining project scopes, implementing a quality management plan to ensure project deliverables were being performed according to quality standards, and identifying and documenting high-level project risks, assumptions, and constraints. **Cost**: $43 million (fee); $440 million (construction). **Specific Role**: Construction Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **Atlantic Sapphire Miami Blue House Phase 2, Homestead, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing — CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Andary serves as Construction Manager for construction of the fish farm facility, which is being delivered under a CMAR-type delivery method. Work consists of a wastewater treatment plant, chiller plant, electrical distribution building (including but not limited to back-up power), and oxygen storage and interconnection with Phase 1 for fish movement and grading, fish harvesting, personnel movement, wastewater conveyance, processing, finished water from the water treatment systems. **Status:** The project is estimated for completion in 2028. **Cost:** $13 million (design and CMS est. fee); $350 million (est. construction) **Specific Role:** Construction Manager

c.

1) TITLE AND LOCATION (City and State): **S-140 Pump Station Improvements Project, South Florida Water Management District (SFWMD) Broward County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020 — CONSTRUCTION (If applicable): 2020

3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Andary was responsible for overseeing Hazen's field representatives for the S-140 Pump Station Improvements project. Hazen provided construction management services for the pump station improvements including construction of new access bridge, replacing pump backflow gates, replacing spillway gates, installing new automated Hydro Components trash removal system, replacing existing fuel tanks and piping, abandoning existing groundwater monitoring wells, constructing generator/storage building and all associated equipment, including new generators and emergency fuel supply. **Cost:** $543,000 (fee); $8.57 million (construction) **Specific Role:** Project Engineer

d.

1) TITLE AND LOCATION (City and State): **Lift Stations No. 2 and No. 49**
City of Cooper City, FL

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 — CONSTRUCTION (If applicable): 2018

3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Andary served as Project Manager for the design-build project of upgrades to Lift Stations No. 2 and No. 49. The project included installation of necessary connections and startup of bypass pipes and pumping equipment; demolition of existing structures, pumps, and piping; applying special coating to wet well; installing discharge piping and submersible pumps; and testing and startup of lift stations. Duties included coordination and resolution of adjacent neighboring residents' concerns and complaints during critical work periods that affect their day-to-day operation. He also prepared and submitted a detailed schedule of work and provided support associated with public awareness services. He also coordinated all testing, including concrete, densities, hydrostatic for wet wells, pipelines, and pump field tests. **Cost:** $967,706 (Design-Build construction cost). **Specific Role:** Project Manager

e.

(1) TITLE AND LOCATION *(City and State)*: **North Regional Wastewater Treatment Plant**
Septage Receiving Facility, Broward County Water and Wastewater Services, Broward County, FL

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 — CONSTRUCTION (If applicable): 2018

3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Andary served as Construction Manager for the construction of Septage Receiving Facility. He performed inspections of the new facilities, issued punch lists that identified deficient items that must be corrected, conducted progress meetings and meetings with utilities; prepared and issued meeting minutes, performed project quality control, issued RFPs and negotiated cost proposals, coordinated startup, performance testing and manufacturer training of County personnel for the new facilities. **Cost:** $3.07 million **Specific Role:** Construction Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Adrian Myrie, EI **Assistant Engineer**	**Construction Management/ Inspections**	**3**	**2**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
ME, Civil Engineering BS, Civil Engineering AA, Civil Engineering	Engineering Intern / FL – Civil Engineering (FL 1100025825) Project Management Certified

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Myrie has experience working on the planning, design, permitting and construction management of various water and wastewater projects for clients in South Florida, including Cooper City and Fort Lauderdale. **Professional Organizations:** American Society of Civil Engineers; National Society of Black Engineers; The National Society of Leadership and Success.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Prospect Lake Clean Water Center, City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The City's existing Fiveash Water Treatment Plant was constructed in the 1950s and is at the end of its useful life; a study recommended replacing the WTP with a new state-of-the-art WTP using a combination of nanofiltration and ion-exchange treatment technology - the new plant is designated as the Prospect Lake Clean Water Center. Hazen is providing Owner's Representative services to review the design and oversee the construction of the $700 million WTP. Mr. Myrie plays a pivotal role in construction management. His responsibilities include meticulous record drawing review, conducting specialty discipline site reviews, and maintaining a comprehensive deficiency list. Additionally, he performs daily on-site observations to assess construction progress, prepares detailed daily reports, reviews payment applications, assists in developing requests for proposals (RFPs), and evaluates change orders submitted by contractors. His expertise contributes significantly to successful project execution. **Cost:** $4.7 million (est. fee) **Specific Role:** Assistant Construction Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **Peele-Dixie WTP Sulfuric Acid Chemical Systems Upgrades City of Fort Lauderdale, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The City of Fort Lauderdale owns and operates the 12-mgd Peele-Dixie Nanofiltration WTP. As part of this project, the City will replace in-kind the existing sulfuric acid bulk tank and day tank. Mr. Myrie was responsible for preparing detailed design drawings, technical specifications, and obtaining necessary permits. He will also be responsible for reviewing shop drawings, handling change orders, record drawings, pay requests, field inspections, and overall management during the construction phase. **Cost:** $460,000 (est. fee) **Specific Role:** Assistant Project Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **Water and Wastewater Master Plan Update, City of Cooper City, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2024; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

As part of the Hazen team, Mr. Myrie is currently updating the Water and Wastewater Capital Improvement Master Plan for the City. This plan spans 20 years and guides water system enhancements. His responsibilities include conducting site condition assessments, developing cost sheets for identified projects within the Capital Improvement Plan (CIP), writing technical memos summarizing assessment findings, and ensuring project progress through meetings and quality control. **Cost:** $480,000 **Specific Role:** Assistant Project Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Sawgrass Injection Well MIT Engineering Assistance City of Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The City operates three Class I injection wells at the Sawgrass Wastewater Treatment Plant. Hazen provided services for a mechanical integrity test (MIT) on these wells, including technical specifications, procurement assistance, witness testing, and report preparation. Mr. Myrie was responsible for coordinating and inspecting tests, reviewing results, and preparing a MIT completion report for submittal to FDEP. **Cost:** $69,000 (est. fee) **Specific Role:** Assistant Project Engineer

e.

(1) TITLE AND LOCATION *(City and State)*: **Shotgun Road Wastewater Force Main Improvement City of Sunrise, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2020; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen conducted field investigative services to assess operating conditions at select lift stations within the City's wastewater transmission network along the Shotgun Road corridor. The goal was to verify that these lift stations align with the previously provided as-built information used in the 2019 Wastewater Transmission System (Sawgrass) Hydraulic Model. Mr. Myrie was responsible for developing a monitoring plan which included the placement of pressure sensors and run-time data loggers. He was also responsible for performing drawdown tests and pump performance assessments at each lift station, and aided in processing the collected field data to make updates to the City's hydraulic model and facilitated hydraulic modeling calibration and scenario runs. **Cost:** $590,000 (est. fee) **Specific Role:** Assistant Project Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Darius Manikas **Construction Manager**	**Construction Management / Inspections**	**12**	**1**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Manikas has more than 12 years of experience in water, wastewater, and stormwater construction management and inspections. His experience includes oversight of multimillion-dollar infrastructure projects; performance of on-site observations, inspections, and evaluation of construction activities to ensure contractor compliance with design specifications, safety standards, and permit requirements; review and monitoring of project schedule, sequence of activities, and time extension claims; assistance with the resolution of request for information (RFI) and claims; and completion of construction administration tasks.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Prospect Lake Clean Water Center
City of Fort Lauderdale, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Hazen was selected to provide Owner's Representative Services for design and construction of the proposed 50-mgd (finished water capacity) water treatment plant. Hazen's responsibilities include reviews of the design; coordination with permitting agencies and City departments; maintaining a risk register for the City; and construction oversight of the WTP. Mr. Manikas serves as Resident Project Representative responsible for on-site observation, monitoring, inspection, and evaluation of construction activities, work plans, specifications and drawings to verify contractor compliance therewith, contractor's performance and compliance with safety requirements, and adherence to permit requirements, daily reports, verify material quantities, and review contractor pay applications. **Cost:** $4.7 million (est. fee); $700 million (est. construction). **Specific Role:** Resident Project Representative

b.

(1) TITLE AND LOCATION (City and State)

Stormwater Improvements - River Oaks Pump Stations
City of Fort Lauderdale, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2024	2024

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

The Capital Improvement Plan included design and construction of eight stormwater pump stations throughout the City. The River Oaks neighborhood was identified as a high priority for initial project implementation. For this neighborhood, the project included an inlet pump station (13 mgd), an outfall pump station (82 mgd), an electrical building, an emergency generator and considerations for future sea-level rise, and incorporates Broward County 2060 100-year flood elevations. As a Resident Project Representative, Mr. Manikas was responsible for overseeing construction activities, ensuring alignment with design specifications, and documenting project progress through reports and inspections. **Cost:** $10.3 million (construction) **Specific Role:** Resident Project Representative

c.

(1) TITLE AND LOCATION *(City and State)*

NRWWTP Fine Bubble Aeration Modules A, B, and D
Broward County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

NRWWTP Fine Bubble Aeration Basin Improvements (Modules A, B, and D) involved consolidating the blowers for Modules A and B to minimize the number of standby/backup blowers required, with two blower sizes (500 Hp and 700 Hp) provided to allow for operational flexibility. The project also included the electrical and HVAC design for the new electrical building, which consisted of medium-voltage switchgear, soft-starters, a load center, and air conditioning. Additionally, blowers for Module D were added to the blowers at Module E to allow for a consolidation similar to Modules A and B, with the installed spare providing redundancy for both modules, and one blower size (500 Hp) was provided. Mr. Manikas oversaw construction activities, including coverage of four major concrete pours. **Cost:** $9.3 million (fee); $51.5 million (construction) **Specific Role:** Senior Inspector

d.

(1) TITLE AND LOCATION *(City and State)*

Roy Wilkins Park Project, New York City Department of Environmental Protection (NYCDEP), Jamaica, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2021	2022

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

Mr. Manikas served as Construction Project Manager, responsible for new contract development, design modifications, bid acceptance and contract awards, timely delivery and quality control, routine inspections and performance evaluations, contract schedules and budgets, project management team's schedule and assignments. This project consisted of construction of a stormwater drain on Merrick Boulevard to collect and divert stormwater away from the sewer system, where it could contribute to flooding and sewer overflows into Jamaica Bay, and towards a newly built natural drainage system within the Park that can absorb up to 760,834 gallons of water annually. Separately, the pond within Roy Wilkins Park also accepts stormwater and was dredged to create additional storage capacity and further relieve pressure on the area's sewer system. **Cost:** $2 million **Specific Role:** Construction Project Manager

e.

(1) TITLE AND LOCATION *(City and State)*

Bowery Bay Project, New York City Department of Environmental Protection (NYCDEP), Astoria, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2020	2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☐ Check if project performed with current firm

Mr. Manikas served as Construction Project Manager, responsible for new contract development, design modifications, bid acceptance and contract awards, timely delivery and quality control, routine inspections and performance evaluations, contract schedules and budgets, project management team's schedule and assignments. This project included installation of new green infrastructure (rain gardens & infiltration basins) in various locations throughout North Queens and Brooklyn. The green infrastructure was installed to manage stormwater, which will improve water quality in local waterways, and lessen street flooding. **Cost:** $3 million **Specific Role:** Construction Project Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
Sharon Simington **Senior Principal Funding Specialist**	**Grants/Funding**	a. TOTAL **21**	b. WITH CURRENT FIRM **3**

15. FIRM NAME AND LOCATION *(City and State)*
Hazen and Sawyer, Tampa, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BSAS, University of Florida (expected 2027) AA, University of South Florida	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Ms. Simington has extensive experience working with local governments to fund infrastructure projects that better communities. As the Southeast Regional Funding Program Leader for Hazen, she focuses her experience on water, wastewater, and stormwater utilities projects and provides the planning, application, and administration for capital improvement projects. She has relationships with many funding agencies, community members and leaders, and consulting engineers. Ms. Simington helps clients in various industries and disciplines to identify potential funding sources. She leads efforts to secure alternative funding for a variety projects, acting as the liaison between agency and community, providing a smooth funding experience and cohesive working environment.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of DeLand Fairgrounds Water Supply Wells and Water Treatment Plant, DeLand, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2021; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Ms. Simington led the planning effort and production of the Facility Plan. The Blue Spring minimum flow regime (MFR) is the driving factor for development of new water supplies outside of the Blue Spring Springshed. It is estimated that approximately 6.0 – 8.0 MGD of new groundwater outside the Springshed will need to be developed by 2035. The City has identified a new wellfield and water treatment plant (WTP) site in the vicinity of the Volusia County Fairgrounds. The City's current CUP already includes three wells on the Fairground property. In addition to the Fairground wells, an additional three wells are proposed in the vicinity of Bicentennial Park to help supplement the needed flow outside the Springshed. **Cost:** $31.7 million (construction**) Funding Programs:** Drinking Water State Revolving Fund **Specific Role:** Senior Program Administrator

b.

(1) TITLE AND LOCATION *(City and State)*: **City of Tavares Downtown Community Redevelopment Agency (CRA) Water and Wastewater Improvements, Tavares, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2019; CONSTRUCTION (If applicable) 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

This project includes approximately 8-inch, 10-inch, 12-inch and 15-inch-diameter PVC and ductile iron gravity collection mains, relining of 8-inch, 10-inch and 12-inch diameter VCP gravity collection mains, rehabilitation and coating of 145 manholes, removal and replacement of 40 manholes, of 4-inch and 6-inch diameter PVC force main pipe, installation of 4-inch, 6-inch, 8-inch, 10-inch, 12-inch and 16-inch diameter of PVC and ductile iron potable water distribution main within the City, County, Florida Department of Transportation (FDOT) rights-of-way. The installation methods included open cut and jack and bore. The project work also includes as-built survey, utility locates, maintenance of traffic, shop drawing and manufacturer operational and maintenance submittals, erosion control, startup, testing and all necessary ancillary activities to complete the work. **Cost:** $11.9 million (construction**) Funding Programs:** Clean Water State Revolving Fund, Drinking Water State Revolving Fund **Specific Role:** Senior Program Administrator

c.

(1) TITLE AND LOCATION *(City and State)*: **DeSoto County Funding Analysis, Recommendation and Funding Management Hull Road Water System, DeSoto County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2020; CONSTRUCTION (If applicable) 2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Ms. Simington provided funding strategy, grant application, grant agreement coordination, grant administration, and project closeout. The 8-inch water main will be extended on West Hull Avenue down to SW Prairie Avenue and then through SW Collins Street, where it will tie into the existing 16-inch main. A new flow control valve will be installed on the 16-inch main at this connection to divert a portion of the water coming from the Peace River Water Supplier through the Hull portion of the Digital Control Unit (DCU) system. The project also includes modifications at the remaining two dead ends on Hill and Oak Creek Roads. The 4-inch line that currently dead-ends on Oak Creek Road will be looped back to the main 8-inch line on SW Hull Avenue. The 8-inch line that currently dead-ends on Hill Street will be looped back on itself with a new 8-inch line and isolation valve to route the water through the new Hill Street loop. The new piping and flow control valve will be used to fully loop the dead-end pipes within the Hull. These improvements on the DCU distribution line will net a savings of about 46 million gallons of flush water annually **Cost:** $2.5 million (construction) **Funding Programs:** South Florida Water Management District **Specific Role:** Senior Program Administrator

d.

(1) TITLE AND LOCATION *(City and State)*: **Manatee County Funding Analysis and Strategic Plan, Manatee County, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2024; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Manatee County utilizes a 5-year Capital Improvement Plan (CIP) for planned project organization and budgeting purposes. As part of the CIP planning process and project inclusion, a budget element is included that delineates where project funding will be assessed. The purpose of the Funding Analysis and Strategic Plan was to provide the County with an analysis of funding options that will assist in the decision-making process with respect to funding sources. The plan provided programmatic background details of available programs, requirements, deadlines, project eligibility, and funding capacity. **Cost:** $50,000 (fee) **Funding Program:** Various funding programs **Specific Role:** Southeast Regional Funding Program Leader

e.

(1) TITLE AND LOCATION *(City and State)*: **City of Tampa Funding Evaluation for the Howard F. Curren AWTP Biogas Use and Digestion System Improvements (Amendment No. 2), Tampa, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Simington provided a funding report regarding opportunities available to the City for this project. This portion of a larger scope of work included the review of available funding sources and identification of potential funding opportunities for the construction of the projects designed under Amendment 2. An evaluation of key contingencies associated with each funding source, such as impacts on direct project costs regarding funding procurement and meeting funding requirements (e.g., Davis Bacon Wages, Buy American) were included. General timeframes and implications regarding the project schedule were also identified. Results of the review and evaluation were summarized in a report and presented at a meeting with the City. **Cost:** $3.98 million (final design fee) $3,980,695 (final design fee) **Funding Programs:** Various CHP funding programs, Tax Credits, Bonds, and Lease Agreements **Specific Role:** Southeast Regional Funding Program Leader

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Marta Alonso, PE, ENV SP **Senior Associate**	**Permitting/Regulatory Compliance**	**21**	**17**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Civil Engineering	PE / FL - Civil Engineering (FL 69745), MD Envision Sustainability Professional (ENV SP)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Ms. Alonso has over 21 years of permitting and regulatory experience, including environmental resources, potable water, wastewater, stormwater, and municipal permits in Florida. She has provided assistance in obtaining State Revolving Funds (SRF) for various water and wastewater pipeline replacement projects, including for the City of North Miami, FL (2018-Present), City of Hallandale Beach (2014-2016), and City of Plantation (2010-2011). She also served as in-house consultant for permitting at the City of Miami Beach and as technical expert on permitting and regulatory compliance on the Miami-Dade WASD Ocean Outfall Legislation (OOL) Program. **Professional Organizations:** American Society of Civil Engineers, Florida Section Membership Chair.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade Water and Sewer Department (WASD) Ocean Outfall Legislation (OOL) Program, Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION *(If applicable)*: Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Alonso provided assistance in the successful funding request to the US EPA's WIFIA program for the Miami-Dade Water and Sewer Department's (WASD) $2B OOL Program (the WIFIA program accelerates investment in our nation's water infrastructure by providing long-term, low-cost supplemental loans for regionally & nationally significant projects, and is highly competitive on a federal level). She was responsible for preparing the draft letter of interest packages to request funding as well as the loan application packages. **Status:** To be completed by 2026 (est). **Cost:** $30 million (est., includes 6-year extension to 2026); $2 billion (est. construction). **Specific Role:** Environmental Compliance Senior Technical Consultant/Permitting Lead/Project Manager.

b.

(1) TITLE AND LOCATION *(City and State)*: **Seminole Tribe of Florida (STOF) Deep Injection Well Permitting, Hollywood Reservation, Hollywood, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION (If applicable): 2019

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project for the Seminole Tribe of Florida's Hollywood Reservation consisted of the permitting and design of a deep injection well system for effluent and concentration disposal from the Hollywood Reservation WTP. Since the project location is within Tribal Lands, the project required permitting through the US EPA and coordination with the SFWMD. **Cost:** $230,000 (DIW permitting fee); $1.73 million (design, permitting, and construction). **Specific Role**: Permitting Engineer.

c.

(1) TITLE AND LOCATION *(City and State)*: **Bear Cut Bridge and West Bridge Rehabilitation / HDD Water Main Replacement Project, Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION (If applicable): 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The design-build project consisted of the rehabilitation of the Bear Cut Bridge and of the West Bridge, which connect Miami and Key Biscayne, a community with over 10,000 residents. The bridge rehabilitation was coupled with a water main replacement, which was originally attached to the bridge decks. The project required expedited permitting with the South Florida Water Management District, the United States Army Corps of Engineers (ACOE), Florida Department of Environmental Protection (FDEP), and Miami-Dade County Department of Regulatory and Economic Resources (DRER) to meet the project deadlines. **Cost:** $31 million (construction). **Specific Role:** Permitting Engineer.

d.

(1) TITLE AND LOCATION *(City and State)*: **City of North Miami State Revolving Fund Project Assistance, North Miami, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Alonso is assisting the City of North Miami in the preparation of facilities planning documents as required by the Clean Water State Revolving Fund and Drinking Water State Revolving Fund for three projects: the Winson Water Treatment Plant Upgrades, Sanitary Sewer System Repairs, and Water Meter Replacements. Ms. Alonso previously aided in obtaining and securing State Revolving Funds (SRF) for water treatment plant improvements. **Status:** Services have been provided from 2018-Present. **Specific Role:** SRF Funding Expert.

e.

(1) TITLE AND LOCATION *(City and State)*: **City of Miami Beach In-House Consulting Services, Miami Beach, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020; CONSTRUCTION *(If applicable)*: N/A

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Ms. Alonso served as in-house consultant at the City of Miami Beach Public Works Department (City), providing environmental support services to help achieve and maintain regulatory compliance on City projects. To ensure regulatory compliance on future City projects, Ms. Alonso was part of a team that developed a permit control tool that City project managers can utilize to identify potential permits required on their projects, as well as to obtain permit application guidance, and to track the project's regulatory compliance status. She was also involved in coordination with the Miami-Dade Regulatory and Economic Resources Department, providing environmental support services to achieve compliance on the City's Class II stormwater permits. Ms. Alonso monitored and provided guidance on environmental permitting, particularly for key City projects such as the Indian Creek flood mitigation project. Ms. Alonso also prepared permitting and regulatory compliance progress updates for the Public Works Department and updated the City's permit tracking database. Ms. Alonso also assisted the City in being selected to receive WIFIA funding. **Cost:** $100,000 (fee). **Specific Role:** In-House Consultant, Environmental/Regulatory Compliance.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Michael Robinson, EI **Assistant Engineer II**	**Permitting/Regulatory Compliance**	**3**	**3**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil Engineering BS, Civil Engineering	

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Robinson has experience working on a wide array of projects that include assisting in the planning, design, permitting, bidding/award, and construction management of water and wastewater treatment facilities. These projects included working with multiple permitting/regulatory agencies at the local and state levels across a number of different cities, municipalities, and counties. **Professional Organizations:** American Water Works Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Engineering Services for Water Treatment Plant Improvement
City of North Lauderdale, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	2028 (est.)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Robinson assists in the design and development of the preliminary design report, detailed design, technical specifications, contract documents, permitting, and bidding. The City owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening. Per- and polyfluoroalkyl substances (PFAS) have recently been detected in the City's wells. The City has elected to proceed with the replacement of their existing treatment process for new nanofiltration membrane skids and its associated processes. **Cost:** $7.7 million (est. pre-construction engineering fees) **Specific Role:** Mechanical Engineer

b.

(1) TITLE AND LOCATION *(City and State)*

West Water Treatment Plant Chemical Systems Replacement
City of Deerfield Beach, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2025	N/A

(3) BRIEF *DESCRIPTION* (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Mr. Robinson assisted in the design and development for the upgrades to chemical systems at the Deerfield Beach West WTP, including nanofiltration and reverse osmosis chemical facilities. Project responsibilities include preparation of preliminary Basis of Design Report, detailed design of associated improvements to chemical systems, preparation of detailed design/bid drawings and technical specifications, and preparation of permitting submittals agencies. **Cost:** $500,000 **Specific Role:** Mechanical Engineer

c.

(1) TITLE AND LOCATION *(City and State)*

Greenfield Reverse Osmosis Water Treatment Plant and
Production Wells, City of West Melbourne, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project consisted of the design of a new green field water treatment plant which included the design of reverse osmosis skid, its associated chemical system and other associated processes. Mr. Robinson assisted in the development of detailed design for the civil, mechanical, and chemical systems, as well as technical specifications and contract documents. **Cost**: $57 million (Construction Bid); $5.05 million (Engineering fee). **Specific Role:** Mechanical Engineer

d.

(1) TITLE AND LOCATION *(City and State)*

Central WTP Sodium Hypochlorite Chemical Storage Facility
City of Plantation, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2024	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project consists of upgrades to the WTP's sodium hypochlorite storage and feed facilities. The upgrades require the design and use of a temporary sodium hypochlorite system to keep the WTP in service throughout construction. Mr. Robinson assisted in the preparation of the preliminary Basis of Design Report, detailed design of associated improvements to chemical system, preparation of detailed design/bid drawings and technical specifications, and preparation of permitting submittals agencies. **Cost:** $3.1 million (fee) **Specific Role:** Mechanical Engineer

e.

(1) TITLE AND LOCATION *(City and State)*

Rehabilitation of 48/54 Force Main and Replacement of SE 9th and
10th Avenue to GTL – Design Criteria Package
City of Fort Lauderdale, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2023	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

The project consists of the replacement of and the rehabilitation of 45"/54" influent piping to the Fort Lauderdale George T. Lohmeyer WWTP. This project was a part of a consent order agreed upon by the City of Fort Lauderdale and the FDEP. Mr. Robinson assisted in the design, evaluation of routing, evaluation rehabilitation methods, and the development of the design criteria package and its associated requirements for the replacement/rehabilitation of the influent pipeline. **Cost:** $45.9 million **Specific Role:** Mechanical Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Rose Jesse, CPE **Senior Associate**	**Cost Estimating and Scheduling**	**27**	**9**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, New York, New York

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	Certified Professional Estimator (CPE)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Ms. Jesse has 27 years of proven success in cost estimating, budgeting, scheduling, and document and project controls. She creates cost estimates by utilizing real data on cost and construction knowledge for a wide range of water and wastewater projects. **Professional Organizations:** American Society of Professional Engineers, NYC Chapter President; Project Management Institute; Association for the Advancement of Cost Engineering International; National Association of Women in Construction; New York Water Environment Federation

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Stormwater Master Plan Modeling and Design Implementation Services, City of Fort Lauderdale, FL

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Ms. Jesse prepared cost estimates for various drainage, pump station, and seawall installations in several neighborhoods including Southeast Isles and Edgewood for the City of Fort Lauderdale. The program is focused on resilient adaptation to climate change and the inclusion of innovative and regional solutions and includes delivery of a new stormwater master plan model; data collection; a prioritized stormwater/resiliency capital improvements plan; hydraulic/hydrologic stormwater modeling; and design, permitting, and construction services for stormwater capital improvement projects resulting from the revised stormwater master plan. **Status:** Original duration was from 04/2016-04/2021; the first of two 5-year extensions was exercised in April 2021 (runs through April 2026; potentially to 2031. **Cost:** $22.1 million (fee-to-date); $200 million (est. construction). **Specific Role:** Cost Estimator.

b.

(1) TITLE AND LOCATION *(City and State)*

South Florida Water Management District Miami & North New River Canals Conveyance Improvements Value Engineering Study, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2023	N/A

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Ms. Jesse served as the cost estimator to provide and analyze value engineering concepts on a master planning level. This project consists of removing over three million cubic yards of material at a cost of $400 million. **Cost:** $184,859 (fee); $400 million (estimate). **Specific Role:** Cost Estimator.

c.

(1) TITLE AND LOCATION *(City and State)*

Lift Station Evaluations, St. Augustine, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	N/A

Ms. Jesse provided guidance for the estimation of the City's 13 impacted lift stations in order to evaluate their existing condition, determine their estimated value based upon current condition, and estimate repair and/or replacement costs. **Cost:** $1.4 million (fee). **Specific Role:** Cost Estimator.

d.

(1) TITLE AND LOCATION *(City and State)*

Madbury Backwash Tank and Pump Station, Portsmouth, NH

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2021	2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

The project for the Madbury Water Treatment Plant was a multi-disciplinary design initiative. In addition to the pump station, the entire plant was constructed under the City of Portsmouth's sustainability program. The project received LEED silver certification in 2011. **Cost: $**594,600 (fee). **Specific Role:** Lead Cost Estimator.

(1) TITLE AND LOCATION *(City and State)*

Massachusetts Water Resources Authority (MWRA) Agency-Wide and Carroll WTP Technical Assistance Contracts, Boston Metropolitan Area, MA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Ms. Jesse served as Cost Estimator/Reviewer for this two-year task-order based (on call) Technical Services Contract that started in December 2020. This contract (Contract 7713) involves as needed study, design, and engineering during construction for projects at the 405-mgd Carroll Water Treatment Plant and water supply infrastructure. Current projects include the installation of a dehumidification unit within the plant's UV disinfection room and replacement of a 42- and 48-inch raw water valves and the Wachusett Lower Gatehouse. **Status:** This two-year task-order based (on call) Technical Services Contract started in December 2020 is respected for completion in December of 2024. **Cost:** $594,600 (fee) **Specific Role:** Cost Estimator/Reviewer.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Thomas Zakrzewski, PSP **Senior Associate**	**Cost Estimating and Scheduling**	**39**	**21**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, New York, NY

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Industrial Engineering	Planning and Scheduling Professional (PSP)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Zakrzewski specializes in project scheduling, cost control, delay analysis, and construction/program management. He has worked on a broad range of projects, including numerous DEP projects throughout the New York metropolitan area and many environmental facilities. **Professional Organizations:** AACE International, Construction Management Association of America

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Rye Lake Water Filtration Plant Design**
Westchester Joint Water Works, Harrison, NY

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2024 | CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The water filtration plant is located on Westchester County property adjacent to the County airport, due to its proximity to the Rye Lake Pump Station and source water transmission main, and the Purchase Street Booster Pump Station and storage tanks. The facility is a 30-mgd dissolved air flotation/filtration (DAFF) plant capable of handling the water utility's current and near-future demands. The design will also integrate provisions for potential future expansion to 40 mgd. Mr. Zakrzewski was responsible for construction critical path method (CPM) schedule development, and development of Basis of Schedule reporting. **Specific Role:** Project Controls Manager

b.

(1) TITLE AND LOCATION *(City and State)*: **Putnam Water Treatment Plant Design and DAF/Filter Upgrade**
Aquarion Water Company, Greenwich, CT

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021 | CONSTRUCTION (If applicable): 2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The overall project includes the construction of a new DAF building in the footprint of existing Sedimentation Basin No. 2, and a new filter building in the footprint of existing Sedimentation Basin No. 1. Both will be designed for the plant's maximum design capacity of 22.8 mgd. The project also includes modifications to the existing chemical feed and solids handling facilities. The project is to be constructed in two distinct phases: (1) construction of the new DAF Building during Phase 1; and (2) construction of the new filter building during Phase 2. Mr. Zakrzewski was responsible for construction CPM schedule development and development of Basis of Schedule reporting. **Cost:** $4.5 million. **Specific Role:** Project Controls Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **HVR-200: Hillview Reservoir Chemical Addition Facilities and Flow Control Improvements, DEP, Yonkers, NY**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2023 | CONSTRUCTION (If applicable): 2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

The project involves evaluation of existing systems and design of new chemical addition facilities at DEP's Hillview Reservoir to consolidate and improve chemical storage and provide flow-paced chemical feed systems. Design of the new chemical addition facilities includes bulk chemical storage, chemical feed systems, process equipment sizing, and operations space programming; design of facility improvements includes rehabilitation of existing facilities and hydraulic redundancy. **Specific Role:** Scheduling Lead

d.

(1) TITLE AND LOCATION *(City and State)*: **CSO Abatement Facilities for Gowanus Canal, New York City Department of Environmental Protection, Brooklyn, NY**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2022 | CONSTRUCTION (If applicable): 2022

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Key member of the design team for this multiple-contract program for NYCDEP. The purpose of this design contract is to plan, design, support the procurement, the construction, and close out of an 8 MG CSO facility at the RH-034 outfall and a 4 MG CSO facility at the OH-007 outfall. The contract requires parallel designs at two sites associated with the RH-034 outfall until NYCDEP formally acquires the property at its preferred site, RH-3. This contract currently includes facility planning (but not design) for the parallel OH-007 design requirement. Each facility consists of 3 contracts: a site preparation contract, a foundation and substructure contract, and a superstructure and conveyance contract. Mr. Zakrzewski was responsible for all aspects of the project controls program, including Master Schedule preparation and reporting, construction CPM schedule development, and development of Basis of Schedule reporting, in accordance with NYCDEP SOPs. **Specific Role:** Project Controls Manager

e.

(1) TITLE AND LOCATION *(City and State)*: **Bay Park (South Shore Water Reclamation Facility) Program Management Services, Nassau County DPW, NY**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing | CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Key member of the team for the Hurricane Sandy Recovery effort at Bay Park. The $830 million program consists of the design and construction of permanent repairs and rehabilitation to damaged facilities, including potential storm mitigation measures. The affected facilities include: sludge dewatering building; outfall pump station; fire protection building; electrical distribution system including switchgear, substations, and MCCs; effluent screening and disinfection building; grit building; plant-wide odor control systems; final clarifiers including RAS and WAS pumps, sludge and scum collector drives; life safety systems; plant-wide HVAC systems; process air blowers; auxiliary power generation; primary tank scum and sludge collectors and pumps; digester facility; sidestream demmonification facility; and related sewage pump stations and collection systems. Mr. Zakrzewski was responsible for all aspects of the project controls program, including Master Schedule preparation and reporting, CPM schedule analysis and reporting, delay analysis with associated documentation, cash flow reporting, change management and cost control, and dispute and delay resolution assistance. **Cost:** $162 million **Specific Role:** Project Controls Manager

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14 YEARS OF EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Richard G. Crawford, Jr., P.S.M.	Principal Surveyor / Professional Land Surveyor & Mapper	40	4

15. FIRM NAME AND LOCATION *(City and State)*
Craven Thompson & Associates, Inc., 3563 NW 53rd Street, Fort Lauderdale, Florida 33309

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Associate of Science in Land Surveying, Palm Beach Community College (1994) Associate of Arts in Architecture, Broward College (1986)	Professional Surveyor and Mapper Florida No. 5371 (1994)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
- FAA Remote Pilot with a UAS Rating Certificate Number 3911523 (2016)
- Computer Skills: AutoCAD, MicroStation, Star Net, Civil 3D, Carlson Survey

19. RELEVANT PROJECTS

a.
(1) TITLE AND LOCATION *(City and State)*: George T. Lohmeyer Waste Water Treatment Plant – Effluent Redundant Force Main Design Criteria Package
Fort Lauderdale, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2022 - 2023; CONSTRUCTION *(If applicable)*: Not Applicable

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if the project was performed with the current firm.

Surveyor. As a subconsultant to Hazen and Sawyer, CTA was responsible for providing a DCP that met the requirements of Florida Statute 287.055 and included the topographic survey and utility location services.

b.
(1) TITLE AND LOCATION *(City and State)*: George T. Lohmeyer Waste Water Treatment Plant – Redundant Effluent Force Main, Phase 1A & 1B – Eisenhower Blvd.
Fort Lauderdale, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2024 - 2025; CONSTRUCTION *(If applicable)*: Not Applicable

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if the project was performed with the current firm.

Surveyor. As a subconsultant to Ric-Man Construction, CTA was responsible for 5 Control Surveys, and located the centering target on the back of the drill rig to determine the current alignment using the Trimble Total Station.

c.
(1) TITLE AND LOCATION *(City and State)*: North County Reuse Waterlines, UAZ 206-211
Pompano Beach, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020- 2025; CONSTRUCTION *(If applicable)*: Not Applicable

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if the project was performed with the current firm.

Surveyor – As a Subconsultant to Thompson & Associates for Broward County, CTA was responsible for surveying existing conditions and horizontal Control Plans, which included 184,400 linear feet of right-of-way, as well as property located at NW 48th Street in Pompano Beach.

d.
(1) TITLE AND LOCATION *(City and State)*: NW 44th Street Sunrise Reuse Waterline
Sunrise, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2022 - 2025; CONSTRUCTION *(If applicable)*: Not Applicable

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if the project was performed with the current firm.

Surveyor. As a subconsultant to Stantec, CTA prepared boundary & topographic surveys of portions of the multiple roadways in the City of Sunrise. The Survey included locations within the full right-of-way of NW 44th Street from 50 feet east of Pine Island Road, then westerly 50 feet west of Nob Hill, and all above-ground improvements.

e.
(1) TITLE AND LOCATION *(City and State)*: North Lauderdale Water Treatment Plant
North Lauderdale, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2025; CONSTRUCTION *(If applicable)*: Not Applicable

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if the project was performed with the current firm.

Principal Surveyor - As a subconsultant to Hazen and Sawyer, CTA performed a topographic survey of a portion of the North Lauderdale Water Treatment Facility lying along the west side of Rock Island Road, north of Kimberly Boulevard.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Daniela Diaz, PE **Assistant Engineer II**	**Bidding Services**	**5**	**4**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Orlando, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Environmental Engineering BS, Chemical Engineering	PE / FL (FL 101501)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Ms. Diaz has over 5 years of experience including mechanical and treatment process design for drinking water facilities, WTP piloting and water quality analysis. She has a background in chemical process design, laboratory testing, and team-based research. **Professional Organizations:** Florida Section American Water Works Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

St. Cloud WTP #4 Water Quality Improvements
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2023	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Diaz assisted with the preliminary site investigations at St. Cloud WTP #4 during the piloting stage. Due to water quality concerns, the pilot studies were divided into two phases: Phase 1 and Phase 2. Phase 1 included water quality analysis for onsite pilot systems that included multimedia filtration, cartridge filtration, ozonation, granular activated carbon, diffused aeration, fixed bed ion exchange, and virgin rinsing alternatives. The results from Phase 1 identified fixed bed ion exchange as the most cost-effective treatment process for future improvements and expansion. **Cost:** $750,000 (design), $1.7 million (construction) **Specific Role:** Assistant Engineer

b.

(1) TITLE AND LOCATION *(City and State)*

Buenaventura Lakes WTP Upgrade and Improvements
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Diaz assists as a Process Engineer for the engineering design, permitting, and construction services to improve reliability and quality of the water for the BVL WTP. This design incorporates considerations for a high growth area with raw water quality that requires advanced treatment to remove hydrogen sulfide, remove organics, and maintain disinfection by-product compliance. The scope of work includes pilot testing, design services, and site improvements to improve operations. **Cost:** $1.87 million (fee) **Specific Role:** Process Engineer

c.

(1) TITLE AND LOCATION *(City and State)*

Harmony WTP Upgrade and Expansion
Toho Water Authority, Osceola County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2025	2027 (est.)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Diaz is currently serving as a Process Engineer for the design of the Harmony Nanofiltration WTP. This project included both permanent full-scale NF design and an emergency interim RO treatment system to reduce the concentrations of total organic carbon (TOC) and total dissolved solids (TDS) in the finished water at the Harmony WTP. The existing TOC removal system was becoming unreliable both mechanically and from a TOC treatment perspective. Hazen performed water quality testing to profile the water quality through every treatment step in the WTP. As a result of this water quality testing combined with a desktop of study of treatment alternatives including costs, secondary impacts and equipment availability in the supply chain impacted marketplace, Hazen recommended a low-pressure reverse osmosis treatment process with a 50% bypass to replace the existing TOC treatment process. The design and permitting were expedited and procurement and construction were completed using the CMAR delivery method. Pilot testing and design was recently completed for the permanent system that will operate at 90% recovery and utilize a hybrid nanofiltration membrane configuration. **Cost:** $2.6 million (fee) **Specific Role:** Process Engineer

d.

(1) TITLE AND LOCATION *(City and State)*

Glen Abbey WTP Water Quality Improvements Project, Volusia County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Hazen is providing professional services engineering design, permitting, and construction services for the improvements to the County's Glen Abbey WTP in the Southwest Interconnect Service Area. While the GAWTP currently uses chloramines, a specific goal of this project is to convert to a free-chlorine system. The purpose of the project is to improve water quality of the finished water produced by the 4.96 mgd plant. A long term goal is to add system redundancy by interconnecting with Volusia County's Deltona North Water Treatment Plant. for the Ms. Diaz is currently serving as an Assistant Engineer conducting site visits and assisting with sampling. **Cost:** $2.9M (fee) **Specific Role:** Assistant Engineer

e.

(1) TITLE AND LOCATION *(City and State)*

Southwest Service Area Potable Water Storage and Repump Facility
Orlando, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Ms. Diaz assists with the construction services of the Southwest Service Area Storage and Repump Facility for Orange County Utilities. The facility will provide potable water to residential and commercial developments in the area via a 3.5 million gallons ground storage tank and a high service pump station (4 pumps with space allocated for 2 future pumps). Work included the generation of conformed documents prior to starting construction and the ongoing distribution and review of submittals and RFIs received from the contractor. Ms. Diaz assists with holding the monthly construction progress meeting and generating the meeting summaries. **Cost:** $11 million **Specific Role:** Assistant Engineer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Andrew Nixon, PE	**Senior Geotechnical Engineer**	**18**	**3**

15. FIRM NAME AND LOCATION *(City and State)*

WIRX Engineering, LLC – Fort Lauderdale, FL

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Ocean Engineering	Professional Engineer, Florida (PE # 71458)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Nixon has 18 years of experience including providing environmental, geotechnical and construction materials testing services for utilities, water and wastewater treatment plants, pump stations, low and high-rise structures, infrastructure, bridges, piers, stormwater treatment areas, canal improvements, reservoirs and dams, roadways, etc. He prepares and reviews geotechnical and materials engineering inspection reports, coordinates and supervises engineering staff and drilling personnel, and conducts foundation observations, foundation design reviews and geotechnical instrumentation monitoring.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **PBCWUD Lift Station Rehabilitation (WUD Project No. 21-088) Various Cities with Palm Beach County, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2022; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Senior Geotechnical Engineer - Provided geotechnical engineering services for improvements to twenty-three (23) lift stations. The improvements included valve vault, piping, fittings, valves, base elbows, base plates, guide rails, non-clog submersible pumps, corrosion barrier system, by-pass connection, etc. Performed twenty-three (23) Standard Penetration Test (SPT) borings to a depths of 10 feet below the existing ground surface. Geotechnical Costs = $50,000

b.

(1) TITLE AND LOCATION *(City and State)*: **PBCWUD West Regional Wastewater Treatment Facility (WRWWTF) - Operations Building, Belle Glade, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2022; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

Senior Geotechnical Engineer - Provided geotechnical engineering services for a new 2-story, operations building at the WRWWTF. Ground penetrating radar, soil borings and laboratory testing were conducted. Provided a "de-mucking" scheme that involves the removal of the organic soils and their replacement with suitable engineered fill material. Also, provided deep foundation design recommendations to bypass the unsuitable soils and transfer the structural loads to the underlying limestone. Geotechnical Costs = $10,000

c.

(1) TITLE AND LOCATION *(City and State)*: **54" Finished Water Line from Prospect Clean Water Center to Fiveash Water Treatment Plant Project, Fort Lauderdale, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2023; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Senior Geotechnical Engineer – Provided geotechnical engineering services for the project, which included the design and construction of a new 54-inch diameter finished water pipeline (approximately 3.75 miles) from the Prospect CWC to the Fiveash WTP in Ft. Lauderdale, Florida. Performed sixteen (16) Standard Penetration Test (SPT) borings; five (5) to depths of 20, seven (7) to depths of 45 feet, and four (4) to depths of 70 feet below the existing ground surface. Geotechnical Costs = $81,000

d.

(1) TITLE AND LOCATION *(City and State)*: **Fiveash Water Treatment Plant – High Service Pump Station & Ground Storage Tank, Fort Lauderdale, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2024; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Senior Geotechnical Engineer – Provided geotechnical engineering services for the project, which included the design of a high service pump station with associated diesel fuel storage tanks and a new ground storage tank at the City of Ft. Lauderdale's Fiveash Water Treatment Plant. The water storage tank is approximately 160 feet in diameter with an operating water level of 33 feet, for a storage capacity of approximately 4 million gallons. A settlement analysis was conducted using the SIGMA/W module of GeoStudio. Geotechnical Costs = $35,000

e.

(1) TITLE AND LOCATION *(City and State)*: **Palm Beach County Emergency Operations Center - Four Points Connector, Palm Beach County, Florida**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2025; CONSTRUCTION (If applicable) N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Senior Geotechnical Engineer – Provided geotechnical engineering services for the project, which includes a 2nd floor connector bridge to the Four Points County Office Building. During EOC activations, the Four Points building provides for the deployment of support operations such as, but not limited to, break areas, sleeping quarters, showers/restrooms, and the Emergency Information Center (EIC). Geotechnical Costs = $22,000

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jason Johnson **Senior Associate**	**BIM/CADD**	**20**	**7**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
N/A	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Johnson is a Building Information Modeling (BIM) Designer with over 20 years of experience designing water treatment plants, wastewater plants, and civil infrastructure networks. He serves as the Southeast Regional BIM/CADD Coordinator for Hazen. His expertise also includes managing software, developing content, coordinating projects, and managing design teams, as well as providing training and mentorship to design staff. Mr. Johnson is an Autodesk-certified Revit user and is proficient in Civil 3D along with other various Autodesk products. His role includes 3D modeling and CADD design, as well as working with newer technologies, such as virtual reality and laser scanning.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services, Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Johnson's role in this project consists of design work using Civil 3D, as well as coordination with multiple subconsultants. The various aspects of design include storm drain improvements, seawall improvements, and new pump stations. The program is focused on resilient adaptation to climate change and inclusion of innovative and regional solutions. The work includes data collection; hydraulic/hydrologic stormwater modeling; and design, permitting, and construction services for stormwater capital improvement projects resulting from the revised stormwater master plan. **Status:** The project is estimated to be completed in 2024 **Cost:** $9.8 million (fee authorized for assignments to date) **Specific Role:** CADD

b.

(1) TITLE AND LOCATION *(City and State)*: **North District Wastewater Treatment Plant Electrical Distribution Building No. 3 Design, Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Johnson serves as BIM Manager for design of the North District's WWTP's Electrical Distribution Building No. 3 for the Miami-Dade Water and Sewer Department, which will replace the existing Electrical Building No. 1 and provide additional resilience to the WWTP. The Electrical Distribution Building No. 3 will be a two-story facility with nine 2,500-kW CAT Tier 4 generators. A state-of-the-art emergency operations center is also proposed to provide a safe, centralized location for plant staff to operate the North District WWTP during emergency conditions. Status: The project is estimated for completion in 2028. **Cost:** $10.5 million (design and CMS est. fee); $180 million (est. construction) **Specific Role:** BIM Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **City of Tampa San Carlos Pump Station Improvements Tampa, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021; CONSTRUCTION (If applicable): 2021

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This design-build pump station rehabilitation project utilized 3D modeling in Revit. This project also took advantage of Assemble Systems software that was used to track changes as the design progressed, get quantity take-offs, and provide cost estimating. **Cost:** $1.6 million (fee); $25 million (construction) **Specific Role:** Revit

d.

(1) TITLE AND LOCATION *(City and State)*: **Escondida Desalination and Water Supply Project Santiago, Chile**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION (If applicable): 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

A design-build desalination and water supply project to deliver 57 mgd of water to one of the largest copper mines in the world. Mr. Johnson was heavily involved with the 3D modeling and coordination of the RO Facilities. He also spent several months working with teams from various countries to conduct training on 3D software. Other responsibilities included setting up models for QTO and cost estimating, assisting with animations and renderings, along with overseeing the CAD/BIM production. **Cost:** $3.43 billion (construction) **Specific Role:** CADD

e.

(1) TITLE AND LOCATION *(City and State)*: **City of Houston Capers Ridge Pump Station (CRPS) Project Houston, TX**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION (If applicable): 2016

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☐ Check if project performed with current firm

The project included design of an intake and pump station, control building, and electrical building. The design was completed using all 3D design software (Revit and Civil 3D). Animation and renderings were used to convey construction sequencing. Civil 3D and the use of GIS software was used to accurately bring in data for ground surface modeling. Mr. Johnson's role included all the 3D design work and coordination with other subconsultants. **Cost:** $50 million (construction) **Specific Role:** CADD

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Michael Niemiec **Principal CAD/BIM Designer**	**BIM/CADD**	**8**	**6**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Hollywood, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
AS, Architectural Design AS, Construction Management	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Niemiec is a Building Information Modeling (BIM) Designer with over 8 years of experience designing water and wastewater treatment plants, pump stations, and lift stations.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **North District Wastewater Treatment Plant Electrical Distribution Building No. 3 Design, Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Niemiec oversees CAD/BIM design work by other disciplines on this $150-million investment by the Miami-Dade Water and Sewer Department (WASD) that will reduce air emissions through the provision of nine new Tier 4, 2,500-kW generators. This new facility will be designed to be more resilient to storm surge and sea-level rise, and it will also have an Incident Command Center to provide a safe area for WASD staff to operate the plant during hurricanes. The entire project is designed with Revit software, with Civil 3D software for site upgrades. Mr. Niemiec also uses Lumion to create realistic visuals/renderings to present a real feel to the client of the new structures, such as the generator room and operations area affected by catastrophic event (e.g., a storm). **Status:** The project is estimated for completion in 2028. **Cost:** $10.5 million (design and CMS est. fee); $180 million (est. construction) **Specific Role:** Mechanical CAD/BIM Design Lead

b.

(1) TITLE AND LOCATION (City and State): **Toho Water Authority (TWA) Sunbridge WTP: Phase 2, Osceola County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Pending

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Niemiec serves as Lead CAD/BIM Designer/Coordinator for the design, permitting, and bidding for an expansion of an existing 1-mgd ozone water treatment facility to a 4.8 mgd nanofiltration facility. A pilot program evaluated multiple technologies and nanofiltration was selected for TOC removal because of the excellent removal of high levels of organics in the raw water. The expansion project adds a 3-mgd Upper Floridan supply well and well pump, as well as a new nanofiltration system and building, forced-draft, packed tower aeration for hydrogen sulfide removal, chemical storage, 1-MG GST, and upgraded high service pumping station. **Status:** Completion is scheduled for 10/2024 (est.); **Cost:** $2.9 million (est. fee.); $46.6 million (est. construction) **Specific Role:** Lead CAD/BIM Designer/Coordinator

c.

(1) TITLE AND LOCATION *(City and State)*: **Toho Water Authority (TWA) Harmony WTP Upgrades and Expansion, Osceola County, FL.**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable):

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Niemiec serves as Lead CAD/BIM Designer/Coordinator for the pilot study, design, permitting, and bidding for upgrade and expansion of an existing 1.3-mgd MIEX water treatment facility to a 2.6-mgd nanofiltration or reverse osmosis facility. **Status:** Design is ongoing, construction is pending. **Cost:** $225,000 (est. fee.) **Specific Role:** Lead CAD/BIM Designer/Coordinator

d.

(1) TITLE AND LOCATION *(City and State)*: **Toho Water Authority (TWA) Buenaventura Lakes (BVL) Water Treatment Plant (WTP) Upgrade and Improvements Project, Osceola County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Pending

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Mr. Niemiec assists in areas of BIM/CAD services as needed. Hazen is providing engineering design, permitting, and construction services to improve reliability and quality of the water for the BVL WTP. This design incorporates considerations for a high growth area with raw water quality that requires advanced treatment to remove hydrogen sulfide, remove organics, and maintain disinfection by-product compliance. The scope of work includes pilot testing, design services, and site improvements to improve operations. **Status:** Design is ongoing; construction is pending. **Cost:** $1.87 million (fee) **Specific Role:** BIM/CAD Designer in areas as needed

e.

(1) TITLE AND LOCATION *(City and State)*: **Fort Pierce Utilities Authority (FPUA) Mainland Water Reclamation Facility Design and Permitting, Fort Pierce, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): Pending

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This plant is being relocated to protect the Indian River Lagoon. The move will ensure that this precious resource is shielded from any potential catastrophe. The upgraded plant will save residents money, be more energy efficient, and cost less to operate. It will also reduce the draw from the Fort Pierce Utilities Authority's Floridan Aquifer by an average of 2 mgd. Mr. Niemiec assists in the set-up and production of the entire project, from start to finish. This includes heavy coordination among all disciplines and subconsultants, as well as the Authority. The project is designed with Revit software, along with Civil 3D for yard piping, site layout, paving grading, and additional site work. Mr. Niemiec is utilizing Lumion to provide realistic video/images of what the new location of the Authority's relocated facility will look like. **Status:** Design began in 2021 and construction is estimated for 2025. **Cost:** $4.4 million (est. fee) **Specific Role:** Revit, CADD/BIM Designer

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jeffrey Neale **Director of Communications**	**Communications/Public Outreach**	**29**	**16**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Silver Spring, Maryland

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BA, Literature	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

For over 29 years, Mr. Neale has managed communications and outreach programs that have shaped the narrative around environmental projects, successfully reaching diverse target audiences with succinct messages distilled from complex, technical information. His work has included developing educational brochures and materials for customer communications and community forums for clients throughout the country.

a.

(1) TITLE AND LOCATION *(City and State)*: **PFAS Communications**
City of Plantation, FL

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Hazen led the campaign planning, management, and materials development to assist with public communications support in Plantation regarding PFAS. PowerPoint presentations, key messages, website content, videos, and social media posts were created to describe the various PFAS exposures and explain the associated impacts to residents. **Cost:** $32,701 (fee). **Specific Role:** Communications Lead

b.

(1) TITLE AND LOCATION *(City and State)*: **City of Lowell On-Call Communications Support, MA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Led a team that provided as-needed communications and outreach support to several Lowell initiatives, including the City's integrated planning program and its water utility consolidation. Work included development of materials such as bill inserts, signage, and presentations, as well as meeting and event support. **Cost:** $42,000 (fee). **Specific Role:** Project Manager

c.

(1) TITLE AND LOCATION *(City and State)*: **Stakeholder Outreach for Water Resources Planning**
City of Santa Fe, NM

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2022; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Led development of two sets of printed materials explaining a range of projected water supply/demand scenarios, the history of water infrastructure investments the City has made to meet growing demand over time, and a project intended to provide additional supply and resiliency to the Santa Fe system. Both sets communicated complex information visually using infographics and photos to two different target audiences (one being residents, the other City Council members, the Mayor's office, and other stakeholders). **Cost:** $7,000 (fee). **Specific Role:** Creative Director

d.

(1) TITLE AND LOCATION *(City and State)*: **Integrated Water Management Program, New York, NY**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Leading all outreach and communications efforts to affected communities and the general public as well as other institutional, governmental, and environmental stakeholders for this New York City Department of Environmental Protection project. Outreach efforts include working with technical teams to develop planning and messaging and with graphic designers to develop electronic and print materials intended to communicate value and win support for the paradigm shift to integrated water management. **Cost:** $3.2 million (est. fee). **Specific Role:** Public Outreach Task Lead

e.

(1) TITLE AND LOCATION *(City and State)*: **Lead and Copper Rule Revision Action Plan, Laurel, MD**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021; CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

This programmatic evaluation assisted WSSC Water in developing a comprehensive Lead and Copper Rule Revision (LCRR) Compliance Program. Working collaboratively with numerous WSSC departments, an action plan was developed to provide a road map for the lead service line (LSL) inventory, LSL replacement plan, corrosion control treatment, and public outreach. A detailed program schedule and management approach were developed to ensure that tasks are completed in a timely manner and compliance requirements were met well in advance of the US EPA October 2024 deadline**.**
Cost: $75,000 (fee). **Specific Role:** Public Outreach Task Leader

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Stephanie Ishii, PhD, PE, ENV SP **Senior Associate**	**Communications/Public Outreach**	**12**	**9**

15. FIRM NAME AND LOCATION *(City and State)*

Hazen and Sawyer, Tampa, Florida

Hazen

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PhD, Environmental Engineering ME, Environmental Engineering BS, Environmental Engineering	PE / FL – Environmental Engineering (FL 85237) Envision Sustainability Professional (ENV SP)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dr. Ishii uses multi-criteria decision analysis (MCDA) frameworks and tools to incorporate various economic, environmental, and community criteria in the decision-making process. She has conducted MCDA evaluations to develop and prioritize decisions related to source water supply, treatment selection, effluent management, and cross-sector infrastructure improvements under current and potential future environmental, regulatory, and economic conditions. Dr. Ishii works with stakeholders to develop near- and long-term implementation plans that identify key monitoring activities and triggers for action (e.g., specific changes in market conditions; technological improvements; regulatory updates; surpassing of capacity thresholds) that lead one down a given pathways versus another. Dr. Ishii has expertise in the areas of advanced water treatment, process monitoring, and water reuse regulations and PFAS communications strategies. **Professional Organizations**: American Water Works Association; WateReuse Association.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **One Water Demonstration Facility, City of Plant City, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2023 | CONSTRUCTION (If applicable): NA

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Ishii advised treatment technology selection, monitoring approach, and reporting for pilot testing of microfiltration, reverse osmosis, and UV advanced oxidation for advanced treatment of reclaimed water for potable reuse applications. She had extensive engagement with regulators to ensure that finished water quality targets and monitoring complied with anticipated potable reuse regulations in Florida. She conducted presentations, workshops, and tours with 250+ attendees to share the City's approach to integrated resource management and the evaluation of potable reuse with a broad range of stakeholders. **Cost:** $1,178,900 (engineering fee; does not include the cost of pilot equipment) **Specific Role:** Regulatory Lead

b.

(1) TITLE AND LOCATION *(City and State)*: **Developmental Alternatives Phase 1, Tampa Bay Water, Clearwater, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing | CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Ishii facilitates individual meetings, workshops, and technical analyses for Tampa Bay Water and its member governments to collaboratively develop reclaimed water concepts that address the projected drinking water deficit. The foundation for reclaimed water concept development includes consensus on reclaimed water availability across the region and over time, as well as the development of a mutual understanding of existing and anticipated water-related challenges, constraints, and opportunities across Agency and utility perspectives so that concepts may be developed to maximize benefit and minimize unintended impacts. **Cost:** $446,340 (fee) **Specific Role:** Project Engineer

c.

(1) TITLE AND LOCATION *(City and State)*: **Northwest Water Reclamation Facility Influent Pump Station and Screening Replacement, City of St. Petersburg, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing | CONSTRUCTION (If applicable): Ongoing

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Ishii serves as the Envision Manager for an improvements project at the City's Northwest Water Reclamation Facility. Envision is a third-party sustainability framework that emphasizes stakeholder identification and involvement. Improvements include a new influent pump station, screening facilities, odor control system, electrical building, and reject water storage tanks. Dr. Ishii is coordinating efforts across the CMAR team to facilitate planning, design, construction, and operations in line with a Gold-level Envision award. Her efforts include establishing minimum performance requirements, developing tracking tools for information sharing, and prioritizing sustainability options based on cost relative to community benefit. **Cost:** $1.7 million (fee) **Specific Role:** CMAR Envision Manager

d.

(1) TITLE AND LOCATION *(City and State)*: **Peace River Regional Reservoir No. 3 (PR3) Siting and Feasibility Study, Lakewood Ranch, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017 | CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Ishii led the development of a river water quality model to quantify the system reliability benefits of different intake siting locations considering the temporally and geographically variable tidal influence under current and potential future sea level conditions. Dr. Ishii incorporated water quality/reliability results into a multi-criteria decision analysis framework to provide site rankings based on yield, cost, accessibility, and other criteria. Dr. Ishii served as the task manager for two efforts, one pertaining to the siting of the new river intake and the other on the integration of new infrastructure with existing infrastructure. The intake siting evaluation included flow and water quality modeling along the Peace River to quantify the system reliability benefits of different withdrawal locations considering the temporally and geographically variable tidal influence on the river. The infrastructure integration evaluation included a comprehensive evaluation of existing and preferred system functionalities, hydraulic modeling, and cost estimating. Dr. Ishii is also leading a review of reservoir design and operational strategies for stored water quality management. **Cost:** $156,000 (fee) **Specific Role:** Technical Lead

e.

(1) TITLE AND LOCATION *(City and State)*: **Long-Term Master Water Plan Update, Tampa Bay Water, Clearwater, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 | CONSTRUCTION (If applicable): N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Dr. Ishii developed and refined multiple water supply configurations for consideration, spanning groundwater, surface water, and reclaimed water. Dr. Ishii prepared schematics, detailed cost estimates, and outreach materials for each configuration to support the ranking process and stakeholder communications. She facilitated a multi-criteria decision-making process, including the development and weighting of decision-making criteria, and the scoring of alternatives across criteria, to identify the configurations that warrant a more detailed evaluation. Dr. Ishii continued to work with Tampa Bay Water after the completion of the master plan as the project engineer in the Surface Water Treatment Expansion Feasibility Study, as increased surface water use was a top ranked water supply option. **Cost:** $3.58 million (fee) **Specific Role:** Principal Scientist

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **1**

21. TITLE AND LOCATION *(City and State)*

Eugene Hickson Ion Exchange WTP and Well Improvements
Arcadia, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2015	**2015**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Arcadia, Florida	**AJ Berndt** **Water Superintendent**	**(863) 558-2091**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size

New 1.5-mgd ion exchange WTP

Cost

$740,000 (fee)
$7.7 million (construction)

Description

Hazen provided engineering services for the study, design, permitting, construction administration, and start-up for a new 1.5-mgd ion exchange WTP and well improvements.

The City's 3-mgd lime softening water treatment plant (WTP) was over 40 years old and had reached the end of its serviceable life. The plant treated a groundwater source that exceeded water quality standards for radionuclides with high concentrations of hardness, sulfides, organic carbon, and fluoride. Treatment was primarily focused on meeting the radionuclides standards by raising the pH to 8.5 with lime, followed by settling and filtration. Free chlorine was used for primary disinfection and chloramines were used for residual chlorine in the distribution system and to control disinfection byproducts.

Hazen prepared a facility plan that evaluated lime softening, ion exchange, nanofiltration/membrane softening, and purchasing water from the local water supply authority. Ion exchange was determined to be the most cost-effective option.

Following completion of the facility plan, Hazen provided bench-scale pilot testing, preliminary and final design, permitting, and construction-phase services. Hazen performed bench-scale pilot testing, testing on the source groundwater to determine the effectiveness of anion and cation exchange resins, efficiency of brine regeneration, vessel headloss, and run time for both ion exchange resins. The pilot test verified the ion exchange system would meet the design criteria and water quality goals achieved by blending a portion of raw water with treated water. The blended flow reduced the ion exchange regenerant waste, a pivotal factor in the ion exchange process selection.

This project was funded through loans and grants through FDEP's State Revolving Fund (SRF); **Hazen secured over half of the nearly $8 million in costs for this project as loan forgiveness grants.**



Project components included:

- New 300-gpm raw water supply well
- Piping, booster pump station
- Two-stage ion exchange system
- Ground storage tank
- High-service pumping
- Chemical systems
- Operations and control center
- Related site improvement
- Refurbishment of five existing wells

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Boca Raton, Florida**	**Primary Consultant**
c.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
d.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **2**

21. TITLE AND LOCATION *(City and State)*

St. Cloud Water Treatment Plant No. 4 Water Quality Improvements
Osceola County, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	**Ongoing**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Toho Water Authority	**Tak Kai Pang, PhD, PE** **Director of Engineering Program**	**(407) 944-5030**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size
Currently a 9-mgd WTP with the option to expand to 12-mgd.

Cost
$4 million (fee); $46 million (construction)

Description
Hazen is currently providing design services for replacement of the existing process with a new treatment process of ion exchange and forced-draft, packed tower aeration. The project is being designed to keep the existing plant in operation while the new facility is constructed and to make the WTP easily expandable from 9-mgd to 12-mgd.

Overall Scope of the Project:

Interim Treatment System.
Hazen provided engineering and construction administration services for temporary membrane filtration units to improve the finished water quality at the St. Cloud WTP #4. The project included operational modification support and modifications to the existing MIEX treatment plant, new mobile membrane treatment units and design and construction support of the connection package to support installation of the units. Project support included design services, permitting of interim membrane treatment units and construction administration and start-up services.

Upgrade and Expansion.
The primary goal of the permanent upgrades to the treatment system were to either renovate the existing MIEX system to produce acceptable water quality at reasonable O&M cost or to identify cost effective new treatment facilities for TOC and hydrogen sulfide removal. Hazen used an aggressive fast-tracked approach to evaluate the existing system in parallel with evaluating multiple technologies for TOC removal. Ion exchange for TOC removal was identified to be the most cost effective technology. Media filtration will be used for iron removal and forced draft aeration (degasification) with odor control will be used for hydrogen sulfide removal. These new treatment facilities will replace the existing MIEX system in its entirety and will be located on a site adjacent to the existing treatment plant. Upgraded high service pumps and a new well/well pump will also be part of the project.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Boca Raton, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Orlando, Florida**	**Primary Consultant**
d.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **3**

21. TITLE AND LOCATION *(City and State)*

Toho Buenaventura Lakes WTP Process Upgrades
Osceola County, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	**N/A**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Toho Water Authority	**Tak Kai Pang, PhD, PE** **Director of Engineering**	**(407) 944-5030**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size
5 mgd

Cost
$1.87 million (fee)

Description
Toho Water Authority (Toho) owns and operates the 5-mgd Buenaventura Lakes WTP (BVLWTP). Hazen is responsible for pilot testing and design of process upgrades to eliminate the routine flushing and control disinfection byproducts (DBP) through additional removal of total organic carbon (TOC).

The BVLWTP currently treats groundwater from on-site Upper Floridan Aquifer wells for hydrogen sulfide and TOC. The existing treatment consists of granulated activated carbon (GAC) for TOC removal, a ground storage tank (GST) with cascade tray aeration and spray recirculation (which can be used for both sulfide removal and stripping of DBPs).

BVLWTP produced finished drinking water that met regulatory limits associated with DBP control. However, Toho observed that the GAC media was exhausted rapidly and required change-outs at a higher frequency than originally anticipated. Hazen was hired to perform pilot testing and design of process upgrades to eliminate the routine flushing and control DBPs through additional removal of TOC.

Hazen performed a desktop analysis and shortlisted four configurations to be evaluated through pilot testing. The following configurations were proposed:

- Modified GAC (decreased hydraulic loading rate with different GAC media) followed by Post-Stripping
- Pre-Chlorination and Spray Aeration (Pre-Stripping) ahead of Existing GAC followed by Post-Stripping
- Fixed Bed Ion Exchange (IX) followed by Post-Stripping
- Hybrid Configuration of IX and GAC followed by Post-Stripping
- Based on the pilot results, a hybrid configuration was selected and is currently in design

The design and commissioning of our BVL pilot relied on our team's broader experience with designing, deploying complex pilots, which included the following recent pilots: The Plant City Potable Reuse Pilot, which utilized MF, RO, and UVAOP; and the Tampa Bay Water Desalination pilot, which relied on DAF, media filtration, membrane filtration, and reverse osmosis.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Orlando, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Denver, Colorado**	**Primary Consultant**
d.	**Hazen and Sawyer**	**Los Angeles, California**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **4**

21. TITLE AND LOCATION *(City and State)*

PFAS Groundwater Treatment Improvements
Santa Clarita, CA

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	**Ongoing**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Santa Clarita Valley Water Agency	**Jason Yim, PE** **Principal Engineer**	**(661) 513-1277**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size
Varies by project.

Cost
$9 million (fee)

Description
Hazen provided engineering services to Santa Clarita Valley Water Agency for the preliminary design and final design of PFAS treatment for 53 wells in the Santa Clarita Valley.

The following presents past and current PFAS well projects:

Equipment Sizing and Procurement

Hazen provided engineering services for sizing and layout of PFAS treatment systems, including pre-filtration system, AIX system, and chemical feed and storage system for 53 Santa Clarita Valley groundwater wells totaling 64,000 gpm capacity. In addition, Hazen is preparing technical specifications and preliminary plans for the equipment procurement for the long-lead equipment such as IX vessels.

Santa Clara & Honby Wells PFAS Treatment Final Design

Hazen is providing engineering services for the final design of Santa Clara and Honby Wells PFAS groundwater treatment improvements (design capacity was 3.5 mgd). The final design includes preparation of plans, specification, cost estimate, permitting, and support during bidding and construction phases of the project.

7, U4, U6, Saugus 1 and Saugus 2 Wells PFAS Treatment Final Design

Hazen provided engineering services for final design of the IX and GAC treatment systems for removal of PFAS and VOC compounds from Wells T7, U4, and U6 (PFAS removal) and Saugus 1 and Saugus 2 (VOC removal), including a new disinfection facility. The design capacity was 8.5 mgd. The final design and bid phase are complete and the construction began in June 2024.

S-Wells PFAS Treatment Final Design

Hazen is providing engineering services for final design of IX treatment system for removal of PFAS and Perchlorate for Wells S6, S7, and S8 (Design Capacity = 8.7 mgd), including a new disinfection facility, landscape architecture, and novel perimeter wall structural and architectural design.

Newhall Wells (N11, N12, and N13) PFAS Treatment Final Design

Hazen will provide engineering services for the final design of the IX treatment system for removal of PFAS and Perchlorate from Newhall Wells (N11, N12, and N13 - design Capacity = 7.8 mgd).



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Irvine, California**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Los Angeles, California**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER **5**

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Prospect Lake Clean Water Center **Fort Lauderdale, Florida**	**Ongoing**	**Ongoing**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Fort Lauderdale	**Daniel Fisher, PE** **Project Manager**	**(954) 828-5850**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size
50-mgd

Cost
$4.7 million (fee); $700 million (estimate construction)

Description
Hazen was selected by the City of Fort Lauderdale to provide owner's representative services for design and construction of the proposed 50-mgd (finished water capacity) water treatment plant.

The City of Fort Lauderdale's existing Fiveash Water Treatment Plant (WTP) was constructed in the 1950s and is at the end of its useful life. The City commissioned an engineering study to determine the future of the facility. That study recommended replacing the Fiveash WTP with a new state-of-the-art WTP using a combination of nanofiltration and ion exchange treatment technology.

The new plant will be located approximately three miles from the Fiveash WTP at the City's Prospect Wellfield. The new plant is designated as the Prospect Lake Clean Water Center. The Fiveash WTP treatment facilities will be decommissioned and used only for finished water storage and pumping.

The City decided to procure this project through a Public-Private-Partnership agreement. The City received multiple unsolicited proposals and selected the team to design and construct the plant. In parallel, the City selected Hazen as the Owner's Representative to review the design and oversee the construction of the $700 million water treatment plant.

Hazen's services include review of permit application, review of design packages, coordination with permitting agencies and City departments. Hazen also provides technical review of process design including the team's approach to optimization of corrosion control.

Hazen maintains a risk register for the City, identifying the risks and mitigation strategies for each risk. As the team moves from design to construction, Hazen will provide multiple inspectors and Resident Project Representatives to observe the construction of the WTP and support facilities, as well as process specialists for the startup phase of the project.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Boca Raton, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Orlando, Florida**	**Primary Consultant**
d.	**Hazen and Sawyer**	**Jacksonville, Florida**	**Primary Consultant**
e.	**Hazen and Sawyer**	**Cincinnati, Ohio**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **6**

21. TITLE AND LOCATION *(City and State)*

Winson WTP Pilot and PFAS Management Plan
North Miami, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	**N/A**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of North Miami, Florida	**Jeff Geimer, MPA** **Assistant Public Works Director**	**(305) 893-6511 ext. 14001**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size

The Winson WTP is a 9.3-mgd lime softening facility.

Cost

$350,000 (fee)

Description

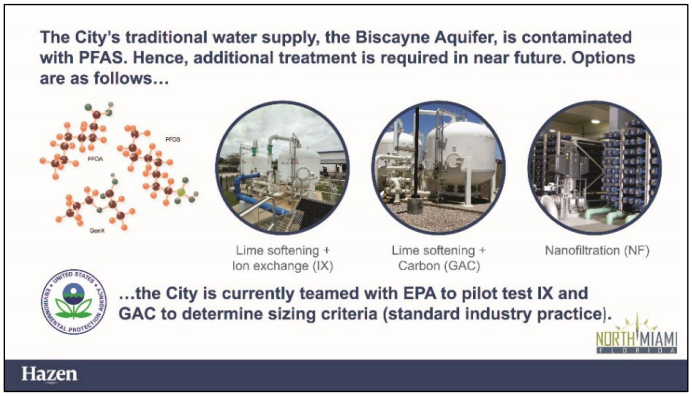
The City of North Miami's Winson Water Treatment Plant is a 9.3-mgd lime softening facility that is experiencing elevated PFOA and PFOS concentrations in the City's groundwater and cannot achieve the recently promulgated EPA Maximum Contaminant Levels (MCL) through existing lime softening processes.

The City contracted Hazen to develop a PFAS Management Plan that will test multiple adsorbent media to determine PFAS removal efficiencies along with associated life cycle costs. The pilot testing is investigating three media options (GAC, IX, and Fluorosorb) and will be operated until PFAS breakthrough occurs.

A unique collaboration with the EPA's Technical Assistance program allowed the City to expand the number of media tested along with additional sample ports throughout the media depth. In addition, the frequency and number of samples analyzed was increased, resulting in a more complete analysis of the City's current water quality and PFAS concentrations and media performance.

The results of the pilot testing will guide the recommendations made in the PFAS Management Plan. The number of bed volumes treated for each adsorbent media will inform the City on full-scale design considerations and operational and maintenance costs. Alternative options available to the City will also be evaluated including replacing the lime softening treatment plant with a full-scale membrane plant, and finding alternative water sources.





25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Coral Gables, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Tampa, Florida**	**Primary Consultant**
d.	**Hazen and Sawyer**	**Denver, Colorado**	**Primary Consultant**
e.	**Hazen and Sawyer**	**Richmond, Virginia**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **7**

21. TITLE AND LOCATION *(City and State)*

PFAS Study and Pilot Testing at WTP
Margate, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ongoing	**N/A**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Margate, FL	**Marta Reczko** **Assistant Director Utilities**	**(954) 884-3632**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size

The City of Margate's Water Treatment Plant is a 10.1-mgd lime softening facility.

Cost

$490,895 (fee)

Description

The City of Margate's Water Treatment Plant is a 10.1-mgd lime softening facility that has been experiencing elevated levels of per- and polyfluoroalkyl substances (PFAS), particularly PFOA and PFOS, in both the city's wells and finished water. The existing lime softening processes are insufficient to achieve compliance with the recently promulgated EPA maximum contaminant levels (MCLs).

The City contracted Hazen to develop a PFAS Management Plan that includes a desktop evaluation of three adsorptive media options: granular activated carbon (GAC); two ion exchange (IX) resins; and FLUOROSORB using Hazen PFAS Prediction Model, along with an assessment of membrane alternatives using projection software as part of Phase 1. In the next phase of this project, the performance of GAC, two IX products, and FLUOROSORB will be evaluated in a pilot-scale system to determine treatment longevity, quantified by bed volumes processed and the time to breakthrough of the earliest regulated compound beyond an established threshold needed to meet water quality goals.

The outcome of this project will guide recommendations in the PFAS Management Plan for the City of Margate. The number of bed volumes treated for each adsorbent will inform the City of Margate on the effectiveness of each option for PFAS removal in full-scale design and its associated operational and maintenance costs. Additionally, by performing pilot-scale assessments with the selected adsorbents, other important operational factors such as head loss accumulation as a function of water throughput and seasonal fluctuations in influent water quality can be evaluated, as they play a critical role in determining the most suitable adsorbent for full-scale implementation.







25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Coral Gables, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Denver, Colorado**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **8**

21. TITLE AND LOCATION *(City and State)*

Fiveash Water Treatment Plant Upgrades
Fort Lauderdale, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2019	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Fort Lauderdale	**Miguel Arroyo** **Water and Wastewater Treatment Manager**	**(954) 828-7806**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size
70-mgd conventional lime softening plant treating groundwater.

Cost
$6.9 million (fee); $63.2 million (construction)

Description
Hazen was retained to design, permit, assist with bidding, and provide services during construction for upgrades at the City's 70-mgd Fiveash Water Treatment Plant (WTP). The WTP is a conventional lime softening plant treating groundwater.

Hazen evaluated the condition of the WTP. The evaluation included raw water supply, wellfield and transmission system improvements, concentrate disposal alternatives, lime solids disposal alternatives for existing lime softening facilities, and additional improvements to maintain the reliability of existing lime softening facilities.

Work performed under Phases I-III is highlighted in the paragraphs that follow.

Reliability Upgrades – Phase I: Phase I upgrades were critical to maintaining the reliability of the existing lime softening process. Phase I construction was completed in 2009. Improvements included the north high-service pump replacement, 60-inch clearwell interconnect, filter control upgrade, lime system upgrade, hydrotreator influent valve modifications, coagulant polymer system upgrade, flow meter replacement for high-service pumps 12-16, and lime sludge pump station replacement.

Reliability Upgrades and Disinfection System – Phases II and III: Phase II and III design was completed in 2019. Improvements included weatherproofing improvements, plant air system piping replacement, two new 1.5 megawatt diesel engine generators, outdoor switchgear replacement, control upgrades for high-service pumps 6-16 and transfer pumps 1-3 and 6, chlorine system replacement, lime fill system, plant air, vacuum priming, diesel air start system replacements, operations building renovations, and plant control system replacement. Phases II and III were not constructed due to the City's budget and their decision to replace the Fiveash WTP with a new plant constructed at another location.

Filter Rehabilitation: Hazen provided design, permitting, bidding, and construction management services for rehabilitation of 12 filters at the Fiveash WTP. This project, completed in multiple phases, included the following: removing and replacing the existing filter media; removing and replacing the underdrains; removing and replacing all internal piping and media agitators.

Hazen provided services during construction of the Reliability Upgrades – Phase 1 and the Filter Rehabilitation projects. The complexity of construction required nearly four years to reach substantial completion.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Coral Gables, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Tampa, Florida**	**Primary Consultant**
d.	**Hazen and Sawyer**	**Denver, Colorado**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER **9**

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Winson WTP Filter Rehabilitation and Reliability Improvements North Miami, Florida	**2024**	**Ongoing**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of North Miami, Florida	**Pavel Vida Water Plant Superintendent – Water & Sewer Division**	**(305) 893-6511 ext. 15050**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size

9.3-mgd water treatment plant

Cost

$716,500 (fee); $3.3 million (construction)

Description

The City of North Miami's Winson Water Treatment Plant (WTP), originally constructed in the early 1960s, is a 9.3-mgd lime softening WTP. Many of the plants processes were at the end of their useful life; Hazen provided professional services, including:

- Replacement of underdrains, filter media, piping, valves, and flow meters for four filters; filter backwashing will be automated with electric valve actuators controlled by a PLC in a control panel located at the existing operations room.
- Four new vertical turbines can style high service pumps (3,500 gpm at 180 feet) equipped with VFDs.
- 6,350-square-foot administration building.
- Two new vertical turbine backwash pumps (9,700 gpm at 35 feet) equipped with VFDs.
- Two new vertical turbine transfer pumps (6,500 gpm at 40 feet) equipped with VFDs.
- Removal of all existing high service pumps, transfers and backwash pumps and repurposing of the pump building to house chemical feed storage and feed equipment.
- New chemical storage and feed facilities for sodium hypochlorite, aqueous ammonia, fluoride, coagulant, and anticoagulant.
- New sludge and backwash recovery pump stations.
- Replacement of the lime contactor mechanism and refurbishment of the Accelator tank.
- Replacement of two well pumps with constant speed vertical turbine line shaft pumps (each at 1,500 gpm at 60 feet) and new controls.
- Air-conditioned electrical building housing 2,000-amp main breaker, automatic transfer switch, variable frequency drives and plant SCADA PLC.

Status

Filter: The filter rehabilitation design was completed in 2012; construction was completed in June 2019.

WTP Reliability Improvements: This project is ongoing. Funded by FDEP State Revolving Fund, the WTP Reliability Improvements construction was cancelled due to only receiving one bid. The bid was much higher than the budget; and additionally, FDEP does not fund a project that receives just one bid. The City is currently contemplating its options on what approach meets their long-term goals (quality and quantity). City staff have expressed a goal of expanding finished water production capacity to approximately 20 million (currently limited to 9.0 mgd) to meet their year 2045 max day demand without purchase of water from Miami-Dade County. In late March of 2024, Hazen provided a presentation on various options to move forward with the project. The City is currently analyzing two possible options: (1) rehabilitation of the existing plant and incorporating additional treatment for PFAS removal; or (2) demolishment of the existing plant and replacement with a plant with newer treatment technology.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Coral Gables, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
c.	**Hazen and Sawyer**	**Boca Raton, Florida**	**Primary Consultant**
d.	**Hazen and Sawyer**	**Jacksonville, Florida**	**Primary Consultant**
e.	**Hazen and Sawyer**	**Raleigh, North Carolina**	**Primary Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **10**

21. TITLE AND LOCATION *(City and State)*

John E. Preston Water Treatment Plant Optimization
Miami-Dade County, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2005	**2005**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Miami-Dade Water and Sewer Department	**James Ferguson, PE** **Senior Program Manager**	**(786) 552-8756**

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Size
165-mgd

Cost
$1 (fee)
$23.4 (construction)

Description
Hazen assisted Miami-Dade Water and Sewer Department with start-up and operational optimization of the new process at the John E. Preston WTP, in addition to training of the plant operating staff. The 165-mgd John E. Preston Water Treatment Plant is a conventional lime softening facility with three 30-mgd Accelator units and three 25-mgd Hydrotreator softening units. Accelator bench-scale tests conducted by Hazen and Sawyer indicated that a simultaneous coagulation and softening process was efficient at reducing TTHMs, THAAs, and color in the finished water and produced the highest quality process water from the Accelator units.

The full-scale test program demonstrated the performance of the simultaneous coagulation and lime softening process could achieve the goals of the Department.

The Accelator bench-scale testing indicated that the simultaneous coagulation and softening process could meet the Stage 1 DBP regulations and may meet the Stage 2 criteria. The full-scale Accelator tests confirmed that both the Stage 1 and Stage 2 DBP criteria could be met with the process.

The full-scale test results showed a marked improvement over the bench test data with the exception of the color removal. However, the color can be further reduced by increasing the process chlorine contact time until the TTHM and THAA concentrations approach the Stage 2 DBP criteria; or by using ozone.

Hazen provided process evaluation, pilot/full scale testing, design oversight, bidding, and construction management services to Miami-Dade for this project. Hazen's role was also to prevent any construction, operational, and maintenance problems in the future. Hazen developed the design criteria and performance specification standards through extensive pilot- and full-scale testing.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	**Hazen and Sawyer**	**Hollywood, Florida**	**Primary Consultant**
b.	**Hazen and Sawyer**	**Coral Gables, Florida**	**Primary Consultant**

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "X" under project key number for participation in same or similar role.)									
		1	2	3	4	5	6	7	8	9	10
Monique Durand, PE	Project Manager	☐	☐	☐	☐	☒	☒	☒	☒	☒	☐
Janeen Wietgrefe, PE, PMP	Project Director	☐	☐	☐	☐	☒	☒	☒	☒	☒	☐
Jayson Page, PE	Deputy Project Manager; Lime Softening Process / Mechanical; PFAS Mgt.	☐	☐	☐	☐	☐	☒	☐	☐	☒	☒
Patricia Carney, PE	QA/QC; Technical Advisory Committee (TAC)	☐	☐	☐	☐	☒	☒	☐	☒	☒	☐
Erik Rosenfeldt, PhD, PE	QA/QC; Technical Advisory Committee	☐	☒	☐	☐	☒	☒	☒	☒	☐	☒
Paul Biscardi, PhD, PE	QA/QC; Technical Advisory Committee; Operations and Start-up Assistance	☐	☒	☒	☐	☒	☐	☐	☒	☐	☐
Nicole Blute, PE	QA/QC; Technical Advisory Committee	☐	☒	☒	☒	☐	☐	☐	☐	☐	☐
Conner Murray, PhD, PE	QA/QC; Technical Advisory Committee	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐
Darren Lytle, PhD, PE	QA/QC; Technical Advisory Committee	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐
Alex Rahimian-Pour, PE	Ion Exchange Process / Mechanical	☐	☐	☒	☒	☐	☐	☐	☐	☐	☐
Tyler Davis, PE	Ion Exchange Process / Mechanical; Operations and Start-up Assistance; Bidding Services	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐
Taima Kayali, EI	Ion Exchange Process / Mechanical; Filter Process / Mechanical	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
George Brown, PE	Lime Softening Process / Mechanical; Filter Process / Mechanical; Storage / Pumping Systems and Pipelines; Sequence of Construction / MOPO	☐	☐	☒	☐	☒	☒	☐	☒	☒	☒
Monica Pazahanick, PE	Lime Softening Process / Mechanical	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Jennifer McMahon, PE	Filter Process / Mechanical; Storage / Pumping Systems and Pipelines	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐
Guillermo Regalado, PE	Hydraulics	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Nathan Rothe, PE	PFAS Management; Process Optimization and Pilot Testing; Treatment Plant Operations Manual / Dashboard	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐
Becki Rosenfeldt, PE	Corrosion Control	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐

29. EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1	Eugene Hixon Ion Exchange WTP and Well Improvements Arcadia, Florida	6	Winson WTP Pilot and PFAS Management Plan North Miami, Florida
2	Toho St. Cloud WTP No. 4 Upgrades Osceola County, Florida	7	City of Margate PFAS Management at the WTP - Phase 1 Margate, Florida
3	Toho Buenaventura Lakes WTP Upgrades Osceola County, Florida	8	Fiveash Water Treatment Plant Reliability Upgrades Fort Lauderdale, Florida
4	Santa Clarita PFAS Groundwater Treatment Improvements Santa Clarita, California	9	Winson WTP Filter Rehabilitation and Reliability Improvements North Miami, Florida
5	Prospect Lake Clean Water Center Fort Lauderdale, Florida	10	John E. Preston Water Treatment Plant Optimization Miami-Dade County, Florida

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "X" under project key number for participation in same or similar role.)									
		1	2	3	4	5	6	7	8	9	10
Roger Arnold, PE	Corrosion Control	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐
David Bannett, PE, LEED AP	Site Civil / Stormwater	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Lucia Medina, PE	Site Civil / Stormwater	☐	☐	☐	☐	☐	☐	☐	☒	☒	☐
John Burke, PE	Electrical	☐	☒	☐	☐	☒	☐	☐	☒	☒	☐
Thein Win, PE	Electrical	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐
Evan Curtis, PE	Instrumentation and Automation	☐	☒	☐	☐	☒	☐	☐	☒	☒	☐
Alfredo Jimenez	Instrumentation and Automation	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐
Jean Paul Silva, PE, FRSE	Structural / Architecture	☐	☐	☐	☐	☒	☐	☐	☒	☒	☐
William Russell, AIA, LEED AP	Structural / Architecture	☐	☐	☐	☒	☐	☐	☐	☒	☒	☐
Tajdini Bahareh, PhD	Process Optimization and Pilot Testing	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐
Elie Andary, PhD, PE	Construction Mgt. / Inspections; Sequence of Construction / MOPO	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
Adrian Myrie, EI	Construction Management / Inspections	☐	☐	☐	☐	☒	☐	☒	☐	☐	☐
Darius Manikas	Construction Management / Inspections	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
Sharon Simington	Grants / Funding	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐
Marta Alonso, PE, ENV SP	Permitting / Regulatory Compliance	☒	☐	☐	☐	☐	☐	☐	☐	☒	☐
Rose Jesse, CPE	Cost Estimating and Scheduling	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐
Richard Crawford	Survey / Mapping / Subsurface Utility Investigation	☐	☐	☐	☐	☒	☐	☐	☐	☒	☐
Daniela Diaz, PE	Bidding Services	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐
Andrew Nixon, PE	Geotechnical	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
Jason Johnson	BIM / CADD	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐

29. EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1	Eugene Hixon Ion Exchange WTP and Well Improvements Arcadia, Florida	6	Winson WTP Pilot and PFAS Management Plan North Miami, Florida
2	Toho St. Cloud WTP No. 4 Upgrades Osceola County, Florida	7	City of Margate PFAS Management at the WTP - Phase 1 Margate, Florida
3	Toho Buenaventura Lakes WTP Upgrades Osceola County, Florida	8	Fiveash Water Treatment Plant Reliability Upgrades Fort Lauderdale, Florida
4	Santa Clarita PFAS Groundwater Treatment Improvements Santa Clarita, California	9	Winson WTP Filter Rehabilitation and Reliability Improvements North Miami, Florida
5	Prospect Lake Clean Water Center Fort Lauderdale, Florida	10	John E. Preston Water Treatment Plant Optimization Miami-Dade County, Florida

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Project Team Qualifications

Hazen prides itself on the long-term experience of our key personnel. Through our team's long-standing presence in South Florida, we have established working relationships with the agencies, local governments, and key decision makers that will be crucial to making each project a successful one. We offer an outstanding and dedicated team with significant experience, local knowledge, and understanding of the City of Pembroke Pines' needs. Our full-service team capabilities mean that we can quickly and cost-effectively address any assignment or challenge.

Hazen has carefully selected a team with personnel that meet all the RFQ requirements. As evidence, Hazen's primarily Hollywood-based team have worked together for many years on projects similar in scope. The City will directly benefit from the experience of our efficient team. Our proposed Project Director and Project Manager, Janeen Wietgrefe, PE, PMP and Monique Durand, PE, (as well as other team members) have worked together on multiple projects over the years, which will provide efficiencies on the City's project.

The Hazen team is well qualified to provide the full range of technical expertise required for this contract. We believe our project management success is directly attributable to certain key aspects of the firm's corporate culture. Company principals are directly involved in all major decisions, which results in efficient and timely project development, implementation, and completion. Secondly, we have carefully controlled growth and expansion of our areas of practice. This has enabled study and design teams to work together on numerous projects over considerable periods of time. Team continuity results in both high-quality and cost-effectiveness. Such continuity exists in our project team proposed for the City of Pembroke Pines. Thirdly, the firm's culture has been to avoid the creation of unnecessary management, administration and marketing layers, thus minimizing excessive overhead costs.

Current Workload

Hazen has the conservative approach of undertaking new projects only when workload permits. We feel that it is important that "the project team you see is the project team you get." Should Hazen be selected to provide services for the City of Pembroke Pines, the individuals identified in our organizational chart will serve on this contract. We can ensure the City of Pembroke Pines continuity of staff committed and qualified to provide the resources necessary to complete this project.

With the selection of Hazen, you can be assured that the City of Pembroke Pines' projects will be performed on time and within budget. If additional resources are required at any given time, Hazen maintains sufficient staff in our 10 Florida offices in all of the necessary disciplines and also has the capacity to draw upon our firm-wide staff members should an unforeseen circumstance occur or if specific expertise is required at the City of Pembroke Pines' request. Our Project Manager and all key personnel, which includes our qualified subconsultants, will dedicate the necessary time to see each task through from conception to completion.

Available Facilities, Technological Capabilities, and Other Available Resources

The Hazen team is equipped with the available facilities, technological capabilities to successfully complete any work assignment. Our nationwide network of over 80 offices, including our regional headquarters in Broward County, has the resources to successfully complete any work assignment. Hazen is deeply entrenched with current and cutting-edge technology to enhance the capabilities and efficiency of our users and provide world-class services to our clients using available technology in the marketplace. Our systems consist of both Cloud-hosted and in house/on premise solutions.

The Hazen network team consists of a skilled team of IT professionals that maintain a high-speed fiber only network connecting our offices across the country. These systems, which are fully redundant, provide the backbone to connect all the users in the firm to collaborate efficiently. The network utilizes the latest servers, firewalls, and WAN Accelerators from Dell, SonicWALL and Riverbed.

I. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

31 SIGNATURE	32. DATE
	**June 5, 2025**

33. NAME AND TITLE

Janeen Wietgrefe, PE, PMP, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: FFSSK2D6MD53
2b. STREET: 4000 Hollywood Boulevard, Suite 750 North			5. OWNERSHIP	
2c. CITY: Hollywood	2d. STATE: FL	2e. ZIP CODE: 33021	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Patricia Carney, PE, BCEE, DBIA, Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (954) 987-0066	6c. E-MAIL ADDRESS: pcarney@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	11
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	5
10	Chemical Engineer	41	
12	Civil Engineer	335	14
14	Computer Programmer	9	
15	Construction Inspector	86	6
16	Construction Manager	99	4
18	Cost Engineer/Estimator	7	
20	Economist	6	1
21	Electrical Engineer	133	2
23	Environmental Engineer	537	20
24	Environmental Scientist	45	1
29	GIS Specialist	25	1
30	Geologist	9	
32	Hydraulic Engineer	35	3
39	Landscape Architect	2	
41	Mechanical Engineer	76	
57	Structural Engineer	77	3
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	5
	Total	**2,096**	**77**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

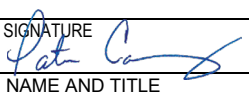
a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE: 

b. DATE: May 14, 2025

c. NAME AND TITLE: Patricia Carney, PE, BCEE, DBIA, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: FFSSK2D6MD53
2b. STREET: 999 Ponce de Leon Boulevard, Suite 1150			5. OWNERSHIP	
2c. CITY: Coral Gables	2d. STATE: FL	2e. ZIP CODE: 33143	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Jayson Page, PE, Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (305) 443-4001	6c. E-MAIL ADDRESS: jpage@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	1
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	
10	Chemical Engineer	41	1
12	Civil Engineer	335	10
14	Computer Programmer	9	
15	Construction Inspector	86	1
16	Construction Manager	99	1
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	3
23	Environmental Engineer	537	4
24	Environmental Scientist	45	1
29	GIS Specialist	25	
30	Geologist	9	
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	1
57	Structural Engineer	77	1
58	Technician/Analyst	39	2
62	Water Resources Engineer	131	1
	Total	**2,096**	**27**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

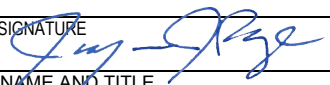
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE: May 14, 2025

c. NAME AND TITLE: Jayson Page, PE, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: FFSSK2D6MD53
2b. STREET: 2101 NW Corporate Boulevard, Suite 301			5. OWNERSHIP	
2c. CITY: Boca Raton	2d. STATE: FL	2e. ZIP CODE: 33431	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Kurt Pfeffer, PE, Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (561) 997-8070	6c. E-MAIL ADDRESS: kpfeffer@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	3
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	2
10	Chemical Engineer	41	1
12	Civil Engineer	335	2
14	Computer Programmer	9	
15	Construction Inspector	86	2
16	Construction Manager	99	2
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	1
23	Environmental Engineer	537	7
24	Environmental Scientist	45	1
29	GIS Specialist	25	1
30	Geologist	9	
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	
57	Structural Engineer	77	3
58	Technician/Analyst	39	
62	Water Resources Engineer	131	2
	Total	**2,096**	**27**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE: Kurt Pfeffer

b. DATE: May 14, 2025

c. NAME AND TITLE: Kurt Pfeffer, PE, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: FFSSK2D6MD53
2b. STREET: 2420 S. Lakemont Avenue, Suite 325			5. OWNERSHIP	
2c. CITY: Orlando	2d. STATE: FL	2e. ZIP CODE: 32814	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Frederick Holmes, PE, Associate Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (407) 367-2626	6c. E-MAIL ADDRESS: fholmes@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	3
06	Architect	24	1
07	Biologist	1	
08	CADD Technician	176	4
10	Chemical Engineer	41	
12	Civil Engineer	335	4
14	Computer Programmer	9	
15	Construction Inspector	86	2
16	Construction Manager	99	
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	
23	Environmental Engineer	537	18
24	Environmental Scientist	45	1
29	GIS Specialist	25	
30	Geologist	9	
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	1
57	Structural Engineer	77	
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	2
	Total	**2,096**	**37**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
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D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE: 

b. DATE: May 14, 2025

c. NAME AND TITLE: Frederick Holmes, PE, Associate Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: FFSSK2D6MD53
2b. STREET: 1000 N. Ashley Drive, Suite 1000			5. OWNERSHIP	
2c. CITY: Tampa	2d. STATE: FL	2e. ZIP CODE: 33602	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Holly Kremers, PE, Associate Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (813) 630-4498	6c. E-MAIL ADDRESS: hkremers@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	3
06	Architect	24	
07	Biologist	1	
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10	Chemical Engineer	41	3
12	Civil Engineer	335	7
14	Computer Programmer	9	
15	Construction Inspector	86	1
16	Construction Manager	99	
18	Cost Engineer/Estimator	7	
20	Economist	6	1
21	Electrical Engineer	133	5
23	Environmental Engineer	537	18
24	Environmental Scientist	45	2
29	GIS Specialist	25	1
30	Geologist	9	
32	Hydraulic Engineer	35	1
39	Landscape Architect	2	
41	Mechanical Engineer	76	1
57	Structural Engineer	77	1
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	7
	Total	**2,096**	**58**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE: 

b. DATE: May 14, 2025

c. NAME AND TITLE: Holly Kremers, PE, Associate Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: FFSSK2D6MD53
2b. STREET: 7751 Belfort Parkway, Suite 110			5. OWNERSHIP	
2c. CITY: Jacksonville	2d. STATE: FL	2e. ZIP CODE: 32256	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Andre Dieffenthaller, PE, Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (904) 296-1503	6c. E-MAIL ADDRESS: adieffenthaller@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	
10	Chemical Engineer	41	
12	Civil Engineer	335	
14	Computer Programmer	9	
15	Construction Inspector	86	1
16	Construction Manager	99	1
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	1
23	Environmental Engineer	537	3
24	Environmental Scientist	45	
29	GIS Specialist	25	
30	Geologist	9	
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	
57	Structural Engineer	77	
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	
	Total	**2,096**	**7**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 

b. DATE: May 14, 2025

c. NAME AND TITLE: Andre Dieffenthaller, PE, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*
PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. UNIQUE ENTITY IDENTIFIER
Hazen and Sawyer (New York City Branch Office)			**1951 (Firm and NYC Office)**	**FFSSK2D6MD53**
2b. STREET			5. OWNERSHIP	
498 Seventh Avenue, 11th Floor				
2c. CITY	2d. STATE	2e. ZIP CODE	a. TYPE	
New York	**NY**	**10018**	**Employee Owned**	
6a. POINT OF CONTACT NAME AND TITLE			b. SMALL BUSINESS STATUS	
Kathryn Fitzgibbons Hoek, PE, Assoc. DBIA, Associate Vice President				
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS		7. NAME OF FIRM *(If block 2a is a branch office)*	
(212) 539-7000	**khoek@hazenandsawyer.com**		**Hazen and Sawyer (Same)**	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH (New York City)
02	Administrative	203	33
06	Architect	24	5
07	Biologist	1	
08	CADD Technician	176	4
10	Chemical Engineer	41	4
12	Civil Engineer	335	19
14	Computer Programmer	9	
15	Construction Inspector	86	12
16	Construction Manager	99	17
18	Cost Engineer/Estimator	7	4
20	Economist	6	
21	Electrical Engineer	133	8
23	Environmental Engineer	537	51
24	Environmental Scientist	45	10
29	GIS Specialist	25	
30	Geologist	9	
32	Hydraulic Engineer	35	1
39	Landscape Architect	2	2
41	Mechanical Engineer	76	10
57	Structural Engineer	77	1
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	8
	Total	**2,096**	**190**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS*

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W02	Water Resources; Hydrology; Ground Water	9
W03	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

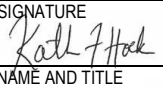
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE

May 14, 2025

c. NAME AND TITLE

Kathryn Fitzgibbons Hoek, PE, Assoc. DBIA, Associate Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*
PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. UNIQUE ENTITY IDENTIFIER
Hazen and Sawyer (Richmond Branch Office)			**1951 (Firm) 2014 (Richmond)**	**FFSSK2D6MD53**
2b. STREET			5. OWNERSHIP	
1555 Roseneath Road				
2c. CITY	2d. STATE	2e. ZIP CODE	a. TYPE	
Richmond	**VA**	**23230**	**Employee Owned**	
6a. POINT OF CONTACT NAME AND TITLE			b. SMALL BUSINESS STATUS	
Evan Bowles, PE, ENV SP, Associate Vice President				
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS		7. NAME OF FIRM *(If block 2a is a branch office)*	
(804) 266-1400	**ebowles@hazenandsawyer.com**		**Hazen and Sawyer (Same)**	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH (Richmond)
02	Administrative	203	2
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	3
10	Chemical Engineer	41	
12	Civil Engineer	335	5
14	Computer Programmer	9	
15	Construction Inspector	86	
16	Construction Manager	99	4
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	
23	Environmental Engineer	537	9
24	Environmental Scientist	45	
29	GIS Specialist	25	
30	Geologist	9	
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	2
57	Structural Engineer	77	
58	Technician/Analyst	39	
62	Water Resources Engineer	131	7
	Total	**2,096**	**32**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS*

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W02	Water Resources; Hydrology; Ground Water	9
W03	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

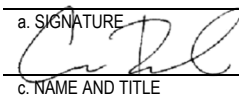
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE

May 14, 2025

c. NAME AND TITLE

Evan Bowles, PE, ENV SP, Associate Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*
#PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. UNIQUE ENTITY IDENTIFIER
Hazen and Sawyer (Raleigh Branch Office)			**1951 (Firm) 1973 (Raleigh)**	**FFSSK2D6MD53**
2b. STREET			5. OWNERSHIP	
4011 WestChase Boulevard, Suite 500				
2c. CITY	2d. STATE	2e. ZIP CODE	a. TYPE	
Raleigh	**NC**	**27607**	**Employee Owned**	
6a. POINT OF CONTACT NAME AND TITLE			b. SMALL BUSINESS STATUS	
Patricia Drummey Stiegel, PE, Vice President				
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS		7. NAME OF FIRM *(If block 2a is a branch office)*	
(919) 833-7152	**pdrummey@hazenandsawyer.com**		**Hazen and Sawyer (Same)**	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH (Raleigh)
02	Administrative	203	60
06	Architect	24	7
07	Biologist	1	
08	CADD Technician	176	48
10	Chemical Engineer	41	
12	Civil Engineer	335	32
14	Computer Programmer	9	2
15	Construction Inspector	86	5
16	Construction Manager	99	14
18	Cost Engineer/Estimator	7	
20	Economist	6	2
21	Electrical Engineer	133	22
23	Environmental Engineer	537	57
24	Environmental Scientist	45	6
29	GIS Specialist	25	1
30	Geologist	9	1
32	Hydraulic Engineer	35	5
39	Landscape Architect	2	
41	Mechanical Engineer	76	10
57	Structural Engineer	77	20
58	Technician/Analyst	39	10
62	Water Resources Engineer	131	11
	Total	**2,096**	**313**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS*

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W02	Water Resources; Hydrology; Ground Water	9
W03	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

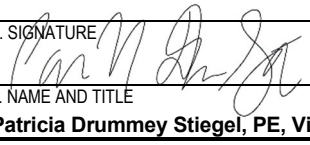
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE

May 14, 2025

c. NAME AND TITLE

Patricia Drummey Stiegel, PE, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: 06-496-6138
2b. STREET: 800 West Sixth Street, Suite 400			5. OWNERSHIP	
2c. CITY: Los Angeles	2d. STATE: CA	2e. ZIP CODE: 90017	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Hampik Dekermenjian, Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (213) 234-1088	6c. E-MAIL ADDRESS: hdekermenjian@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	8
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	1
10	Chemical Engineer	41	2
12	Civil Engineer	335	6
14	Computer Programmer	9	
15	Construction Inspector	86	1
16	Construction Manager	99	1
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	6
23	Environmental Engineer	537	10
24	Environmental Scientist	45	1
29	GIS Specialist	25	2
30	Geologist	9	3
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	1
57	Structural Engineer	77	1
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	9
	Total	**2,096**	**53**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

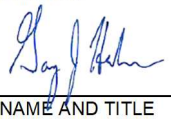
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE: May 14, 2025

c. NAME AND TITLE: Gary Haubner, PE - Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*
PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. UNIQUE ENTITY IDENTIFIER
Hazen and Sawyer (Denver Branch Office)			**1951 (Firm) 2017 (Denver)**	**FFSSK2D6MD53**
2b. STREET			5. OWNERSHIP	
143 Union Boulevard, Suite 200				
2c. CITY	2d. STATE	2e. ZIP CODE	a. TYPE	
Lakewood	**CO**	**80228**	**Employee Owned**	
6a. POINT OF CONTACT NAME AND TITLE			b. SMALL BUSINESS STATUS	
Roger Austin, PE, Vice President				
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS		7. NAME OF FIRM *(If block 2a is a branch office)*	
(720) 274-6287	**raustin@hazenandsawyer.com**		**Hazen and Sawyer (Same)**	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH (Denver)
02	Administrative	203	12
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	6
10	Chemical Engineer	41	3
12	Civil Engineer	335	14
14	Computer Programmer	9	6
15	Construction Inspector	86	1
16	Construction Manager	99	3
18	Cost Engineer/Estimator	7	1
20	Economist	6	1
21	Electrical Engineer	133	6
23	Environmental Engineer	537	23
24	Environmental Scientist	45	4
29	GIS Specialist	25	
30	Geologist	9	
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	3
57	Structural Engineer	77	5
58	Technician/Analyst	39	1
62	Water Resources Engineer	131	10
	Total	**2,096**	**99**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS*

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W02	Water Resources; Hydrology; Ground Water	9
W03	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

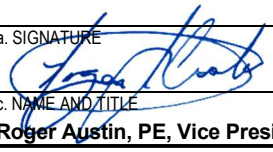
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE

May 14, 2025

c. NAME AND TITLE

Roger Austin, PE, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*
PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. UNIQUE ENTITY IDENTIFIER
Hazen and Sawyer (Cincinnati Branch Office)			**1951**	**FFSSK2D6MD53**
2b. STREET			5. OWNERSHIP	
7870 East Kemper Road, Suite 300				
2c. CITY	2d. STATE	2e. ZIP CODE	a. TYPE	
Cincinnati	**OH**	**45249**	**Employee Owned**	
6a. POINT OF CONTACT NAME AND TITLE			b. SMALL BUSINESS STATUS	
W. James Gellner, PE, Vice President				
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS		7. NAME OF FIRM *(If block 2a is a branch office)*	
(513) 469-5106	**jgellner@hazenandsawyer.com**		**Hazen and Sawyer (Same)**	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH (Springfield)
02	Administrative	203	10
06	Architect	24	2
07	Biologist	1	0
08	CADD Technician	176	10
10	Chemical Engineer	41	1
12	Civil Engineer	335	13
14	Computer Programmer	9	0
15	Construction Inspector	86	2
16	Construction Manager	99	2
18	Cost Engineer/Estimator	7	0
20	Economist	6	0
21	Electrical Engineer	133	9
23	Environmental Engineer	537	15
24	Environmental Scientist	45	0
29	GIS Specialist	25	1
30	Geologist	9	0
32	Hydraulic Engineer	35	1
39	Landscape Architect	2	0
42	Mechanical Engineer	76	2
57	Structural Engineer	77	5
58	Technician/Analyst	39	0
62	Water Resources Engineer	131	3
	Total	**2,096**	**76**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS*

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W02	Water Resources; Hydrology; Ground Water	9
W03	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 

b. DATE
May 14, 2025

c. NAME AND TITLE
W. James Gellner, PE, Vice President

ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hazen and Sawyer			3. YEAR ESTABLISHED: 1951	4. UNIQUE ENTITY IDENTIFIER: 06-496-6138
2b. STREET: 7700 Irvine Center Drive, Suite 200			5. OWNERSHIP	
2c. CITY: Irvine	2d. STATE: CA	2e. ZIP CODE: 92618	a. TYPE: Corporation (Employee-Owned)	
6a. POINT OF CONTACT NAME AND TITLE: Cindy Miller, Vice President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER: (949) 557-8550	6c. E-MAIL ADDRESS: cmiller@hazenandsawyer.com		7. NAME OF FIRM *(If block 2a is a branch office)*: Hazen and Sawyer (Same)	
8a. FORMER FIRM NAME(S) *(If any)*			8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	203	
06	Architect	24	
07	Biologist	1	
08	CADD Technician	176	
10	Chemical Engineer	41	1
12	Civil Engineer	335	8
14	Computer Programmer	9	
15	Construction Inspector	86	
16	Construction Manager	99	
18	Cost Engineer/Estimator	7	
20	Economist	6	
21	Electrical Engineer	133	9
23	Environmental Engineer	537	4
24	Environmental Scientist	45	
29	GIS Specialist	25	1
30	Geologist	9	1
32	Hydraulic Engineer	35	
39	Landscape Architect	2	
41	Mechanical Engineer	76	2
57	Structural Engineer	77	2
58	Technician/Analyst	39	
62	Water Resources Engineer	131	4
	Total	**2,096**	**32**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
C15	Construction Management	10
C18	Cost Estimating	3
D02	Dams (Earth, Rock)	6
D03	Desalination (Process & Facilities)	2
D04	Design-Build	8
E03	Electrical Studies & Design	2
E07	Energy Conservation	4
E08	Engineering Economics	5
E09	Environmental Impact Studies	6
H04	HVAC	2
I03	Industrial Waste Treatment	5
P05	Planning (Comm., Reg., Area, State)	7
P06	Planning (Site, Install. and Project)	4
P07	Plumbing and Piping Design	3
S04	Sewage Collect, Trmt and Disposal	10
S07	Solid Wastes	1
S10	Surveying; Platting; Mapping	3
S11	Sustainable Design	6
S13	Stormwater Handling & Facilities	9
T02	Testing & Inspection Services	5
W03	Water Resources; Hydrology; Ground Water	9
W02	Water Supply; Trmt and Distribution	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	6
b. Non-Federal Work	10
c. Total Work	10

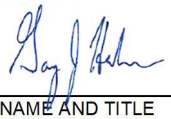
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,00 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE: May 14, 2025

c. NAME AND TITLE: Gary Haubner, PE - Vice President

ARCHITECT ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ # PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Craven, Thompson & Associates, Inc.	3. YEAR ESTABLISHED: 1962
	4. UNIQUE ENTITY IDENTIFIER: YQ3CWGKSHAS3
2b. STREET: 3563 NW 53rd Street	5. OWNERSHIP
2c. CITY: Fort Lauderdale / 2d. STATE: Florida / 2e. ZIP CODE: 33309	a. TYPE: Corporation
	b. SMALL BUSINESS STATUS: N/A
6a. POINT OF CONTACT NAME AND TITLE: Richard G. Crawford, Jr., PSM., Vice President, Surveying & GIS	7. NAME OF FIRM *(If block 2a is a branch office)*: Same
6b. TELEPHONE NUMBER: (954) 739-6400 / 6c. E-MAIL ADDRESS: rcrawford@craventhompson.com	
8a. FORMER FIRM NAME(S) *(If any)*: Davis & Craven, Inc. / Davis, Craven, Thompson, Inc.	8b. YR. ESTABLISHED: 1962 / 1975 / 8c. DUNS NUMBER:

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	8	
12	Civil Engineers	21	3
15	Construction Inspectors	6	
16	Const. Management	2	
38	Land Surveyor	18	
39	Landscape Architect	5	
47	Planners; Urban/Regional	2	
	Other Employees		
	Total	62	3

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*	a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
A06	Airports; Term. & Hangars	1	O01	Office Bldgs.; Industrial Parks	2
B01	Barracks; Dormitories	1	P05	Planning (Comm., Regional)	1
C06	Churches; Chapels	1	P13	Public Safety Facilities	2
C10	Commercial Bldg.; Shopping	4	R03	Railroad; Rapid Transit	1
C11	Community Facilities	1	R04	Rec. Fac. (Parks, Marinas)	4
D07	Dining Halls; Clubs; Rest.	1	R11	Rivers; Canals; Waterways	2
E02	Educational Fac.; Classrooms	3	S04	Sewage Collection, Treatment	6
E09	Environmental Impact Studies	1	S07	Solid Wastes; Incin.; Landfill	2
G01	Garages; Vehicle Maint. Fac.	1	S13	Storm Water Handling & Fac.	6
H01	Harbors; Ship Terminal Fac.	2	U02	Urban Renewals; Comm. Dev.	6
H07	Hwys.; Streets; Parking Lots	5	W01	Warehouses & Depots	1
H09	Hospital & Medical Facilities	3	W03	Water Supply; Treatment	4
H10	Hotels; Motels	3			
H11	Housing (Residential, M-F)	5			
I01	Industrial Buildings	3			
J01	Judicial & Courtroom Fac.	2			

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	8
c. Total Work	8

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. **Less than $100,000**
2. **$100,000 to less than $250,000**
3. **$250,000 to less than $500,000**
4. **$500,000 to less than $1 million**
5. **$1 million to less than $2 million**
6. **$2 million to less than $5 million**
7. **$5 million to less than $10 million**
8. **$10 million to less than $25 million**
9. **$25 million to less than $50 million**
10. **$50 million or greater**

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE

b. DATE: May 29, 2025

c. NAME AND TITLE: Richard G. Crawford, Jr. PSM, Vice President, Surveying & GIS

ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: PSUT-25-06

PART II - GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (*or Branch Office*) NAME: WIRX Engineering, LLC	3. YEAR ESTABLISHED: 2018
	4. UNIQUE ENTITY IDENTIFIER: 82-3346253
2b. STREET: 515 E. Las Olas Blvd., 120	5. OWNERSHIP
	a. TYPE: LLC
2c. CITY: Fort Lauderdale	2d. STATE: FL
	2e. ZIP CODE: 33301
	b. SMALL BUSINESS STATUS: CBE, DBE, MBE, SBE
6a. POINT OF CONTACT NAME AND TITLE: Andrew Nixon, PE / Managing Partner	7. NAME OF FIRM *(If Block 2a is a Branch Office)*
6b. TELEPHONE NUMBER: 561-762-8918	6c. EMAIL ADDRESS: andrewnixon@wirxeng.com

8a. FORMER FIRM NAME(S) *(If any)*	8b. YEAR ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER
WIRX Engineering and Construction, LLC	2018	82-3346253

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. Number of Employees (1) FIRM	c. Number of Employees (2) BRANCH
12	Civil Engineer	1	
27	Foundation/Geotechnical Eng.	4	
30	Geologist	1	
02	Administrative	2	
08	CADD Technician	1	
46	Construction Inspector	5	
23	Environmental Engineer	1	
	Other Employees		
	Total	15	

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
D02	Dams(Earth;Rock);Dikes;Levee	2
C15	Construction Management	3
C18	Cost Estimating	1
R11	Rivers;Canals;Waterways;Flood C	2
C10	Commercial Building	1
B02	Bridges	1
U03	Utilities	1
W02	Water Resources	2
W03	Water Supply	1
H07	Highways; Streets; Airfield; Park	1
P12	Power Generation, Transmission	1
S04	Sewage Collection, Treatment	1
S05	Soils & Geological Studies	3
S13	Stormwater Handling	1

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

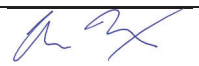
a. Federal Work	0
b. Non-Federal Work	5
c. Total Work	5

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 

b. DATE: May 19, 2025

c. NAME AND TITLE: Andrew Nixon, PE / Managing Partner

ARCHITECT–ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If Any)*: # PSUT-25-06

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME: Hillers Electrical Engineering, Inc.		3. YEAR ESTABLISHED: 1994	4. UNIQUE ENTITY IDENTIFIER: 876227059
2b. STREET: 23257 State Road 7, Suite 100		5. OWNERSHIP	
2c. CITY: Boca Raton	2d. STATE: Florida / 2e. ZIP CODE: 33428	a. TYPE: Corporation	
		b. SMALL BUSINESS STATUS: Active	
6a. POINT OF CONTACT NAME AND TITLE: Paul Hillers, President		7. NAME OF FIRM (*If block 2a is branch office*)	
6b. TELEPHONE NUMBER: 561-451-9165	6c. E-MAIL ADDRESS: phillers@hillersee.com		

8a. FORMER FIRM NAME(S) *(If any)*	8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER
NA	NA	NA

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
21	Electrical & Instrumentation Design Engineers	7	
16	Electrical Construction Manager	7	
08	CADD Technician	2	
02	Administrative	1	
14	Computer Programmer	1	
	Other Employees		
	Total	18	

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
E03	Electrical Studies and Design	4
W03	Water Supply; Treatment and Distribution (Electrical and Instrumentation Design)	6
C15	Construction Management	5

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	5
c. Total Work	**6**

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000	6. $2 million to less than $5 million
2. $100,00 to less than $250,000	7. $5 million to less than $10 million
3. $250,000 to less than $500,000	8. $10 million to less than $25 million
4. $500,000 to less than $1 million	9. $25 million to less than $50 million
5. $1 million to less than $2 million	10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE	b. DATE
	6/2/2025

c. NAME AND TITLE: Paul Hillers, President

Proposer's Background Information Form

#	Question	Response	Comment	Status
Contact Information				
1.1.1	Primary Contact: Please provide the contact information (Name, Title, E-mail and Phone Number) for the Primary Contact for this project.	Monique Durand, PE, Senior Associate mdurand@ hazenandsawyer.com; (954) 987-0066	Proposed Project Manager, Monique Durand, PE, can be reached at mdurand@hazenandsawyer.com	Complete
1.1.2	Authorized Approver: Please provide the contact information (Name, Title, E-mail and Phone Number) for the Authorized Approver for this project.	Janeen Wietgrefe, PE, PMP, Vice President; jwietgrefe@hazenandsawyer.com; (954) 987-0066		Complete
Organization Background				
1.2.1	Please state the year that you company started its business.	1951		Complete
1.2.2	Please state the year that your company started providing service under your current business name.	1951		Complete
1.2.3	What State is your Company Registered In?	Hazen is incorporated (registered) in New York and is authorized to transact business in Florida.		Complete
Former Business				
1.3.1	Under what former name has your business operated? Include a description of the business.	Hazen has not operated under any former names. Hazen is an employee-owned firm established in 1951.	Hazen's roots go back over 100 years to the accomplishments of Allen Hazen, one of the pioneers of modern water supply engineering and co-developer of the Hazen-Williams formula for fluid flow in pipes in 1903. Hazen and Sawyer, a New York corporation, was established by Hazen's son Richard and Alfred W. Sawyer in 1951. Together, they created a company culture focused on the profession—not just the business—of engineering. Their legacy is a firm with a reputation for high-quality work and customer service. Since 1951, Hazen has focused on two critical activities: Helping our clients provide safe drinking water to their customers and controlling water pollution and resultant effects on the environment. Hazen's exclusive focus is water resources engineering. We provide comprehensive capabilities in areas including, but not limited to, evaluation, planning, design, and permitting; hydraulic modeling; regulatory compliance; grant funding; construction management and administration; and startup, training, and operations assistance. Hazen has served utilities with complete in-house engineering services from our regional headquarters in Hollywood, Florida, since 1968. We also have the largest water and wastewater design center in South Florida. We value our ongoing partnership with the City, which began in 1992, and look forward to the opportunity to support the City in implementing a cost-effective, flexible, and reliable ion exchange (IX) solution to address PFAS and protect public health. With deep PFAS expertise and the most lime softening retrofits in South Florida, Hazen offers unmatched insight into treatment challenges in the region. Our familiarity with regional permitting, construction practices, and utility operations ensures the City	Complete
1.3.2	At what address was that business located?	Hazen's responsible office is located at: 4000 Hollywood Blvd., Suite 750 North, Hollywood, FL 33021		Complete
Past Failure				
1.4.1	Have you ever failed to complete work awarded to you. If so, when, where and why?	No		Complete
Inspected				
1.5.1	Have you personally inspected the proposed WORK and do you have a complete plan for its performance?	Yes	We have reviewed the proposed scope of services and the PFAS Treatment Feasibility Evaluation document provided and have a solid understanding of the work that needs to be completed. We have a complete plan for the performance of the work as detailed in our Project Approach in the Additional Information Section, as well as in our online responses. Hazen attended a meeting and site visit on November 18, 2024, as well as a pre-bid meeting on May 14, 2025, to gather first-hand information regarding the project.	Complete

Subcontracting				
1.6.1	Will you subcontract any part of this WORK? If you will be subcontracting any part of this work, provide details including a list of each sub-contractor(s) that will perform work in excess of ten percent (10%) of the contract amount and the work that will be performed by each subcontractor(s). (Note: The proposed list of subcontractor(s) may not be amended after award of the contract without the prior written approval of the Contract Administrator, whose approval shall not be reasonably withheld.)	Yes	The Hazen team includes three subconsultants. None of our subconsultants will perform work in excess of 10% of the contract amount. The services that will be provided by each subconsultant is as follows: Craven Thompson & Associates, Inc. - Survey/Mapping/Subsurface Utility Investigation; WIRX Engineering, LLC - Geotechnical Engineering; and Hillers Electrical Engineering, Inc. - Electrical Engineering.	**Complete**
Bankruptcy Petitions				
1.7.1	List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against the Proposer, its parent or subsidiaries or predecessor organizations during the past five (5) years. Include in the description the disposition of each such petition.	None		**Complete**
Bond Claims				
1.8.1	List and describe all successful Bond claims made to your surety(ies) during the last five (5) years. The list and descriptions should include claims against the bond of the Proposer and its predecessor organization(s).	None		**Complete**
Claims, Arbitrations, Administrative Hearings and Lawsuits				
1.9.1	List all claims, arbitrations, administrative hearings and lawsuits brought by or against the Proposer or its predecessor organizations(s) during the last (10) years. The list shall include all case names; case, arbitration or hearing identification numbers; the name of the project over which the dispute arose; and a description of the subject matter of the dispute.	See attachment	A response to 1.9.1 has been uploaded as a separate attachment.	**Complete**
Criminal Proceedings or Hearings				
1.10.1	List and describe all criminal proceedings or hearings concerning business related offenses in which the Proposer, its principals or officers or predecessor organization(s) were defendants.	None		**Complete**
Company Classification				
1.11.1	In regards to the commodities/services proposed, which of the following best classifies your firm? If you selected any options besides \"Original Provider\" please explain.	Original Provider		**Complete**
Debarment/Suspension				
1.12.1	Have you ever been debarred or suspended from doing business with any governmental agency? If you have been debarred or suspended from doing business with any governmental agency, please explain.	No		**Complete**
Similar Experience & Contracts				
1.13.1	Describe the firm's local experience/nature of service with contracts of similar size and complexity, in the previous three (3) years.		The Hazen team offers unmatched local expertise in lime softening retrofits, emerging contaminants, and the unique challenges of the Floridan and Biscayne Aquifers. We will incorporate our 57 years of local design, permitting, and construction experience, as well as 20+ years of specific local lime softening treatment experience, into the IX bolt-on addition to the City's facility. We will leverage our expertise in delivering similar IX projects as well as lime softening projects to ensure that Pembroke Pines' drinking water customers are protected to the maximum extent and in the most immediate time frame possible. Hazen is also a national leader in PFAS treatment. We have been at the forefront of PFAS management, leading applied research and innovation efforts to address data gaps and advance new and existing technologies. Our multidisciplinary team delivers cutting-edge, science-backed solutions tailored to real-world operational needs. Across the country, we have supported drinking water and wastewater utilities with PFAS treatment, communication strategies, cost modeling, and residuals management. Below are examples of our relevant project experience. For more information, please refer to the uploaded Additional Information, Relevant Experience (pages 28-45), which includes detailed project sheets, as well as our online responses (questions 3.6, 3.10): St. Cloud Water Treatment Plant No. 4 Upgrades, Toho Water Authority, Osceola County, FL (Ongoing) - Preliminary design, detailed design, permitting, and construction services of an IX system for St. Cloud WTP #4. The project includes the design of a 9-mgd, 8-vessel fixed bed ion exchange system (FIX), waste and brine storage for the new FIX system, two 4.5-mgd dual media	**Complete**
Professional License Information				

1.14.1	Are professional licenses required to perform the services requested in this solicitation? If so, please list any applicable professional licenses that your company has that are required to provide these services.	Applicable	Florida Professional Engineer's license; Florida Professional Geologist license	**Complete**
Conflict of Interest				
1.15.1	Do you need to disclose any conflicts of interest? The award of any contract hereunder is subject to the provisions of Chapter 112, Florida Statutes. Proposers must disclose with their Proposal the name of any officer, director, partner, proprietor, associate or agent who is also an officer or employee of CITY or any of its agencies. Further, all Proposers must disclose the name of any officer or employee of CITY who owns, directly or indirectly, an interest of five percent (5%) or more in the Proposer 's firm or any of its branches or affiliate companies.	No		**Complete**
19 Questions			**100.00% Complete**	

NON-COLLUSIVE AFFIDAVIT

BIDDER is the Officer,
(Owner, Partner, Officer, Representative or Agent)

BIDDER is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

Such Bid is genuine and is not a collusive or sham Bid;

Neither the said BIDDER nor any of its officers, partners, owners, agents, representative, employees or parties in interest, including this affidavit, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other BIDDER, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted; or to refrain from bidding in connection with such Contract; or have in any manner, directly or indirectly, sought by agreement or collusion, or communications, or conference with any BIDDER, firm, or person to fix the price or prices in the attached Bid or any other BIDDER, or to fix any overhead, profit, or cost element of the Bid Price or the Bid Price of any other BIDDER, or to secure through any collusion conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Contract;

The price of items quoted in the attached Bid are fair and proper and are not tainted by collusion, conspiracy, connivance, or unlawful agreement on the part of the BIDDER or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

Printed Name/Signature _____

Title Janeen Wietgrefe, Vice President

Name of Company Hazen and Sawyer

SWORN STATEMENT
ON PUBLIC ENTITY CRIMES
UNDER FLORIDA STATUTES CHAPTER 287.133(3)(a).

1. This sworn statement is submitted Hazen and Sawyer (name of entity submitting sworn statement) whose business address is 4000 Hollywood Boulevard, Suite 750 North, Hollywood, FL 33021 and (if applicable) its Federal Employer Identification Number (FEIN) is 13-2904652. (If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: N/A.)

2. My name is Janeen Wietgrefe, PE, PMP (Please print name of individual signing) and my relationship to the entity named above is Vice President of Hazen and Sawyer.

3. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

4. I understand that a "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

5. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:

    1. A predecessor or successor of a person convicted of a public entity crime: or

    2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The Cityship by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a

joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

6. I understand that a "person" as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or any entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts let by a public entity, or which otherwise transacts or applies to transact business with a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

7. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. **(Please indicate which statement applies.)**

☑ A) Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

☐ B) The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND **(Please indicate which additional statement applies.)**

☐ B1) There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. **(Please attach a copy of the final order.)**

☐ B2) The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. **(Please attach a copy of the final order.)**

☐ B3) The person or affiliate has not been placed on the convicted vendor list. **(Please describe any action taken by or pending with the Department of General Services.)**

Bidder's Name/Signature	Hazen and Sawyer	06/03/2025
	Company	Date

EQUAL BENEFITS CERTIFICATION FORM
FOR DOMESTIC PARTNERS AND ALL MARRIED COUPLES

Except where federal or state law mandates to the contrary, a Contractor awarded a Contract pursuant to a competitive solicitation shall provide benefits to Domestic Partners and spouses of its employees, irrespective of gender, on the same basis as it provides benefits to employees' spouses in traditional marriages.

The Contractor shall provide the City and/or the City Manager or his/her designee, access to its records for the purpose of audits and/or investigations to ascertain compliance with the provisions of this section, and upon request shall provide evidence that the Contractor is in compliance with the provisions of this section upon each new bid, contract renewal, or when the City Manager has received a complaint or has reason to believe the Contractor may not be in compliance with the provisions of this section. Records shall include but not be limited to providing the City and/or the City Manager or his/her designee with certified copies of the Contractor's records pertaining to its benefits policies and its employment policies and practices.

The Contractor must conspicuously make available to all employees and applicants for employment the following statement:

> **"During the performance of a contract with the City of Pembroke Pines, Florida, the Contractor will provide Equal Benefits to its employees with spouses, as defined by Section 35.39 of the City's Code of Ordinances, and its employees with Domestic Partners and all Married Couples".**

The posted statement must also include a City contact telephone number and email address which will be provided to each contractor when a covered contract is executed.

SECTION 1 DEFINITIONS

1. **Benefits** means the following plan, program or policy provided or offered by a contractor to its employees as part of the employer's total compensation package which may include but is not limited to sick leave, bereavement leave, family medical leave, and health benefits.

2. **Cash Equivalent** mean the amount of money paid to an employee with a domestic partner or spouse in lieu of providing benefits to the employee's domestic partner or spouse. The cash equivalent is equal to the employer's direct expense of providing benefits to an employee for his or her spouse from a traditional marriage.

3. **Covered Contract** means a contract between the City and a contractor awarded subsequent to the date when this section becomes effective valued at over $25,000 or the threshold amount required for competitive bids as required in section 35.18(A) of the Procurement Code.

4. **Domestic Partner** shall mean any two (2) adults of the same or different sex who have registered as domestic partners with a governmental body pursuant to state or local law authorizing such registration, or with an internal registry maintained by the employer of at

least one of the domestic partners. A contractor may institute an internal registry to allow for the provision of equal benefits to employees with domestic partners who do not register their partnerships pursuant to a governmental body authorizing such registration, or who are located in a jurisdiction where no such governmental domestic partnership registry exists. A contractor that institutes such registry shall not impose criteria for registration that are more stringent than those required for domestic partnership registration by the City of Pembroke Pines.

5. **Equal benefits** means the equality of benefits between employees with spouses and/or dependents of spouses and employees with domestic partners and/or dependents of domestic partners, and/or between spouses of employees and/or dependents of spouses and domestic partners of employees and/or dependents of domestic partners.

6. **Spouse** means one member of a married pair legally married under the laws of any state within the United States of America or any other jurisdiction under which such marriage is legally recognized, irrespective of gender.

7. **Traditional marriage** means a marriage between one man and one woman.

SECTION 2 CERTIFICATION OF CONTRACTOR

The firm providing a response, by virtue of the signature below, certifies that it is aware of the requirements of Section 35.39 "City Contractors providing Equal Benefits for Domestic Partners and all Married Couples" of the City's Code of Ordinances, and certifies the following (**Check only one box below)**:

☑ **A.** Contractor currently complies with the requirements of this section; or

☐ **B.** Contractor will comply with the conditions of this section at the time of contract award; or

☐ **C.** Contractor will not comply with the conditions of this section at the time of contract award: or

☐ **D.** Contractor does not comply with the conditions of this section because of the following allowable exemption **(Check only one box below):**

☐ **1.** The Contractor does not provide benefits to employees' spouses in traditional marriages;

☐ **2.** The Contractor provides an employee the cash equivalent of benefits because the Contractor is unable to provide benefits to employees' Domestic Partners or spouses despite making reasonable efforts to provide them. To meet this exception, the Contractor shall provide a notarized affidavit that it has made reasonable efforts to provide such benefits. The affidavit shall state the efforts taken to provide such benefits and the amount of the cash equivalent. Cash equivalent means the amount of money paid to an employee with a Domestic Partner or spouse rather than providing benefits to the employee's Domestic Partner or spouse. The cash equivalent is equal to the employer's direct expense of providing benefits to an employee's spouse;

☐ **3.** The Contractor is a religious organization, association, society, or any non-profit charitable or educational institution or organization operated supervised or controlled by or in conjunction with a religious organization, association, or society;

☐ **4.** The Contractor is a governmental agency;

The certification shall be signed by an authorized officer of the Contractor. Failure to provide such certification (by checking the appropriate boxes above along with completing the information below) shall result in a Contractor being deemed non-responsive.

COMPANY NAME: Hazen and Sawyer

AUTHORIZED OFFICER NAME / SIGNATURE: _____

Janeen Wietgrefe, Vice President

VENDOR DRUG-FREE WORKPLACE CERTIFICATION FORM

SECTION 1 GENERAL TERM

Preference may be given to vendors submitting a certification with their bid/proposal certifying they have a drug-free workplace in accordance with Section 287.087, Florida Statutes. This requirement affects all public entities of the State and becomes effective January 1, 1991. The special condition is as follows:

IDENTICAL TIE BIDS - Preference may be given to businesses with drug-free workplace programs. Whenever two or more bids that are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drugfree workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after each conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

SECTION 2 AFFIRMATION

☑ Place a check mark here only if affirming bidder **complies fully** with the above requirements for a Drug-Free Workplace.

☐ Place a check mark here only if affirming bidder **does not** meet the requirements for a Drug-Free Workplace.

Failure to complete this certification at this time (by checking either of the boxes above) shall render the vendor ineligible for Drug-Free Workplace Preference. This form must be completed by/for the proposer; the proposer WILL NOT qualify for Drug-Free Workplace Preference based on their sub-contractors' qualifications.

Authorized Signature	Janeen Wietgrefe	Hazen and Sawyer
	Authorized Signer Name	Company Name

SCRUTINIZED COMPANY CERTIFICATION
PURSUANT TO FLORIDA STATUTE § 287.135.

I, Janeen Wietgrefe, Vice President, on behalf of Hazen and Sawyer,
Print Name and Title — Company Name

certify that Hazen and Sawyer:
Company Name

1. Does not participate in a boycott of Israel; and
2. Is not on the Scrutinized Companies that Boycott Israel list; and
3. Is not on the Scrutinized Companies with Activities in Sudan List; and
4. Is not on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and
5. Has not engaged in business operations in Syria.

Submitting a false certification shall be deemed a material breach of contract. The City shall provide notice, in writing, to the Contractor of the City's determination concerning the false certification. The Contractor shall have ninety (90) days following receipt of the notice to respond in writing and demonstrate that the determination of false certification was made in error. If the Contractor does not demonstrate that the City's determination of false certification was made in error then the City shall have the right to terminate the contract and seek civil remedies pursuant to Florida Statute § 287.135.

Section 287.135, Florida Statutes, prohibits the City from: 1) Contracting with companies for goods or services in any amount if at the time of bidding on, submitting a proposal for, or entering into or renewing a contract if the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, F.S. or is engaged in a boycott of Israel; and 2) Contracting with companies, for goods or services over $1,000,000.00 that are on either the Scrutinized Companies with activities in the Iran Petroleum Energy Sector list, created pursuant to s. 215.473, or are engaged in business operations in Syria.

As the person authorized to sign on behalf of the Contractor, I hereby certify that the company identified above in the section entitled "Contractor Name" does not participate in any boycott of Israel, is not listed on the Scrutinized Companies that Boycott Israel List, is not listed on either the Scrutinized Companies with activities in the Iran Petroleum Energy Sector List, and is not engaged in business operations in Syria. I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject the company to civil penalties, attorney's fees, and/or costs. I further understand that any contract with the City for goods or services may be terminated at the option of the City if the company is found to have submitted a false certification or has been placed on the Scrutinized Companies with Activities in Sudan list or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

Hazen and Sawyer	06/03/2025	Vice President
Company Name	Print Name / Signature	Title

E-VERIFY SYSTEM CERTIFICATION STATEMENT (UNDER SECTION 448.095, FLORIDA STATUTES)

1. Definitions:
   a. **"Contractor"** means a person or entity that has entered or is attempting to enter into a contract with a public employer to provide labor, supplies, or services to such employer in exchange for salary, wages, or other remuneration. "Contractor" includes, but is not limited to, a vendor or consultant.
   b. **"Subcontractor"** means a person or entity that provides labor, supplies, or services to or for a contractor or another subcontractor in exchange for salary, wages, or other remuneration.
   c. **"E-Verify system"** means an Internet-based system operated by the United States Department of Homeland Security that allows participating employers to electronically verify the employment eligibility of newly hired employees.

2. Effective January 1, 2021, Contractors, shall register with and use the E-verify system in order to verify the work authorization status of all newly hired employees. Contractor shall register for and utilize the U.S. Department of Homeland Security's E-Verify System to verify the employment eligibility of:
   a. All persons employed by a Contractor to perform employment duties within Florida during the term of the contract; and
   b. All persons (including subvendors/subconsultants/subcontractors) assigned by Contractor to perform work pursuant to the contract with the City of Pembroke Pines. The Contractor acknowledges and agrees that registration and use of the U.S. Department of Homeland Security's E-Verify System during the term of the contract is a condition of the contract with the City of Pembroke Pines; and
   c. Should vendor become the successful Contractor awarded for the above-named project, by entering into the contract, the Contractor shall comply with the provisions of Section 448.095, Fla. Stat., "Employment Eligibility," as amended from time to time. This includes, but is not limited to registration and utilization of the E-Verify System to verify the work authorization status of all newly hired employees. Contractor shall also require all subcontractors to provide an affidavit attesting that the subcontractor does not employ, contract with, or subcontract with, an unauthorized alien. The Contractor shall maintain a copy of such affidavit for the duration of the contract.

3. Contract Termination
   a. If the City has a good faith belief that a person or entity with which it is contracting has knowingly violated s. 448.09 (1) Fla. Stat., the contract shall be terminated.
   b. If the City has a good faith belief that a subcontractor knowingly violated s. 448.095 (2), but the Contractor otherwise complied with s. 448.095 (2) Fla. Stat., shall promptly notify the Contractor and order the Contractor to immediately terminate the contract with the subcontractor.
   c. A contract terminated under subparagraph a) or b) is not a breach of contract and may not be considered as such.
   d. Any challenge to termination under this provision must be filed in the Circuit Court no later than 20 calendar days after the date of termination.
   e. If the contract is terminated for a violation of the statute by the Contractor, the Contractor may not be awarded a public contract for a period of 1 year after the date of termination.

COMPANY NAME: Hazen and Sawyer

PRINTED NAME / AUTHORIZED SIGNATURE: Janeen Wietgrefe, Vice President

AFFIDAVIT OF COMPLIANCE WITH HUMAN TRAFFICKING LAWS

In accordance with section 787.06 (13), Florida Statutes, the undersigned, on behalf of the entity listed below ("Entity"), hereby attests under penalty of perjury that:

1. The Affiant is an officer or representative of the Entity entering into an agreement with the City of Pembroke Pines.

2. The Entity does not use coercion for labor or services as defined in Section 787.06, Florida Statutes, entitled "Human Trafficking".

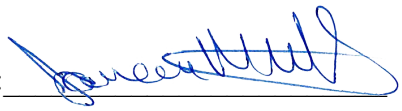
3. The Affiant is authorized to execute this Affidavit on behalf of the Entity.

4. I understand that I am swearing or affirming under oath to the truthfulness of the claims made in this affidavit and that the punishment for knowingly making a false statement includes fines and/or imprisonment.

5. Pursuant to Sec. 92.525(2), Fla. Stat., under penalties of perjury, I declare that I have read the foregoing affidavit of compliance with Human Trafficking Laws and that the facts stated in it are true.

FURTHER AFFIANT SAYETH NAUGHT.

DATE: 06/03/2025

SIGNATURE: 

ENTITY: Hazen and Sawyer

NAME: Janeen Wietgrefe

TITLE: Vice President

City of Pembroke Pines

(OFFICE USE ONLY) Vendor # _____

VENDOR INFORMATION FORM

MAIN CONTACT INFORMATION				
Company Name (Legal Name as filed with IRS)	Hazen and Sawyer, DPC			
Doing Business As (DBA)	Hazen and Sawyer			
Primary Business Address	4000 Hollywood Boulevard, Suite 750 North			
	City:	Hollywood		
	State:	Florida	**Zip:**	33021
	Country:	USA		
Remit To Address	Hazen and Sawyer			
	77 Newbridge Road			
	City:	Hicksville		
	State:	NY	**Zip:**	11801
	Country:	United States		
Order From Address	Hazen and Sawyer			
	4000 Hollywood Boulevard, Suite 750 North			
	City:	Hollywood		
	State:	FL	**Zip:**	33021
	Country:	USA		
Foreign Entity (Yes/No)	Yes, Hazen is considered a foreign entity in FL. Hazen and Sawyer is a New York Corporation.			
Telephone Number	(954) 987-0066			
Primary Company E-mail	mdurand@hazenandsawyer.com			
Fax	None			
Website	hazenandsawyer.com			
DUNS	06-496-6138			
Independent Contractor (Yes/No)	No			
Identification Number	**SSN:**	N/A	**FID:**	13-2904652

GENERAL PAYMENT TERMS		
Discount Percent Defines the discount percentage the vendor extends to your organization.	**Days to Discount** Number of days which payment must be received to claim the discount percent.	**Days to Net** Number of days that the vendor allows before requiring net payment.
0%	N/A	30 days

CONTACT # 1			
Contact Name (First & Last Name)	Monique Durand, PE		
Description/Title/Position	Senior Associate and Proposed Project Manager		
Phone (Voice)	(954) 987-0066		
Phone (Text)	(540) 250-0656	**Opt In (Y/N):**	Y
Fax	None		
E-mail	mdurand@hazenandsawyer.com		

STATE REGISTRATION	
Is your company registered with the State of Florida? (Y/N)	Hazen is authorized to transact business in FL.
If not, what state is your company registered in?	New York

Please attach the print out from https://dos.myflorida.com/sunbiz/ or the appropriate state showing your active registration and any applicable fictitious names that are registered.

Form **W-9**
(Rev. March 2024)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give form to the requester. Do not send to the IRS.

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See ***Specific Instructions*** on page 3.

1 Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)

Hazen and Sawyer

2 Business name/disregarded entity name, if different from above.

3a Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor ☑ C corporation ☐ S corporation ☐ Partnership ☐ Trust/estate

☐ LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) . . . .

Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner.

☐ Other (see instructions)

3b If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions . . . . . ☐

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any)

Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any)

(Applies to accounts maintained outside the United States.)

5 Address (number, street, and apt. or suite no.). See instructions.

4000 Hollywood Boulevard, Suite 750 North

6 City, state, and ZIP code

Hollywood, FL 33021

Requester's name and address (optional)

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. See also *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–		–				

or

Employer identification number

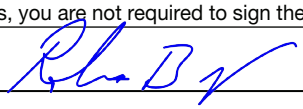
1	3	–	2	9	0	4	6	5	2

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and, generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here **Signature of U.S. person**  **Date** 06/03/2025

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

State of Florida
Department of State

I certify from the records of this office that HAZEN AND SAWYER, P.C. is a New York corporation authorized to transact business in the State of Florida, qualified on October 18, 1978.

The document number of this corporation is 841657.

I further certify that said corporation has paid all fees due this office through December 31, 2025, that its most recent annual report/uniform business report was filed on January 13, 2025, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Thirteenth day of January, 2025

Secretary of State

Tracking Number: 4346259733CC

To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

State of Florida

Department of State

I certify that the attached is a true and correct copy of the Renewal of Fictitious Name Registration for HAZEN AND SAWYER, which was filed on July 27, 2020, as shown by the records of this office.

The document number assigned to this renewal is G20000089775.

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Twenty Eighth day of July, 2020

Secretary of State

Yuen, Charlene

From: OnlineWebFicRen@dos.state.fl.us
Sent: Tuesday, July 28, 2020 4:05 AM
To: Yuen, Charlene
Subject: Fictitious Name Renewal - G20000089775; 900349114969
Attachments: CC-900349114969-07282020-G15000090047.pdf; 90114969.tif

External Email - think before you click

Subject: HAZEN AND SAWYER

Renewal Number: G20000089775

This will acknowledge the Fictitious Name Registration Renewal for HAZEN AND SAWYER, filed on July 27, 2020.

This renewal continues the original registration number - G15000090047 until December 31, 2025.

Enclosed is the certification you requested.

If the mailing address of this business changes, please notify this office in writing or through the link provided on our website
https://nam12.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.sunbiz.org%2F&data=02%7C01%7CCYUEN%40HAZENANDSAWYER.COM%7C900971cdf0f34364ca7608d832ccf2f5%7C083fc4d272ad412bae7d6b81b83916dd%7C0%7C1%7C637315203253406606&sdata=35CakevgvXVokCmv2FoMeAxjK4%2F1WsVxMD6%2Bny8pq%2Fc%3D&reserved=0 for Address & FEI/EIN Changes. Please reference the original registration number.

Should you have any questions regarding this matter you may contact our office at (850) 245-6058.

Division of Corporations

APPLICATION FOR RENEWAL OF FICTITIOUS NAME

FILED
Jul 27, 2020
Secretary of State
G20000089775

REGISTRATION# G15000090047

Fictitious Name: HAZEN AND SAWYER

Current Mailing Address:

498 SEVENTH AVENUE
NEW YORK, NY 10018

New Mailing Address:

Current County of Principal Place of Business:

MULTIPLE

New County of Principal Place of Business:

Current FEI Number:

13-2904652

New FEI Number:

Current Owner(s):

Document #: 841657 ( ) Delete
FEI #: 13-2904652
Name: HAZEN AND SAWYER, P.C.
Address: 498 SEVENTH AVENUE
City-St-Zip: NEW YORK, NY 10018

Additions/Changes to Owner(s):

Document #: ( ) Change ( ) Addition
FEI #:
Name:
Address:
City-St-Zip:

I the undersigned, being an owner in the above fictitious name, certify that the information indicated on this form is true and accurate. I understand that the electronic signature below shall have the same legal effect as if made under oath. I am aware that false information submitted in a document to the Department of State constitutes a third degree felony as provided for in s. 817.155, Florida Statutes.

WILLIAM CRAYON 07/27/2020

Electronic Signature(s) Date

Certificate of Status Requested ( ) **Certified Copy Requested (X)**

Detail by Entity Name

Foreign Profit Corporation
HAZEN AND SAWYER, P.C.

Filing Information

Document Number	841657
FEI/EIN Number	13-2904652
Date Filed	10/18/1978
State	NY
Status	ACTIVE
Last Event	AMENDMENT
Event Date Filed	08/10/1987
Event Effective Date	NONE

Principal Address

4000 Hollywood Blvd.
Suite 750N
Hollywood, FL 33021

Changed: 03/09/2016

Mailing Address

498 Seventh Ave, 11th Floor
New York, NY 10018

Changed: 01/22/2016

Registered Agent Name & Address

CORPORATION SERVICE COMPANY
1201 HAYS STREET
TALLAHASSEE, FL 32301

Name Changed: 06/30/2005

Address Changed: 06/30/2005

Officer/Director Detail

Name & Address

Title VP

Davis, Patrick A
4000 Hollywood Blvd.
Suite 750N
Hollywood, FL 33021

Title VP

Chiriboga, Fernando B
999 Ponce de Leon Blvd.
Suite 1150
Coral Gables, FL 33134

Title VP, Director, Secretary

Haubner, Gary
7870 East Kemper Road
Suite 300
Cincinnati, OH 45249

Title VP, Director

Pitt, Paul
90 NEW MONTGOMERY STREET
SUITE 333
San Francisco, CA 94105

Title VP, Director

Stone, Alan
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Suite 500
Raleigh, NC 27607

Title Senior Vice President, Director

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Hollywood, FL 33021

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Title VP

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Cooke, JOHN PHILIP
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Regalado, Guillermo
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HOLLYWOOD, FL 33021

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SUITE 325
Orlando, FL 32814

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TAMPA, FL 33602

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Hollywood, FL 33021

Title SENIOR ASSOCIATE

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VADIVELOO, ENRIQUE
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750N
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ORLANDO, FL 32814

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BOCA RATON, FL 33431

Title ASSOCIATE VICE PRESIDENT

Holmes, Frederick
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SUITE 325
ORLANDO, FL 32814

Title ASSOCIATE VICE PRESIDENT

Owen , Christine
1000 N. ASHLEY DRIVE
SUITE 1000
TAMPA, FL 33602

Title ASSOCIATE VICE PRESIDENT

Porter, Jacob
1000 N. ASHLEY DRIVE
SUITE 1000
TAMPA, FL 33602

Annual Reports

Report Year	Filed Date
2023	01/24/2023
2024	01/12/2024
2025	01/13/2025

Document Images

01/13/2025 -- ANNUAL REPORT	View image in PDF format
01/12/2024 -- ANNUAL REPORT	View image in PDF format
01/24/2023 -- ANNUAL REPORT	View image in PDF format
08/12/2022 -- AMENDED ANNUAL REPORT	View image in PDF format
08/11/2022 -- AMENDED ANNUAL REPORT	View image in PDF format
01/12/2022 -- ANNUAL REPORT	View image in PDF format
04/27/2021 -- AMENDED ANNUAL REPORT	View image in PDF format
03/31/2021 -- AMENDED ANNUAL REPORT	View image in PDF format
01/11/2021 -- ANNUAL REPORT	View image in PDF format
01/27/2020 -- ANNUAL REPORT	View image in PDF format
01/14/2019 -- ANNUAL REPORT	View image in PDF format
01/08/2018 -- ANNUAL REPORT	View image in PDF format
01/09/2017 -- ANNUAL REPORT	View image in PDF format
03/09/2016 -- AMENDED ANNUAL REPORT	View image in PDF format
01/22/2016 -- ANNUAL REPORT	View image in PDF format
02/23/2015 -- ANNUAL REPORT	View image in PDF format
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06/30/2005 -- Reg. Agent Change	View image in PDF format
01/14/2005 -- ANNUAL REPORT	View image in PDF format
02/09/2004 -- ANNUAL REPORT	View image in PDF format
03/06/2003 -- ANNUAL REPORT	View image in PDF format
03/14/2002 -- ANNUAL REPORT	View image in PDF format
05/03/2001 -- ANNUAL REPORT	View image in PDF format
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02/23/1999 -- ANNUAL REPORT	View image in PDF format
02/03/1998 -- ANNUAL REPORT	View image in PDF format
01/15/1997 -- ANNUAL REPORT	View image in PDF format
01/31/1996 -- ANNUAL REPORT	View image in PDF format
01/19/1995 -- ANNUAL REPORT	View image in PDF format

Hazen and Sawyer
10-Year Detail of Claims, Arbitrations, Adminstrative Hearings and Lawsuits

Professional Liability Claims	Description	Date of Action	Date Closed	Outcome	Identification Number	Court
Yik Tak Cheung, Hao Dong Zhang and Yeung Sun Poultry Market, Inc. against City of New York, New York City Department of Environmental Protection, Northeast Remsco Construction, Inc., Nicholson Construction Company, Corporations XYZ Nos 1-5 and John Does Nos 1-10. Northeast Remsco Construction Inc., against Brierley Associates, LLC and Hazen and Sawyer, P.C.	Hazen and Sawyer is a second third-party defendant brought into this claim by Northeast Remsco Construction, Inc. Northeast Remsco alleges that Hazen's design was negligent and contributed to a building collapse. Hazen was the construction inspector, not the design engineer.	1/30/14	11/9/17	Settled	Index No.: 157328/12	Supreme Court of the State of New York, County of New York
R. J. Sullivan Corp., a Florida Corporation v. Hazen and Sawyer, P.C.	City of Plantation requested Hazen to investigate excessive noise from Contractor-selected pumps. Hazen determined pump manufacturer bearing issues. Contractor sued Hazen.	5/7/14	8/29/18	Judgment against Hazen	Case CACE-14-008682(05)	In the Circuit Court of the Seventeenth Judicial Circuit in and for Broward County, Florida
Cecil Dwayne Whitson, Doing Business as Stately Scapes v. Hazen and Sawyer, P.C.	Contractor alleged negligence in connection with the construction of a retaining wall.	6/29/17	02/05/18	Settled	Civil Action No. 3:17-CV-988	United States District Court for the Middle District of Tennessee
The City of High Point, North Carolina v. Suez Treatment Solutions, Inc., Fidelity and Deposit Company of Maryland and CPPE Carbon Process & Plant Engineering, S.A. and Suez Treatment Solutions, Inc., v. Hazen and Sawyer, P.C.	Suez, a contractor for the City of High Point, brought a third party suit against Hazen and Sawyer in connection with H&S' engineering design services for the City.	7/24/19	05/18/22	Settled	Civil Action No. 1:19-cv-540	United States District Court for the Middle District of North Carolina
Close Construction, LLC v. City of Riviera Beach Utility Special District, C Solutions, Mark Drummond v Hazen and Sawyer	C Solutions, engineer for the City of Riviera Beach seeks indemnity from Hazen as its subcontractor.	11/9/20	09/20/21	Dismissed	Case No. 16 CA 013117 MB-AF	In the Circuit Court of the Fifteenth Judicial Circuit in and for Palm Beach County, Florida
Darline S. Spenser v. McCormick, Time, et al (Hollywood class action)	Hazen was named in a lawsuit filed by Ms. Spencer. The lawsuit did not contain any claims against the Firm. The court dismissed the lawsuit with prejudice.	12/18/23	07/26/24	Dismissed	Case No.23-62214-CIV-DAMIAN/Valle	United States District Court, Southern District of Florida
Lisa & Robert Hoyt, et al., Plaintiffs, individually and on behalf of all other persons similarly situated versus Hazen and Sawyer, P.C., Craven, Thompson & Associates, Inc., and Ric-Man Construction Florida, Inc., Defendants	Plantiff is seeking relief for damages that occurred during an April 2023 flooding event.	3/28/25	Open	Open	Case Number: CACE-25-004479	In the Circuit Court of the Seventeenth Judicial Circuit in and for Broward County, Florida
Jodie Berman, et al., versus Hazen and Sawyer, P.C., and David Mancini & Sons, Inc.	Plantiff is seeking relief for damages that occurred during an April 2023 flooding event.	3/28/25	Open	Open	Case Number: CACE-25-004480	In the Circuit Court of the Seventeenth Judicial Circuit in and for Broward County, Florida

Contractor Personal Injury Claims						
Eva Francis and Rupert Francis against Pile Foundation Construction Company, Inc., Hazen and Sawyer PC, Skanska Mechanical & Structural, Inc., Skanska USA Building Inc, Skanska USA Civil Northeast, Inc, Skanska USA Civil, Inc, Skanska USA Commercial Development Inc, Skanska USA Construction Services, Inc, Skanska USA Inc, Skanska Inc, The City of New York, The New York City Department of Environmental Protection and/or the Department of Environmental Protection, Paerdegat Basin Water Quality Facility, and Flattery/Gottlieb Joint Venture	The plaintiff alleges she was injured when he fell on ice formed from water which came from the Paerdegat Basin jobsite	5/29/09	12/12/15	Settled	Index No. 13131/09	Supreme Court of the State of New York, County of Kings
Daniel Washington against City of New York, New York City Department of Environmental Protection, Siverite Construction Company, Inc., and Hazen & Sawyer, P.C. Malcolm Pirnie, inc. and Greeley & Hansen, LLC a Joint Venture.	Washington alleges injury from a fall from a cinderblock staircase	10/29/10	6/26/17	Dismissed	Index No 23860/09	Supreme Court of the State of New York, County of Kings
Scott Baptiste and Elizabeth Baptiste against The City of New York and A.J. Pegno Construction Corp./Tully Construction Company Inc. a joint venture against Hazen and Sawyer, P.C., Malcolm Pirnie, Inc. Individually and Hazen and Sawyer, P.C./Malcolm Pirnie, inc., a joint venture	Hazen and Sawyer is a third-party defendant brought into this claim by the Pegno/Tully joint venture. Pegno/Tully alleges that Hazen's inspection of the jobsite was negligent and contributed to a Scott Baptiste's alleged injury.	12/13/13	9/7/23	Settled	Index No.: 11654/09	Supreme Court of the State of New York, County of Kings
Julian Garrett and Pauline Garrett against City of New York and Skanska/Picone Joint Venture, Environmental Laboratories, Inc. and Environmental Energy Associates against Synagro Northeast, LLC against Environmental Laboratories, Inc. and Environmental Energy Associates against City of New York and Skanska/Picone Joint Venture against Environmental Laboratories, Inc. and Environmental Energy Associates City of New York and Skanska/Picone Joint Venture against Hazen Sawyer, P.C./Malcolm-Pirnie, Inc., A Joint Venture, Hazen and Sawyer, P.C. and Malcolm Pirnie, Inc.	Julian Garrett, an employee of Synagro Technologies, Inc., alleges he was injured cleaning a waste tank.	9/3/14	4/21/17	Settled	Index No. 14158/09	Supreme Court of the State of New York, County of Kings
Ronald Valerio against Hazen and Sawyer, D.P.C., Eaton Electric, Inc. and Five Star Electric Corporation	Mr. Valerio, an employee of contractor WDF, alleges an employee of an electrical contractor injured him at the Bowery Bay WWTP.	3/19/15	06/10/20	Dismissed	Index No. 306522/14	Supreme Court of the State of New York, County of Bronx
Marc Fodera against The City of New York, The New York City Department of Environmental Protection, The New York City Department of Sanitation and Northeast Remsco Construction, Inc. against Hazen & Sawyer, PC, Bidwell Environmental, LLC and Barbaro Electric Co. Inc	Mr. Fodera, an employee of Barbaro Electric, alleges he tipped and fell on a drainpipe at the Gowanus Canal site.	7/26/17	08/02/22	Settled	Index No. 511003/2015	Supreme Court of the State of New York, County of Kings
Michael Patrick Corbett, Jr. and Lisa Corbett against Skanska USA, Inc., Hazen & Sawyer, AECOM USA, Inc., and ARCADIS U.S., Inc	Michael Corbett an employee of the City of New York alleges he contracted a bronchial infection while working at the Croton Filtration Plant from 2012 through February 2016.	2/15/19	Open	Open	Index no: 21995/2019E	Supreme Court of the State of New York, County of Bronx
Gregory Bowman against City of New York, Skanska-Picone, J.V. and Hazen and Sawyer.	Gregory Bowman an employee of Ward Electric allges he was struck by a cabinet unit at the 26th Ward WWTP.	11/13/19	Open	Open	Index no: 159692/2019	Supreme Court of the State of New York, County of New York
Michael D'Amato and Josephine D'Amato vs. WDF Development, LLC, WDF, Inc., American Insurance Group, American Insurance Corporation, American International Group, Inc., Insurance Company of the State of Pennsylvania, "John Doe," Lasalle LaSalle & Dwyer, PC, Sean P. Dwyer, Leo Dudin, Anthony Colaizzi, and Hazen and Sawyer.	Michael D'Amato an employee of the City of New York alleges he was caused to trip and fall as a result of the negligence of WDF Development, LLC.	9/30/20	03/08/21	Dismissed	Index No.: 157484/2020	Supreme Court of the State of New York, County of New York
Vincent Calcagno Jr., v. Capry Group, Inc., Delphi Plumbing & Heating, Inc., Hazen and Sawyer, D.P.C., and the City of New York	Vincent Calcagno, an employee of the City of New York alleges he was caused to trip and fall at the Rockaway Water Treatment Control Plant.	12/31/24	Open	Open	Index No.: 723420/2024	Supreme Court of the State of New York, County of Queens

Hazen









Progress Together,
Deliver Together

The City Of
PEMBROKE PINES
Florida

Additional Information

Engineering Services for Ion Exchange Addition to the Water Treatment Plant for PFAS Removal

RFQ PSUT-25-06 | June 10, 2025

Hazen and Sawyer
4000 Hollywood Boulevard, Suite 750N
Hollywood, FL 33021 • 954-987-0066

June 10, 2025

City of Pembroke Pines
Procurement Department
8300 South Palm Drive
Pembroke Pines, FL 33025

Progress Together,
Deliver Together

Re: RFQ #PSUT-25-06, Engineering Services for Ion Exchange Addition to the Water Treatment Plant for PFAS Removal

Dear Evaluation Committee Members:

As the second largest municipality in Broward County, the City of Pembroke Pines (City) has built a reputation for excellence through its longstanding commitment to safety, culture, education, and sustainability. That dedication includes proactive efforts to safeguard the City's drinking water quality—now more important than ever as new regulatory challenges emerge. Hazen and Sawyer (Hazen) is proud to offer our support to the City in implementing a cost-effective, flexible, and reliable ion exchange (IX) solution to address PFAS and protect public health. We welcome the opportunity to join you—and progress with you in advancing this important initiative.

The challenge ahead is significant: designing and implementing IX to meet regulatory requirements for PFAS and other contaminants, while upgrading and integrating with existing treatment systems, all on a tight schedule and budget. Hazen is uniquely equipped to help the City meet this challenge. With the largest water and wastewater resource design center in South Florida, proven IX retrofit experience, and unmatched PFAS expertise, we bring the local knowledge, national innovation, and regulatory insight needed to bring the City's vision to life.

Ensure Your Outcome With the Hazen Team

Largest Water Design Center in South Florida. With 140 professionals based in our South Florida offices, Hazen offers the City both the region's largest water design center and the most experienced team dedicated to water treatment. Our engineers have not only worked extensively on local systems—they have led efforts to modernize them. We bring unmatched expertise in both conventional and advanced treatment, having refurbished more lime softening plants in South Florida than any other firm, including major projects for Miami-Dade County and the Cities of Fort Lauderdale, North Miami, and Hallandale Beach. This deep local experience is essential for integrating PFAS-removing IX systems, where effective lime softening pretreatment minimizes fouling and head loss in IX vessels—two of the most common challenges utilities face with non-regenerable IX. Our familiarity with regional permitting, construction practices, and utility operations ensures the City benefits from proven strategies, optimized performance, and reliable project delivery—by engineers who live and work in the community.

National and Local Ion Exchange Experience. Hazen has successfully designed and delivered more than 40 IX systems for PFAS removal—across Florida and nationally. We bring specialized expertise from past IX projects in Florida, including those involving TOC and PFAS removal, where we validated IX performance under real-world conditions. Our team includes national leaders in PFAS treatment who are currently supporting EPA efforts to model IX selectivity and optimize facilities for cost and effectiveness. **We are leading multiple adsorptive media pilot tests across the Biscayne Aquifer, including the Cities of Margate, Boca Raton, and North Miami; and Miami-Dade Water and Sewer Department, giving us unmatched experience in understanding the nuances involved in PFAS treatment in South Florida.**

1021-728

Unmatched Insight into PFAS Treatment in South Florida

Hazen brings unmatched PFAS and lime softening expertise, with more retrofits in the region than any other firm. Many of our team members proposed for Pembroke Pines have worked together on those regional projects over the last three decades, including our Project Director, and bring that same depth of experience and commitment to the City.



Top Technical Resources to Meet Your Unique Challenges. We understand that reliability and long-term cost-effectiveness are critical to your decision-making process. Our approach integrates process modeling, operations insight, and advanced tools to deliver solutions that work today—and optimize treatment for tomorrow. Hazen's in-house IX machine learning model uses water quality and operational data to predict resin longevity, providing you with confidence in performance and cost planning. **We are known for our ability to design around existing hydraulics and infrastructure, ensuring that new treatment components integrate seamlessly with current facilities.** Our designs are informed by both bench- and pilot-scale studies, including IX media testing done in and around the Pembroke Pines area.



Leader in PFAS and Regulatory Compliance. Hazen brings deep experience navigating permitting and regulatory compliance in Florida, with a strong understanding of the unique challenges posed by the Biscayne Aquifer. We have helped multiple utilities prepare for evolving PFAS regulations—giving them the time and insight needed to plan and invest strategically. Our close coordination with FDEP, EPA, and local agencies enables us to anticipate issues early and keep projects moving. Over the past two years, we have actively researched, bench tested, piloted, and designed PFAS removal systems for water treatment plants in cities surrounding Pembroke Pines and nationwide—allowing us to deliver efficient, effective solutions.



Extensive Funding/Grant and Rate Sensitivity Analyses. We understand the financial pressures municipalities face—and we have helped many clients secure the resources needed to implement advanced treatment. Hazen has secured over $1 billion in funding for Florida utilities, including Drinking Water SRF, federal grants, and resilience-focused opportunities. We align our design strategy with funding criteria to maximize eligibility and reimbursement, helping you stretch every dollar. Our team has recently delivered successful funding strategies for projects in Oakland Park, Delray Beach, Hallandale Beach, Lakeland, and Miami-Dade County.

The City of Pembroke Pines has a clear vision: to remain one of America's most desirable communities through innovation, safety, and sustainability. Hazen is ready to be your partner in delivering that vision through this vital IX treatment project. **We will bring the right people, tools, and proven expertise to deliver a solution that is cost-effective, reliable, and built to last.**

Our Project Director, **Janeen Wietgrefe, PE, PMP,** is a 24-year resident of Pembroke Pines, and is personally and professionally dedicated to helping the City remove PFAS from its water supply as efficiently and effectively as possible. Please feel free to contact us with any questions or if you would like to discuss our qualifications in more detail. We can be reached at (954) 987-0066 or by email at jwietgrefe@hazenandsawyer.com or mdurand@hazenandsawyer.com.

Sincerely,
Hazen and Sawyer

Janeen Wietgrefe, PE, PMP
Proposed Project Director and Vice President

Monique Durand, PE
Proposed Project Manager and Senior Associate

Additional Information

Firm Qualifications



Qualifications and History

Hazen brings unmatched local experience upgrading lime softening facilities and national leadership in ion exchange and PFAS treatment—offering proven, effective solutions tailored to the City's needs. Our team offers solutions that meet regulations, protect public health, and ensure fast, reliable PFAS removal.

Firm Description, History, and Number of Years in Business

Hazen and Sawyer's (Hazen) roots go back over 100 years to the accomplishments of Allen Hazen, one of the pioneers of modern water supply engineering and co-developer of the Hazen-Williams formula for fluid flow in pipes in 1903. Hazen was established by Hazen's son Richard and Alfred W. Sawyer in 1951. Together they created a company culture focused on the profession—not just the business—of engineering. Their legacy is a firm with a reputation for high-quality work and customer service.

Since 1951, Hazen has focused on two critical activities: helping our clients provide safe drinking water to their customers and controlling water pollution and resultant effects on the environment. Hazen's exclusive focus is water resources engineering. We provide comprehensive capabilities in areas including, but not limited to, evaluation, planning, design, and permitting; hydraulic modeling; regulatory compliance; grant funding; construction management and administration; and startup, training, and operations assistance. Hazen has served utilities with complete in-house engineering services from our regional headquarters/design center in Hollywood, Florida, since 1968. More information on our firm-wide experience and range of activities is provided in our Relevant Experience section.



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We will partner with the City to bring its vision to life through our ion exchange expertise and key strengths.

Our team brings a wealth of experience in ion exchange (IX) technology retrofits, PFAS regulatory compliance, and securing funding and grants. With a strong foundation of local talent and access to top technical resources, these strengths will be essential in designing and overseeing the IX project for Pembroke Pines, addressing its size, operational flexibility, and reliability.



Largest Water Design Center in South Florida

- **Hazen has the largest water resource design center in South Florida,** providing a deep bench of local talent readily available to meet the expedited schedule on time and within budget.
- **Pembroke Pines will benefit from our local staff** who have upgraded and optimized lime softening facilities, including redesign to include new treatment technologies in Broward County.
- **Our team members' firsthand knowledge** of processes, technology, local supply chain, and construction considerations will keep the project on time and within budget.
- **Our expertise in water treatment permitting and interacting with state, federal, and local regulatory agencies** ensures timely construction permit approvals and PFAS compliance for the City.



National and Local Ion Exchange Experience

- **Our local team has successfully designed IX facilities for TOC removal across Florida,** which speaks to our capability, quality of work, and knowledge of local water quality issues.
- **Our national experts bring unparalleled experience with preliminary engineering and final design** of dozens of projects utilizing IX technology for PFAS and water quality issues. Our local team will leverage this experience and lessons learned to ensure the City's project is properly designed and completed on-schedule.
- **Hazen's IX PFAS Modeling tool,** designed to project the longevity of PFAS IX systems, will be instrumental in identifying the most reliable and cost-effective PFAS removal system for Pembroke Pines.
- **Hazen has engaged with researchers at the EPA** to model IX PFAS selectivity in complex matrices with a variety of competitive adsorbates with the most readily applied commercial resins.



Top Technical Resources to Meet Your Unique Challenges

- **Our local team's expertise in full scale pilot testing of various adsorptive media**, including IX resin for PFAS removal, enables us to complete this project expeditiously and cost-effectively.
- **Hazen is at the forefront of PFAS management** and will use our experience with planning, design, permitting, and implementation of PFAS treatment technologies to successfully complete this project.
- **The Hazen team has unmatched experience at lime softening facilities** and understands that good hydraulics is critical for operation, which will allow us to provide a cost-effective solution for the City.
- **We integrate our operations expertise into designs** of existing facilities to improve operability of the project, saving the City O&M dollars.



Leader in PFAS and Regulatory Compliance

- **The Hazen team has been actively engaged in bench testing, piloting, and designing WTPs for PFAS removal in cities surrounding Pembroke Pines** and across the U.S. for the last two years, which allows us to maximize efficiency and effectiveness of our design.
- **The Hazen team has extensive knowledge of local conditions** unique to the Biscayne Aquifer, which supports the design of optimized treatment solutions for the City.
- **Hazen helps buy time to plan,** which is often the most critical aspect for cost-effective compliance with new drinking water regulations.
- **We have extensive bench and pilot testing capabilities** through our applied research team, which provides the City with access to advanced process testing capabilities so the City can be confident in the reliability of the systems we design.



Extensive Funding/Grant and Rate Sensitivity Analyses

- **Our local and national funding experts** work with local governments to fund infrastructure projects that better communities.
- **We have assisted utilities** with securing funding for FDEP Drinking Water State Revolving Fund projects.
- **Hazen secured over $1 billion** in state and federal funding in Florida.
- **Hazen informs design decisions** to maximize the funding amounts, to minimize impacts to its residents.
- **Our Water Funding team has conducted comprehensive, multiple agency funding projects** for clients in Florida: The Cities of Oakland Park, Hallandale Beach, Delray Beach, Arcadia, Daytona Beach, and Lakeland; Miami-Dade County Water and Sewer Department; and Hillsborough County.

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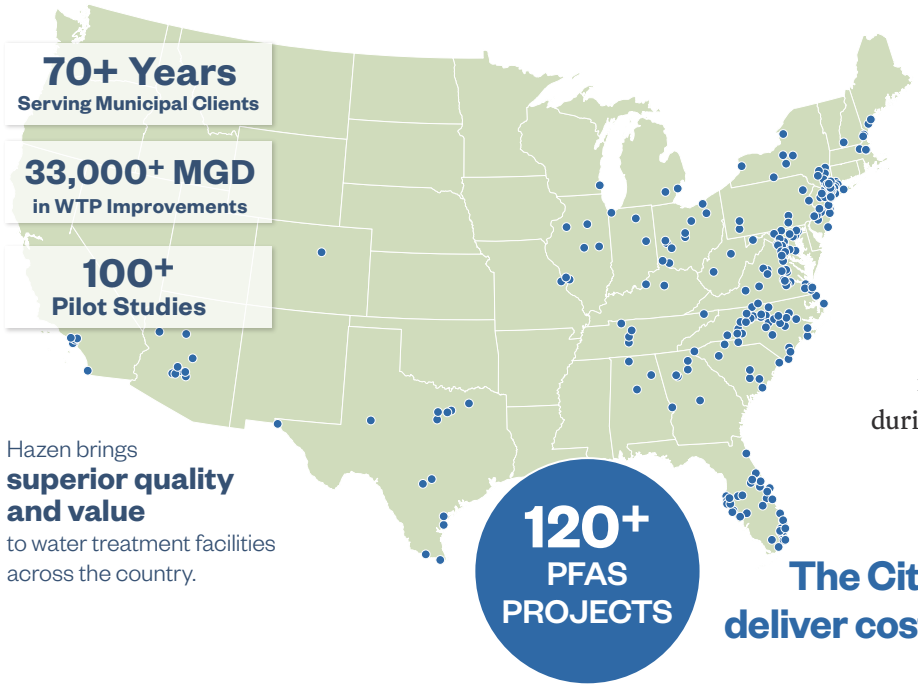
Hazen's Water Design Expertise

We have provided comprehensive engineering services, from preliminary through final design, permitting, and construction management, for water supply and treatment plants ranging from less than 1 mgd to more than 1 bgd.

Hazen is a nationally-recognized leader in municipal drinking water treatment and has designed some of the most sophisticated water treatment facilities in the world, treating a broad range of water quality issues. Examples include New York City Department of Environmental Protection's (NYCDEP) 290-mgd Croton Water Filtration Plant, New York City's first water filtration plant. Built entirely underground, it provides critical system redundancy, ensuring high-quality water for 9 million residents. Another example is NYCDEP's Catskill-Delaware Ultraviolet Disinfection Facility, an innovative, large-scale (two billion gallons/day) UV disinfection process which **provides increased public health protection while saving New York City more than $4 billion in construction costs and $25 million/year in operation costs.** We understand the fundamentals of conventional treatment processes and are also highly experienced in advanced water treatment like IX, membrane filtration, and granular activated carbon (GAC) to address emerging contaminants (including PFAS) and future regulatory compliance issues.

BENEFITS to Pembroke Pines

- Extensive experience designing water facilities for treatment of Biscayne Aquifer in Broward County streamlines our design and permitting for the City
- Direct knowledge of similar-sized IX plants that will be used to consider scale and leverage existing assets to control budget
- Unparalleled experience in bench-scale and pilot-scale process plants
- Expertise in finished water stability and corrosion control
- Recent IX pilot testing provides valuable data to support the City's efforts in managing PFAS
- Development of strategic public communications for local municipalities provides the City with effective tools to address concerns related to PFAS and other emerging contaminants
- Local, responsive team with experienced, detailed design engineers



Hazen brings **superior quality and value** to water treatment facilities across the country.

We have assisted with the rehabilitation, upgrade, and expansion of existing facilities **for seven decades.**

Our engineers are experts at maximizing the use of existing structures and equipment and maintaining facilities in operation during construction of improvements, resulting in cost savings.

The City can trust our team to deliver cost-saving opportunities.

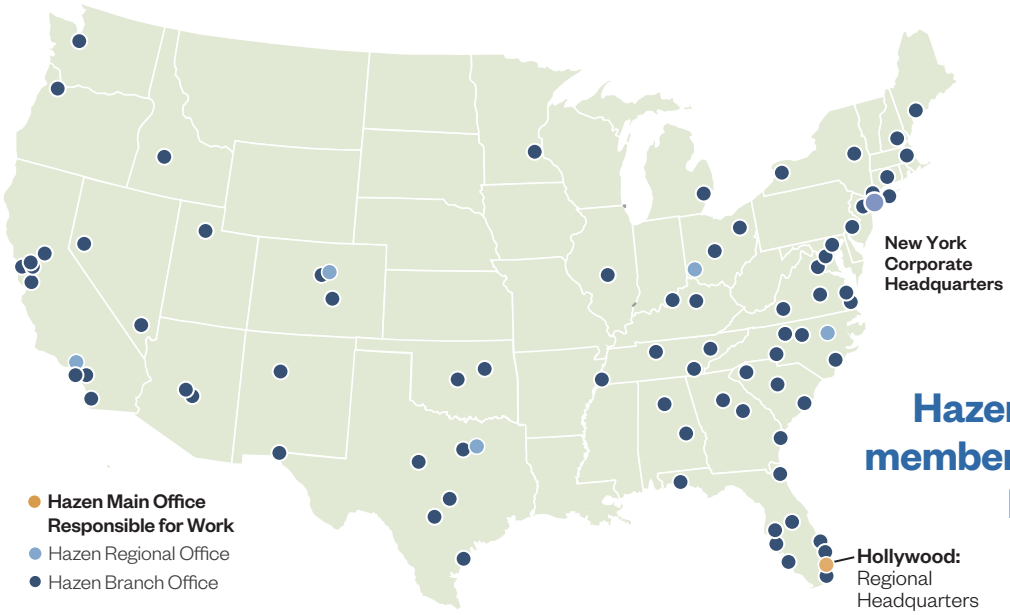
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Strategic Locations, Local Expertise: Supporting Pembroke Pines with National Resources

Hazen operates 84 offices nationwide, with headquarters in New York City and 10 offices across Florida. Our full-service Southeast regional headquarters located in Hollywood for over 57 years (4000 Hollywood Blvd., Suite 750 North, Hollywood, FL 33021), will lead the City of Pembroke Pines' Ion Exchange Addition to the WTP for PFAS Removal project, delivering key engineering and support services. Additional support and expertise can be drawn from Hazen's 2,100+ professionals nationwide to meet the City's needs and provide subject matter expertise.

Below is a listing of Hazen's 84 offices located throughout the United States.

Our company headquarters is located in New York City. In Florida, Hazen has 10 offices strategically located to provide full engineering services to our local clientele.



Hazen has 140 staff members in our South Florida offices

Alabama
Auburn
Birmingham

Arizona
Goodyear
Tempe

California
Concord
Irvine
Los Angeles
Riverside
Sacramento
San Diego
San Francisco
San Jose

Colorado
Colorado Springs
Denver
Fort Collins
Greenwood Village

Connecticut
Wethersfield

Florida
Boca Raton
Coral Gables
Fort Lauderdale
Fort Myers
Hollywood
Jacksonville
Orlando
Pensacola
Sarasota
Tampa

Georgia
Athens
Atlanta
Savannah

Idaho
Boise

Illinois
Springfield

Kentucky
Lexington
Louisville

Maine
Portland

Maryland
Baltimore
Silver Spring

Massachusetts
Boston

Michigan
Detroit

Minnesota
St. Paul

Nevada
Las Vegas
Reno

New Hampshire
Manchester

New Jersey
Iselin

New Mexico
Albuquerque

New York
Buffalo
Hicksville
New York
Saratoga Springs
White Plains

North Carolina
Charlotte
Greensboro
Raleigh
Wilmington
Winston-Salem

Ohio
Cincinnati
Cleveland
Columbus

Oklahoma
Oklahoma City
Tulsa

Oregon
Portland

Pennsylvania
Philadelphia

South Carolina
Charleston
Columbia
Greenville

Tennessee
Chattanooga
Knoxville
Memphis
Nashville

Texas
Abilene
Austin
Corpus Christi
Dallas
El Paso
Fort Worth
San Antonio

Utah
Salt Lake City

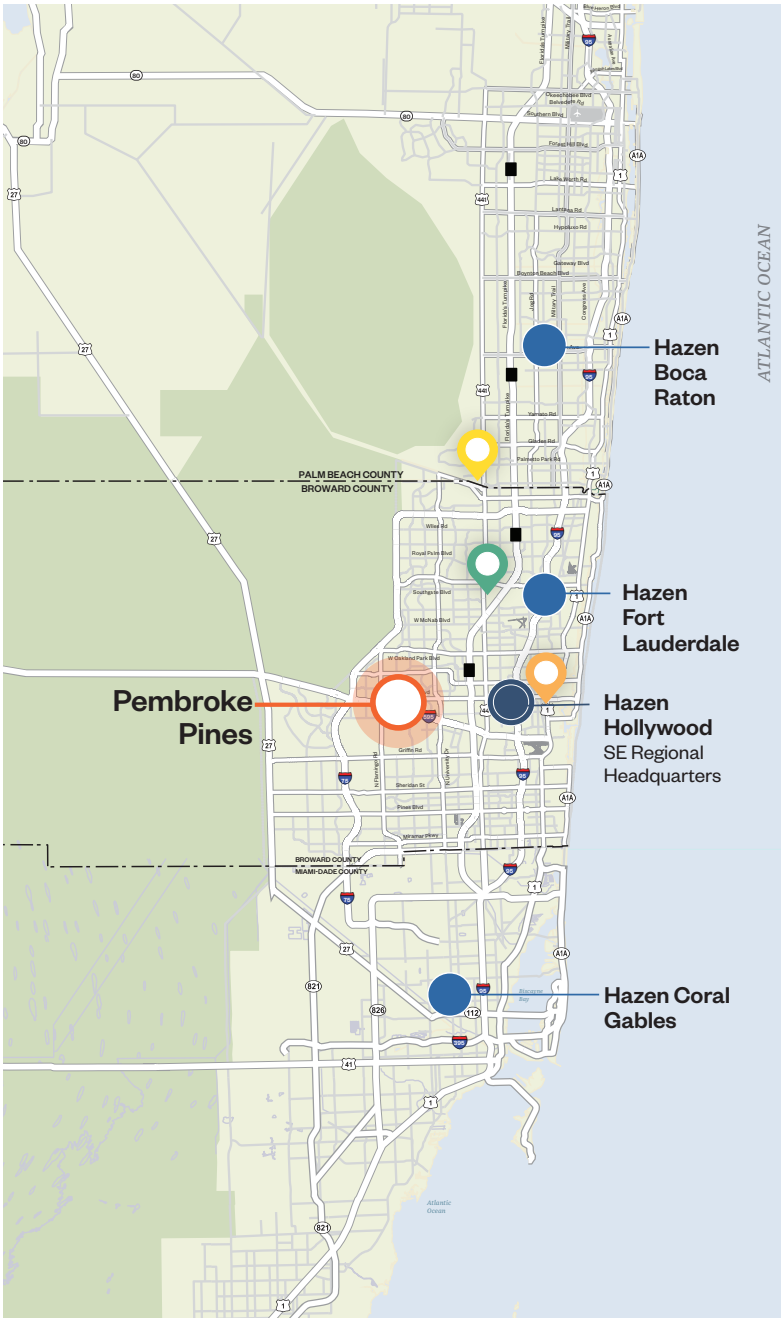
Virginia
Charlottesville
Fairfax
Newport News
Richmond
Roanoke
Virginia Beach

Washington
Seattle

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Local Expertise, Local Partners: Enhancing Collaboration and Project Efficiency

The team location map below shows the South Florida office locations of our team members. Additional office locations for our team are shown on the SF 330 cover page.



Florida Offices

Subconsultants

- Craven Thompson & Associates, Inc.
- WIRX Engineering, LLC
- Hillers Electrical Engineering, Inc.

Hazen's SE Regional Headquarters
4000 Hollywood Boulevard, Suite 750N
Hollywood, FL 33021

Craven Thompson & Associates, Inc.
3563 NW 53rd Street
Fort Lauderdale, FL 33309

Hillers Electrical Engineering, Inc.
23257 State Road 7, Suite 100
Boca Raton, FL 33428

WIRX Engineering, LLC
515 E Las Olas Boulevard, Suite 120
Fort Lauderdale, FL 33301

Our key design engineers are locally based,

which allows for quick site access, regular communication with City staff, and efficient startup/testing oversight.

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Our subconsultants provide specialized expertise.

Hazen has partnered with subconsultants who bring specialized expertise in surveying and subsurface utility investigation, geotechnical, and electrical engineering. With proven success on large-scale water projects, CTA and Hillers bring longstanding relationships with the City that ensure seamless collaboration and tailored solutions. Together with WIRX, they offer a well-rounded team equipped to meet the City's needs.

Brief qualifications for our subconsultants appear below and on the following pages.

Craven Thompson & Associates, Inc.

Proposed Role

Survey / Mapping / Subsurface Utility Investigation

Value to City of Pembroke Pines

- Craven Thompson & Associates, Inc. (CTA) has performed topographic surveys for many water treatment plants.
- CTA utilizes a Leica C-10 3D Laser Scanner for treatment plant surveys, which captures in detail millions of point locations and allows them to detail the interior and exterior piping networks.

Firm Overview

Since 1962, Craven Thompson and Associates (CTA) has provided a full range of professional services in the tri-county area, such as planning, design, permitting, surveying, contract administration, and construction management of numerous infrastructure.

Experience with Pembroke Pines

CTA's experience with the City of Pembroke Pines includes the Taft Street Swale Regrading project. CTA provided engineering design and land surveying services associated with regrading the swales, rehabilitating drainage areas, and the addition of a drainage structure for Taft Street to provide urgently needed stormwater swale storage and conveyance. This involved approximately 10,900 linear foot four-lane section of Taft Street runs from Palm Avenue (101st Avenue) west to North Flamingo Road (SR 823). CTA also provided post-design services for the Pines Village Watermain Improvements Phase I. This project consisted of the removal and replacement of the existing water mains within the Phase I limits. Improvements included water main replacement, new water services from main in the roadway to either the existing meter location or the house connection location. The project included restoration to pavement as well as swale, driveway, sidewalk, private property, and more. CTA also prepared a topographic survey for a portion of the access road for eastbound Sheridan Street in the Cedarwoods Neighborhood.

CTA and Hazen have partnered for 25 years on 135 projects, including on relevant projects such as Fort Lauderdale's Prospect Lake WTP and North Miami's Winson WTP Upgrade and Well Sites Survey, and the ongoing North Lauderdale WTP Improvements project.

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Hillers Electrical Engineering, Inc.

Proposed Role

Electrical

Value to City of Pembroke Pines

- No learning curve—Hillers is familiar with the electrical distribution system at the City's WTP and currently involved with the construction phase of the electrical improvements project.
- Designed and managed the SCADA conversion at the WTP.
- Performed multiple projects at the City's WTP, such as wellfield improvements, CO_2 system addition, filters backwash air scour blower, backwash logic modifications, and more.
- Strong working relationship with City engineers.

A Proven Partner to the City for Over 25 Years.

Hillers brings trusted experience, in-depth facility knowledge, and a strong track record of delivering reliable, cost-effective electrical and controls solutions to Pembroke Pines.

Firm Overview

Hillers Electrical Engineering, Inc. (HEE) has a proven full-time in-house experienced staff of professionals who are able to provide high-quality consulting services at any volume of assigned tasks that the City of Pembroke Pines may require. In addition, Hillers has a proven track record with the City as well as numerous other municipalities throughout Florida.

Experience with Pembroke Pines

For over 25 years, HEE has served the City as a subconsultant on numerous water and wastewater system projects. HEE has experience providing electrical, instrumentation, control, SCADA design and engineering services, master planning and construction support services for projects at the Pembroke Pines WTP, Pembroke Pines WWTP, Academic Village Repump Station, Holly Lake Repump Station, wellfields, and lift stations. The working relationship the firm has established with City staff as well as the excellent performance the firm has demonstrated on past projects, is invaluable to this contract. HEE brings institutional knowledge of City's water and wastewater facilities, familiarity with City staff, and a sense of security in knowing that any project performed will be done accurately, on schedule, and within budget constraints. HEE's design staff brings vast electrical, instrumentation and telemetry design and project management experience in a variety of areas such as raw water wells, stormwater and treatment pumping stations, ASR and DIW wells, water treatment facilities, water distribution systems, wastewater collection systems, and wastewater treatment facilities including reuse.

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WIRX Engineering

Proposed Role

Geotechnical

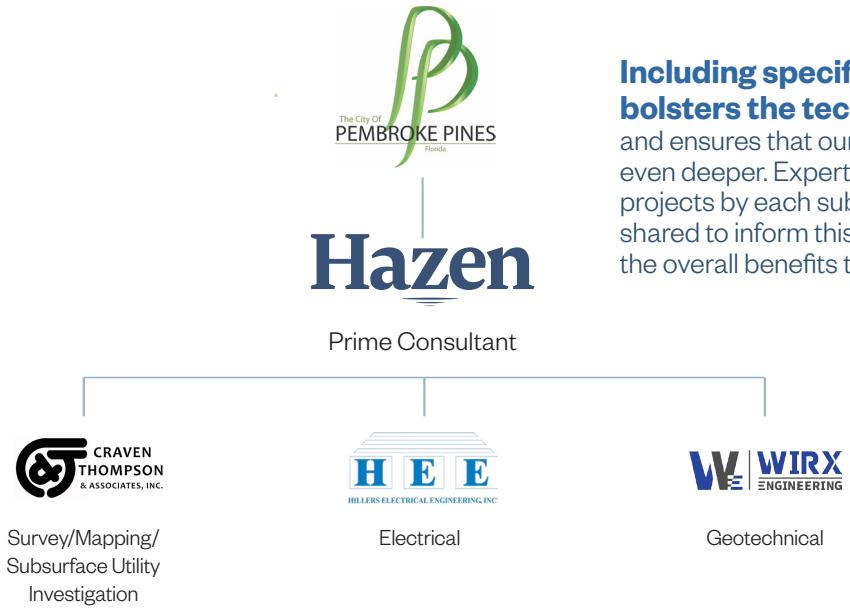
Value to City of Pembroke Pines

- WIRX's principals have decades of experience in civil and geotechnical engineering, including design, construction inspection, material testing, project management, and heavy civil construction.
- Having worked on thousands of projects for numerous municipalities and government agencies, WIRX understands the local geotechnical and materials challenges throughout South Florida and will custom-tailor solutions to the City's challenges.
- WIRX is a certified Small/Minority Geotechnical Engineering Firm with offices in Palm Beach and Broward Counties (SBE/MBE/CBE/DBE).

Hazen has worked with WIRX's principals for over 10 years on projects in Broward County, including current projects for the City of Oakland Park and the Seminole Tribe of Florida.

Firm Overview

WIRX Engineering, LLC is a geotechnical engineering firm with offices in Broward and Palm Beach Counties. Services include geotechnical and water resource engineering, geotechnical drilling, materials testing and inspection, and construction management. WIRX integrates construction insights during design to improve constructability, reduce change orders, enhance communication, and deliver cost-effective results.



Including specific subconsultants bolsters the technical horsepower and ensures that our deep Hazen bench is even deeper. Expertise from ongoing similar projects by each subconsultant can be shared to inform this project and enhance the overall benefits to the City.

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Our projects earn local and national awards

Hazen has received numerous awards for completed projects, which is an indication of the quality of our work. To provide the City with an indication of the quality of our work, selected awards are highlighted below, including projects with which proposed team members have been involved.

2022

ASCE-FL Section Large Project of the Year; ACEC-FL Grand Award; Trenchless Technology Honorable Mention
City of Fort Lauderdale Emergency Pipeline Project
Fort Lauderdale, FL

Envision Bronze Award from the Institute of Sustainable Infrastructure
Cocoplum 1 Regional Pump Station and Force Main Improvements
Coral Gables, FL

2021

ACEC-FL Grand Award; Trenchless Technology Honorable Mention; ASCE-FL Broward Branch Project of the Year
City of Fort Lauderdale Emergency Pipeline Project
Fort Lauderdale, FL

DBIA Design-Build Honor Award – Water/Wastewater
San Carlos Pumping Station Rehabilitation Project
Tampa, FL

2019

American Membrane Technology Association Membrane Facility of the Year Award (2019 & 2020)
Town of Jupiter 14.5-mgd Nanofiltration WTP
Jupiter, FL

ASCE Palm Beach Outstanding Project of the Year
ECRWRF Biosolids Improvements Project
West Palm Beach, FL

2018

"Resilient Project of the Year" in the Green Utility Category by the Resilient Utility Coalition
Cocoplum 1 Regional Pump Station and Force Main Improvements
Coral Gables, FL

ENR Mid-Atlantic Best Water/Environment Project of the Year

DBIA Best Water Project
SWIFT Research Center
Hampton Roads, VA

2017

Best Overall in Water/Wastewater Category – Florida Region Design-Build Institute of America Award
Intercoastal Waterway Crossings at Las Olas Boulevard
Fort Lauderdale, FL

2016

ACEC – NY Engineering Excellence Award
NYCDEP Croton Water Filtration Plant
New York, NY

Envision® Platinum Award
Nashville Equalization Facility
Nashville, TN

2015

2015 FES Technical Achievement
Bear Cut and West Bridges Emergency Rehabilitation and Water Main Replacement
Miami-Dade County, FL

2014

FDEP Most Outstanding Class A Water Treatment Plant Award
Town of Jupiter 14-5-mgd Nanofiltration WTP

DBIA Florida Region Award
MDWASD Government Cut Utility Relocation Project
Miami-Dade County, FL

FICE Florida Grand Conceptor Award; ACEC National Recognition Award
South District WWTP High Level Disinfection Upgrade
Miami-Dade County, FL

ACEC National Recognition Award
New York City Wastewater Resiliency Plan
New York, NY

DBIA National Award of Merit
Indiana American Water Hidden Lake Water Treatment Facility

2011

South Florida APWA Project of the Year
Broward WTP 3C Potable Water Ground Storage Tank & Pump Station
Broward County, FL

2008

APWA Project of the Year
Water Treatment Plant Expansion
City of Hallandale Beach, FL

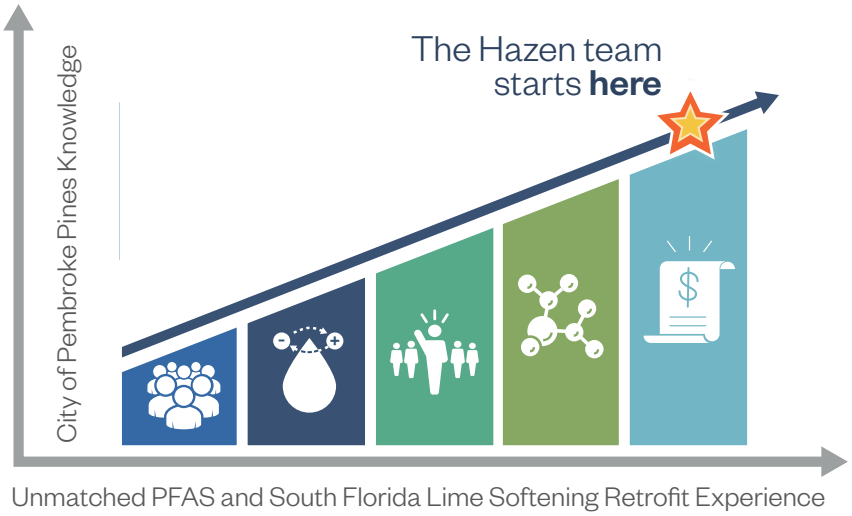
CMAA Project Achievement Award; Southeast Construction Best Civil Project of the Year
Peele-Dixie Water Treatment Plant
City of Fort Lauderdale, FL

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Why Hazen?

Ready to Deliver: Local Expertise + National PFAS Leadership

Hazen is fully mobilized to support Pembroke Pines with a team that understands your plant, your region, and your priorities. With unmatched experience upgrading lime softening facilities across South Florida, deep knowledge of Biscayne Aquifer treatment, and national leadership in IX for PFAS removal, we are prepared to hit the ground running. Our proven team—supported by specialized subconsultants with direct experience on similar projects—brings the technical horsepower and local insight needed to deliver a reliable, cost-effective PFAS solution. Together, we are ready to partner with the City to deliver results—on time and built to last.



The City Of PEMBROKE PINES Florida

Hazen

Prime Consultant

CRAVEN THOMPSON & ASSOCIATES, INC.

Survey/Mapping/ Subsurface Utility Investigation

HEE HILLERS ELECTRICAL ENGINEERING, INC

Electrical

WIRX ENGINEERING

Geotechnical

We are ready to build on our momentum.

Our recent national and local experience has helped us gain new insights, which we will use to advance the City's vision for addressing PFAS.

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Additional Information

Relevant Experience



Relevant Experience

Unmatched Expertise. Proven Solutions. Shared Commitment.

The City of Pembroke Pines faces challenges common in South Florida—aging infrastructure, space constraints, and emerging contaminants like PFAS. With the largest Water Design Center in South Florida, Hazen offers unmatched local experience upgrading lime softening facilities and national expertise in ion exchange. **Our team is ready to help the City implement a reliable, cost-effective PFAS solution.**

As a result of our significant portfolio of more than 120+ PFAS treatment systems, 75% of which are solely focused on drinking water treatment, we have developed experience and tools for efficient and accurate adsorbent selection, design, and residuals disposal. Hazen's local and national water treatment experts have led PFAS piloting, design, and construction projects, and they understand challenges with hydraulics, media selection, and breakthrough. Hazen is at the forefront of testing, design, and implementation of treatment technologies for removing PFAS compounds for municipalities and utilities across the country. We offer the City this value-added depth of expertise.

As residents and professionals based in this community, we at Hazen share in these challenges firsthand. While complex, we believe they are addressable through a systematic, controlled approach that identifies and leverages opportunities for sustainable solutions. We believe our relevant experience illustrates how that approach has been effective in South Florida and nationwide.

Table of Contents: Relevant Experience

- ☑ Proven Expertise on Projects of Similar Size, Type, and Complexity
- ☑ Successful Grant Funding Support for Comparable PFAS Projects
- ☑ Construction Oversight that Ensures Quality, Budget, and Schedule Control
- ☑ Project Examples That Demonstrate Real Results for Other Communities

Hazen understands the City's challenges firsthand—
and brings the experience, technical strength, and local insight
to deliver a smart, sustainable IX PFAS solution.

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The Hazen team is responsive, with a local one-stop shop to meet your wide range of project needs.



Delivering Seamless Solutions

Our team's deep understanding of the City's utilities infrastructure ensures a minimal learning curve and allows us to deliver innovative, efficient, and cost-effective solutions. By leveraging our experience and proven track record, we are committed to designing an IX facility that supports the City's goals for reliability, flexibility, and long-term performance.

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The Hazen team brings unmatched local experience in refurbishing lime softening facilities, IX, and PFAS.

- **PFAS** removal
- **Organics** removal
- **Color** removal

We will incorporate our 55+ years of local design, permitting, and construction experience, as well as 20+ years of specific local lime softening treatment experience, into the ion exchange bolt-on addition to the City's facility. **Hazen has refurbished more lime softening facilities in South Florida than any other firm, and we will leverage that deep experience—along with our PFAS expertise—to deliver a proven, cost-effective solution for Pembroke Pines.** Our approach ensures compliance with regulations, protects public health, and safeguards the City's drinking water customers to the maximum extent and in the most immediate time frame possible.

Trusted Across South Florida and Beyond.

Leading lime softening, ion exchange, and PFAS solutions for Fort Lauderdale, Hollywood, Miami-Dade, and more.

Project Spotlight

Modernizing Water for Millions: Hazen at the Helm

Prospect Lake Clean Water Center

Fort Lauderdale, FL

Hazen serves as Owner's Representative for design and construction of the new $700 million, 50-mgd (finished water capacity) WTP (combination of nanofiltration membrane and ion exchange technologies). The City of Fort Lauderdale is procuring this project through a Public-Private-Partnership agreement. Hazen's responsibilities as Owner's Representative include reviews of the design; coordination with City departments; and construction oversight of the WTP. Hazen's services also include maintaining a risk register for the City.



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Our proven leaders are already modernizing South Florida's water systems—and they're ready for Pembroke Pines.

Cleaner Water Starts with Smarter Treatment Design

At Hazen, we know IX is only as effective as the water feeding it. With decades of experience retrofitting lime softening facilities across South Florida, we specialize in conditioning feedwater to optimize IX performance. For Pembroke Pines, that means a smarter, more reliable PFAS solution—engineered for compliance, ease of operation, and lasting results.

How will our lime softening retrofit experience help the City?

By applying proven retrofit strategies, Hazen will deliver a reliable, cost-effective IX system that works with your existing plant operations.



Janeen Wietgrefe, PE, PMP
Project Director



Monique Durand, PE
Project Manager



Jayson Page, PE
Deputy Project Manager

Hazen's **Florida experts** have delivered

875 mgd

of **local lime softening** and **filtration treatment capacity**

Our team has led some of South Florida's largest and most complex lime softening retrofit projects. We bring direct, hands-on expertise in planning, permitting, construction, startup, and troubleshooting for both new and upgraded facilities.

Implementation of a selective IX treatment approach targeting PFAS requires extensive experience in the refurbishment of lime softening facilities. Hazen bring decades of experience in refurbishing lime softening facilities both in Florida and across the country. In Florida, our team has worked on lime softening, IX, reverse osmosis, and nanofiltration systems, designing, upgrading, and evaluating a total of 875 mgd of lime softening and filtration treatment capacity. Across the country, Hazen has designed billions of gallons per day in new and upgraded water treatment capacity.

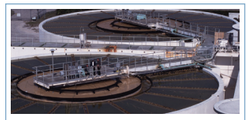
A well-run lime softening facility is critical to PFAS IX success. Pretreatment reduces fouling and mitigates scaling in IX vessels—two key risks when using single-use IX for PFAS removal.

Hazen's Approach for Seamless Integration of the "Bolt-On" IX System

- **Validate pretreatment** to ensure water quality is optimized for IX resin.
- **Apply lessons learned** to avoid scaling, fouling, and pressure loss.
- **Integrate IX seamlessly** into current operations.
- **Coordinate closely with the City** to ensure alignment and smooth implementation.

Our experience tells us that PFAS removal is not just about the IX resin—it's about delivering the right water quality to the resin in the first place. With our extensive background in lime softening retrofits and our understanding of IX system performance, Hazen is uniquely equipped to design a system that delivers long-term reliability, regulatory compliance, and ease of operation.

Example of Hazen's South Florida Lime Softening Retrofit Expertise



John E. Preston WTP Optimization
Miami-Dade Water and Sewer Department

Hazen assisted WASD in start-up and operational optimization of the new process at the Preston WTP in addition to training of the plant operations staff. **This is one of the largest lime softening facilities in the world.**



Winson WTP Pilot and PFAS Management Plan
City of North Miami

To help the City of North Miami address elevated PFOA and PFOS concentrations in its groundwater, Hazen developed a PFAS Management Plan for the 9.3-mgd lime softening Winson Water Treatment Plant.



Fiveash Water Treatment Plant Upgrades
City of Fort Lauderdale

Hazen designed, permitted, assisted with bidding, and provided services during construction for upgrades at the City's 70-mgd Fiveash WTP. The WTP is a conventional lime softening plant treating groundwater.



PFAS Study and Pilot Testing at WTP
City of Margate

Hazen is helping the City develop a PFAS Management Plan by evaluating adsorptive media and membrane alternatives through desktop modeling and pilot testing to identify cost-effective solutions for meeting new EPA MCLs.



10-mgd Membrane Softening WTP
City of Pompano Beach

Hazen provided design and construction management services for a new membrane softening facility. The facility was designed to replace an equivalent volume of existing water treatment plant lime softening capacity.



Lime Softening Treatment Process Optimization
Hallandale Beach

Hazen completed bench-scale tests at the City WTP to optimize its treatment facilities. The team found settled water turbidity can be reduced by 90, resulting in reduced filter backwashing and potential water savings.



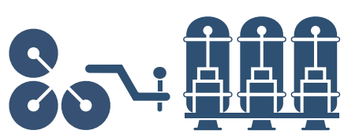
WTP 1A and 2A Disinfection System Modifications
Broward County

Hazen converted disinfection systems at Broward County's 16-mgd (WTP 1A) and 40-mgd (WTP 2A) lime softening plants from chlorine gas to bulk sodium hypochlorite.



Peele-Dixie Membrane Plant and Wellfield
City of Fort Lauderdale

Hazen supported conversion of the lime softening plant to a membrane facility. Testing, design, construction oversight for raw water wellfield, finished water membrane plant, and deep injection well for concentrate disposal.



We will leverage our experience to ensure the feed water to the two IX portions of the Pembroke Pines facility is suitable for treatment and ease of operation.

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Hazen is a national leader in IX treatment — ready to join you and progress with you to advance your goals

Hazen brings experience on over 40 IX projects and support to more than 30 utilities using IX for PFAS removal. We are bringing that national expertise to Florida, where we have successfully delivered IX solutions for PFAS and TOC removal. Our team is supporting EPA efforts to model IX selectivity and optimize performance, and we are leading pilot studies across the Biscayne Aquifer—including in Margate, Boca Raton, North Miami, and Miami-Dade—giving us unmatched insight into Southeast Florida's treatment challenges.

Dr. Conner Murray, our IX Technical Advisor, has contributed to more than 15 IX treatment investigations for utilities targeting PFAS removal,
including a variety of pilot studies and pressure vessel designs optimizing IX treatment longevity.



Ion Exchange Expertise at a Glance

40+ IX **Projects**

10+ IX **Pilot Studies**

Peer-reviewed publications related to the application of
6 IX for PFAS Removal

Bench + Full-scale + Conceptual Design Experience

Proven Ion Exchange Solutions in Your Backyard — Hazen Brings Unmatched Insight into Regional Treatment Challenges



Miami-Dade Water and Sewer Dept. PFAS Management Plan
Miami-Dade County, FL

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, for PFAS removal



City of North Miami Winson WTP PFAS Management Plan
North Miami, FL

- Evaluation of recommendation of PFAS removal strategies in conjunction with other water quality constraints using multi-criteria decision analysis
- 9-month pilot study investigating PFAS adsorption effectiveness with GAC, IX and FLUORO-SORB®



City of Margate PFAS Study and Pilot Testing at WTP
Margate, FL

- Hazen is utilizing its PFAS prediction tool to evaluate IX resin selection.
- The outcome of this project will guide recommendations in the PFAS Management Plan for the City.



City of Arcadia Eugene Hickson Ion Exchange WTP and Well Improvements
Arcadia, FL

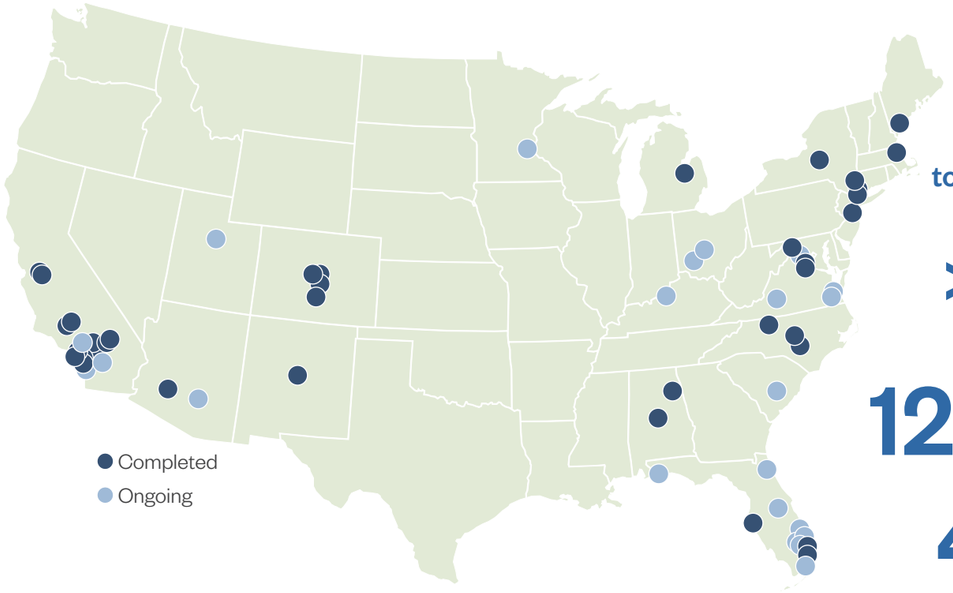
- Development of facility plan evaluating treatment alternatives
- Pilot testing, design, permitting, funding support, and construction phase services for new IX facility

Select Local and National IX Projects

	Capacity	PFAS	Bench/ Pilot Testing	Conceptual Design	Engineering Design
PFAS Management Plan, Miami-Dade Water and Sewer Dept., FL	60 mgd 120 mgd 238 mgd	■	●	●	
Eugene Hickson Ion Exchange WTP and Well Improvements, Arcadia, FL	1.5 mgd		●	●	●
Winson PFAS Management Plan, North Miami, FL	10 mgd	■		●	
PFAS Treatment Evaluation, People's Water Company, Pensacola, FL	1.5 mgd	■		●	
PFAS Study and Pilot Testing, Margate, FL	20 mgd	■	●		
Toho Shingle Creek Surface Water Treatment Facility Project, Kissimmee, FL	6 mgd	■	●		
Glen Abby WTP Water Quality Improvement, Volusia County, FL	5 mgd	■	●	●	●
Buenaventura Lakes WTP Upgrades Project, Osceloa County, FL	5 mgd		●	●	●
Toho St. Cloud WTP #4 Upgrades, Osceloa County, FL	9 mgd		●	●	●
Groundwater Treatment Feasibility Study, Elsinore Valley Municipal Water District, Lake Elsinore CA	7.3 mgd	■		●	
PFAS Removal Design, Western Municipal Water District, Riverside, CA	3 mgd	■	●	●	
Lehigh County Authority PFAS Support Study, Allentown, PA	22 mgd	■		●	
Contaminants of Emerging Concern in Drinking Water, City of Burlington, NC	25 mgd	■	●	●	●
PFAS Groundwater Treatment Improvement Projects, Santa Clarita, Valley Water Agency, Santa Clarita, CA	23 mgd	■		●	●
Emerging Contaminants Compliance Study, Tempe, AZ	22 mgd	■	●	●	
Santa Clara and Honby Wells PFAS Treatment, Santa Clarita Valley Water Agency, CA	3.5 mgd	■		●	●
PFAS Treatment Evaluation and Design, Suburban Water Systems, CA	14 mgd	■	●	●	●
Groundwater Treatment Design for Nitrate, Perchlorate, and TCP, City of Chino, CA	6.5 mgd	■		●	●
PFAS Design-Build, City of Stockton, Stockton, CA	3.6 mgd	■		●	●
Evaluation of GAC and IX for PFAS Removal in Groundwater, Epcor, NM	2 mgd	■		●	
PFAS Treatment Evaluation and Design, Rubidoux Community Services District, CA	7 mgd	■		●	●
Groundwater Treatment Plants Phase C, Orange County Water District, CA	9.4 mgd	■		●	●
Williams Station PFAS and Softening Feasibility Evaluation, San Jose Water, CA	20 mgd	■	●	●	
Malone and Willow Glen PFAS Feasibility, San Jose Water, CA	12 mgd	■	●	●	

Hazen is at the forefront of PFAS treatment

Hazen continues to push the envelope in PFAS management, having led numerous applied research and innovation initiatives designed to fill data gaps for new and existing technologies, bringing leading edge solutions that are rooted in the latest science but founded on real-world operational needs. Our multidisciplinary PFAS experts have brought solutions to drinking water and wastewater utilities across the country while also contributing to work focused on PFAS communication, treatment cost modeling, and residuals management.



40 gpm to **250** mgd — Size of **PFAS TREATMENT FACILITIES** We have evaluated, tested, and designed

>500 mgd — PFAS experience performed to support **COST-RECOVERY** efforts of our clients

120+ PFAS Drinking Water **PROJECTS**

40+ IX PFAS **PROJECTS**

Ongoing Project Highlights



Miami-Dade Water and Sewer Dept. PFAS Management Plan

Miami-Dade County, FL

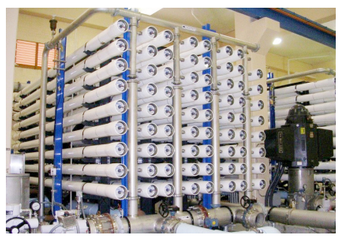
- Holistic system-wide evaluation of PFAS management
- Evaluating GAC, IX, RO, and rapid groundwater treatment technologies



PFAS Removal and Regulatory Compliance Evaluation

City of Hollywood, FL

- Planning, design, permitting, construction and startup services for improvements to existing WTP to bring PFAS to below regulatory limits



Hallandale Beach Reverse Osmosis Skid Addition

City of Hallandale Beach, FL

- Detailed design services for reverse osmosis treatment of brackish water
- Removal of PFAS in source water



Plantation PFAS Communications

City of Plantation, FL

- Campaign planning, management, and materials development to assist with public communications support regarding PFAS

Select PFAS and Emerging Contaminant Treatment Projects

	Capacity	Evaluation/ Study	Bench/ Pilot Testing	Conceptual Design	Engineering Design
PFAS Management Plan Miami-Dade Water and Sewer Dept., FL	60 mgd 120 mgd 238 mgd	●	●	●	
Winson WTP PFAS Piloting City of North Miami, FL	9 mgd	●	●		
Cooper City WTP PFAS Removal City of Cooper City, FL	7 mgd				●
Hollywood WTP Upgrades for PFAS Compliance City of Hollywood, FL	39 mgd	●	●	●	●
PFAS Testing and Pilot Study at WTP City of Margate, FL	13.5 mgd	●	●	●	
Engineering Services for the WTP Improvement Project City of North Lauderdale, FL	6 mgd	●	●	●	●
160-ac Pilot and Preliminary Design Toho Water Authority, FL	8 mgd	●	●	●	●
Glen Abbey WTP improvements Volusa County, FL	5 mgd	●	●	●	●
Partial Surface Water Treatment GAC for PFOA and PFOS Removal Gadsden, AL	12 mgd	●	●	●	●
Williams Station PFAS/Softening Feasibility Evaluation San Jose Water, CA	20 mgd	●	●	●	
PFAS Compound Treatment Evaluation Brick Township Municipal Utilities Authority, Brick, NJ	20 mgd	●	●		
P.O. Hoffer Water Treatment Facility Advanced Treatment Evaluation for Emerging Contaminants Public Works Commission of the City of Fayetteville, NC	20 mgd	●	●	●	●
Design and Permitting of PFAS and 1,4-Dioxane Treatment City of Monterey Park, CA	10 mgd	●	●	●	●
PFAS Design-Build City of Stockton, CA	3.6 mgd	●		●	●
Groundwater Treatment Facilities Los Angeles DWP, CA	17 mgd 24 mgd 49 mgd	●	●	●	●
Santa Clara and Honby Wells PFAS Treatment Santa Clarita Valley Water Agency, CA	3.5 mgd	●	●	●	●
Design of Post-filter GAC for Removal of PFAS and other CECs City of Sanford, NC	20 mgd	●	●	●	●
PFAS Analysis and Conceptual Plans City of Paramount, CA	8.5 mgd	●		●	
GAC Design for Treatment of PFOA and PFOS City of White Plains, NY	2.5 mgd		●	●	●
GAC Design PFOA & PFOS Removal and Permitting Assistance Dykeer New York American Water, NY	41 mgd		●	●	●
Evaluation of GAC and AIX for PFAS Removal in Groundwater Epcor, NM	2 mgd	●		●	
PFAS Treatment Assessment Fairfax Water, VA	125 mgd 275 mgd	●		●	
PFAS Alternatives Study and Detailed Design Rubidoux CSD, CA	5 mgd	●		●	●

Hazen is a leader in cutting-edge applied research that seeks to solve pressing challenges for water utilities.

WRF Project # 4913:
Investigation of the Treatment Alternatives for Short-Chain PFASs

Hazen serves as Co-PI on this nationwide collaboration project, along with American Water, to develop a framework for direct comparison between treatment approaches for ion exchange, GAC, high-pressure membranes, and adsorptive media (e.g., Fluoro-sorb) for the removal of short-chain PFAS.

Hazen is assisting with the development of a decision support tool for removing short-chain PFAS.

THE Water Research FOUNDATION

Pilot-Scale PFAS Destruction in Membrane Concentrate via Electrochemical Oxidation

Hazen is collaborating with Aclarity to study the feasibility of PFAS destruction using electrochemical oxidation technology. The pilot-scale testing has been awarded nearly $200,000 in funding from the United States Bureau of Reclamation (USBR).

BUREAU OF RECLAMATION

PFAS in Drinking Water Residuals Partnership with AWWA

To help address potential future regulations surrounding PFAS, Hazen is engaged in ongoing studies with the AWWA, in partnership with municipal clients, to investigate the potential financial implications of regulating PFAS in drinking water residuals. These studies ensure that Hazen continues to offer the highest standards of service to our clients in a rapidly changing regulatory environment.

In 2022, the EPA announced a hazardous substance designation for certain PFAS under the Comprehensive Environmental Response, Compensation and Liability Act, which could pave the way for the more stringent regulation of PFAS-laden drinking water residuals.

American Water Works Association
Dedicated to the World's Most Vital Resource

WRF Project # 5124:
PFAS One Water Risk Communication Messaging for Water Sector Professionals

Hazen collaborated with American Water and another consultant to develop PFAS communication materials to provide fact-based information to assist utilities in providing context for when low-level PFAS may be found in sampling.

THE Water Research FOUNDATION

These research efforts highlight Hazen's partnership with key research foundations, scientific foundations, and government agencies related to current high-impact issues facing all utilities.

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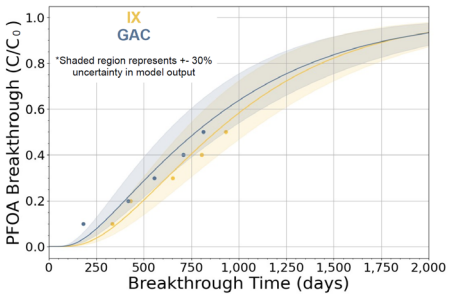
We have utilized our national experience to develop an effective approach for assisting clients to solve their current PFAS concerns.

Our team's broad PFAS experience, performed solely for municipal clients facing PFAS challenges, spans proven, best-available technologies and emerging approaches.
We are focused on determining and implementing holistic management strategies, instead of merely chasing the latest treatment technology.

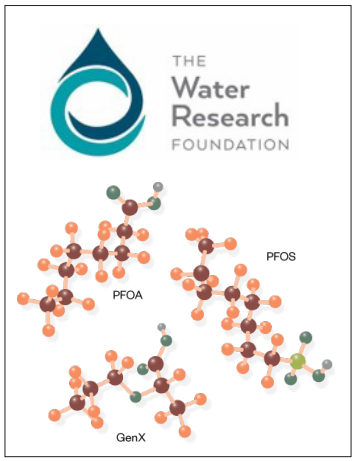
Hazen's staff are heavily involved in practical PFAS research, including:



WRF 5124 PFAS Communication Materials



PFAS Removal Machine Learning Tool



WRF 4913 Cost Modeling of PFAS Treatment

This experience will enable the Hazen team to help the City

efficiently study and develop a comprehensive plan to address the PFAS found in the City's source water to meet the final EPA drinking water regulations.

Bench and Pilot Testing

We are performing industry leading pilots to optimize conventional treatment and evaluate new technologies.

PFAS Design Services

We bring an efficient design approach, informed by lessons learned from designing operating IX, GAC, and membrane facilities in Florida and throughout the country.

Treatment Planning

We use bench-scale and pilot testing, and innovative modeling tools to compare costs and performance between treatment strategies.

Monitoring and Analysis

Hazen's been at the cutting edge of PFAS drinking water research, performing work to solve the key issues facing utilities today.

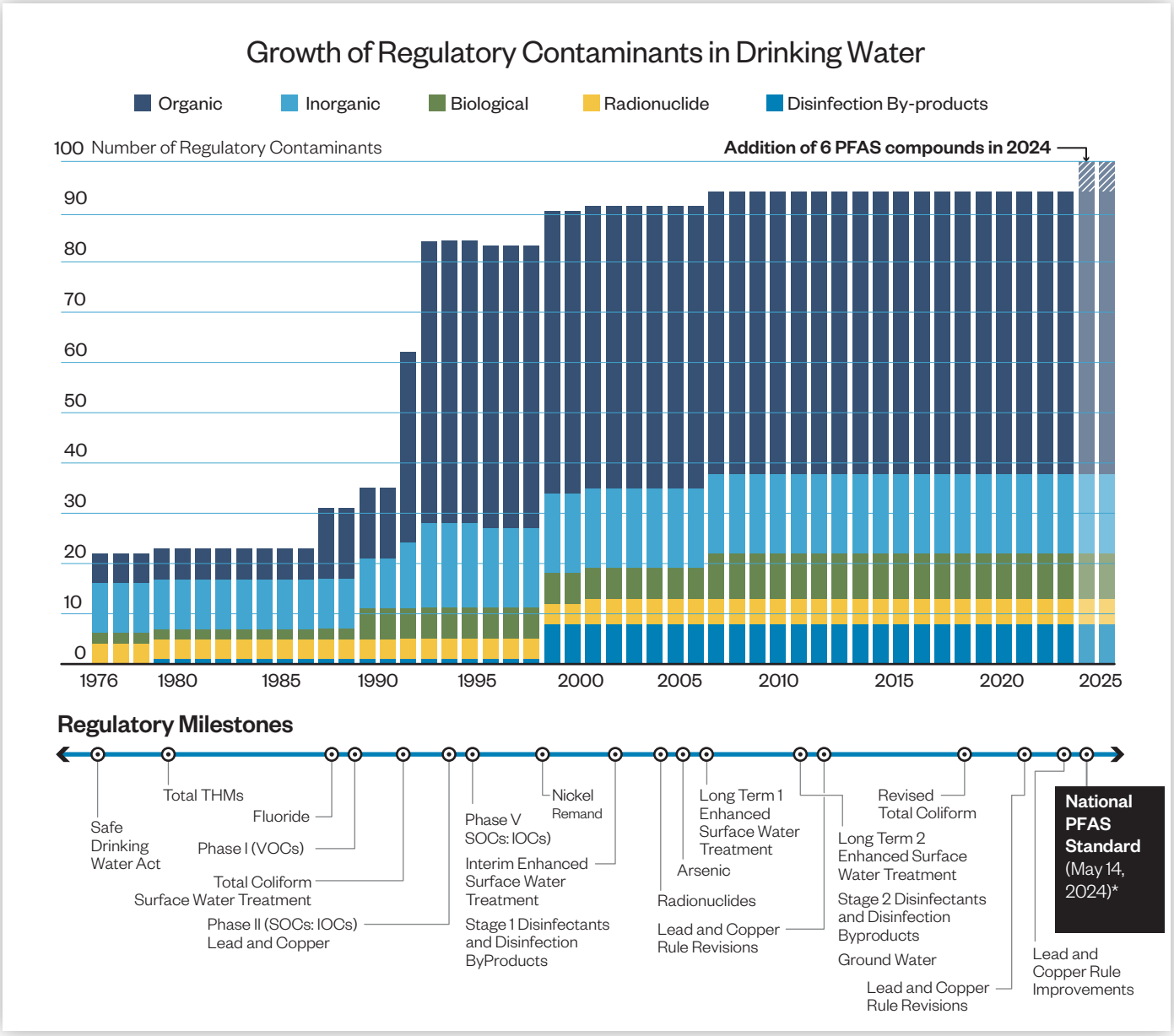
Communication and Regulatory Support

Hazen and AWWA are defining cost implications of PFAS on residuals management, including spent media, and concentrate and lime softening solids.

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The Hazen team will closely monitor potential regulatory changes that might impact your organization.

Hazen has successfully assisted numerous Florida utilities with navigating the dynamic nature of regulatory policies regarding water supply and treatment. We will also endeavor to alert you to risk factors attendant to a range of possible future regulations.



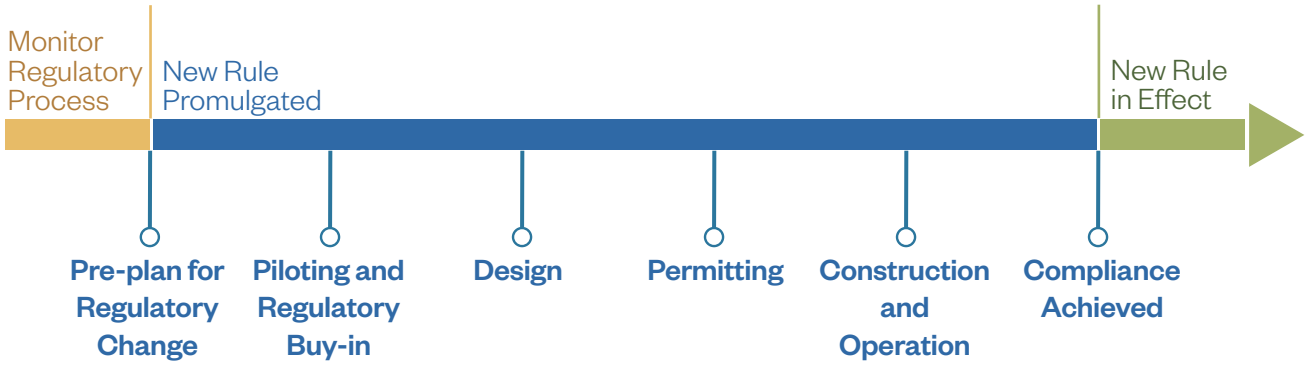
*EPA issued intent to extend compliance deadline to April 2031.

With the finalization of the new PFAS regulation, the number of regulated contaminants will increase to 100, with all of the new contaminants being "organic compounds."

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Hazen will help the City to plan, often the most critical aspect for cost-effective compliance with new drinking water regulations.

Compliance windows are short so proactive planning before rules are promulgated offers utilities opportunities for **measured, sustainable solutions to address future regulations for emerging contaminants.**



Hazen is committed to early understanding of future regulations

through involvement in key Technical and Regulatory Workgroups and will utilize this knowledge to develop sustainable solutions for the City.

Regulatory Workgroups Hazen participates in:

- AWWA Technical and Educational Council
- AWWA Water Science and Research Division Trustees
- AWWA Technical Advisory Workgroups
  - PFAS
  - Disinfection Byproducts
  - Stage 3 DBP and ESWTR
  - Algal Toxins
  - Corrosion
- Water Research Foundation Focus Area Committees
  - PFAS
  - Biofiltration
  - Disinfection Byproducts
  - Non-membrane Potable Reuse
  - Reuse RAC
- EPA National Advisory Council for Environmental Policy and Technology

Hazen local team members actively participate in the SEFLUC and joint FSAWWA Water Utility Council (WUC) and FWEA utility Council (UC) Regulatory Committee to help shape the outcome of pressing regulatory issues.

1021-728

Comprehensive Expertise in Pumping and Pipeline Solutions

Hazen's extensive experience in process piping design and transfer pumping systems is unparalleled. With over 200 projects completed in Florida alone, we leverage our deep understanding of aging infrastructure and cutting-edge technology, such as 3D CAD and hydraulic modeling, to deliver exceptional design solutions.

Our in-house engineers specialize in all disciplines necessary for process piping and pump system design, ensuring seamless integration and optimal performance. Our team is well-versed in the latest pump technologies and drive systems, allowing us to select the best solutions tailored to each specific application.

Pump Station Services

Hazen is synonymous with hydraulics and pumping.

Stormwater	Wastewater	Water
8 Facilities Over 100 mgd	23 Facilities Over 100 mgd	11 Facilities Over 100 mgd

We have conducted numerous hydraulic modeling analyses for pump and distribution system operations, as well as blending tank designs. Utilizing CFD models, Hazen evaluates operational scenarios and design modifications, ensuring the most efficient mixing and tank operation strategies are implemented.

Through these proactive efforts, Hazen consistently identifies and implements the best approaches for process piping and pump system design, ensuring reliability and efficiency in every project.

Project Spotlight

3C Potable Water Ground Storage Tank and Pump Station

Broward County, FL

Hazen provided engineering services for the design, permitting, bidding, and construction of the 3C Potable Water Storage Tank project.

Key elements included:

- 1.5-MG prestressed concrete storage tank
- Booster pump station with three variable frequency drive pumps
- Sodium hypochlorite and anhydrous ammonia storage and feed systems
- 300-kW backup generator, and demolition of existing water treatment facilities
- Development of highly complex sequence of construction to maintain the existing pump station in service while the new pump station was under construction



Construction was phased to maintain operations on a constrained site, starting with a new high-service pump building and fill line, followed by pump operation as in-line boosters during tank construction, **ensuring uninterrupted service throughout.**

1021-728

Optimizing Funding and Ensuring Timely Acquisition of Adequate Funding for Your Project's Success.

The Hazen team will assist the City in the identification of grant and funding opportunities, including but not limited to SFWMD Cooperative Funding Program, Florida Department of Economic Opportunity, FDEP, and the Florida Division of Emergency Management. Our team will also provide management, funding strategy and implementation plan development, funding application preparation, and supporting documentation (planning, environmental, financial), and reporting and compliance for the life of the project.

Funding Assistance Approach

We use a proactive approach to key emerging opportunities.

Hazen's four-step approach allows us to respond to the quickly changing infrastructure funding landscape.

Strategize

Strategize about applicable, available, and achievable funding options

Inform

Inform design decisions to maximize the funding sources and amounts

Conform

Conform to all permitting, engineering report, and contract requirements

Secure

Secure funds from application through contract phase



Sharon Simington
Southeast Regional Infrastructure Funding Lead

Hazen's funding success includes the following sources:

WIFIA PROGRAM
$1.4 Billion
in funding approvals over 4 years

FEMA
$1.1 Billion
in funding to recover from disasters and harden infrastructure

$350 Million
to fund resilient infrastructure

Clean Water State Revolving Fund
$1 Billion
across the country

Hazen's funding experts, led by Sharon Simington with 21 years of experience, are available to assist if the City chooses to explore funding options.

Our team can help identify potential opportunities and provide guidance to support compliance and keep the project on schedule.

1021-728

Grant Coordination/Funding

Hazen understands the importance of developing and implementing funding strategies to ensure that our clients can successfully secure the funding to make their projects possible while minimizing the impact to rate payers. Hazen's proven comprehensive approach to funding assistance for grant and low-interest loan programs has enabled utilities to effectively obtain stormwater, water, and wastewater infrastructure funding assistance from over 30 different programs in the last 10 years including extensive experience utilizing Water Infrastructure Finance and Innovation Act (WIFIA) and State Revolving Funds (SRF) funds. During this time, we have successfully managed $4.1 billion in funded projects, over $1 billion in resiliency-based funding nationally, and $1 billion in total funding in Florida.

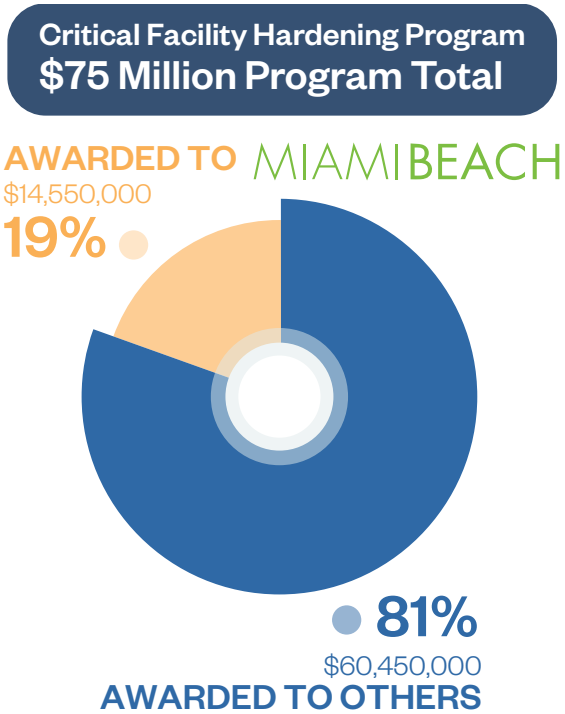
Case Study: City of Miami Beach

Hazen worked with the City to successfully obtain more than $14.5 million in State grants
to fund nine critical water and sewer infrastructure projects.

Hazen prepared nine grant applications for the Florida Department of Economic Opportunity (DEO) Rebuild Florida Critical Facility Hardening Program on behalf of the City of Miami Beach to fund water and sewer pump station rehabilitation and resilience improvements:

- Sewer PS 1
- Sewer PS 28
- Sewer PS 29
- 25th Street Booster Station
- 75th Street Booster Station
- Normandy Isle Booster Station
- 41st Street Booster Station
- Belle Isle Booster Station
- Terminal Island Booster Station

The City of Miami Beach was awarded 19% of the total available grant program funding, receiving 46% of the amount of funds requested.



EQUAL HOUSING OPPORTUNITY

DEO FLORIDA DEPARTMENT of ECONOMIC OPPORTUNITY

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Relevant Funding Experience

Project Spotlight

PFAS Removal and WTP Regulatory Compliance

City of Hollywood, FL

The City of Hollywood owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening and nanofiltration treatment plus treats the Floridan Aquifer well water through reverse osmosis treatment. However, recent testing has detected PFAS in excess of the regulatory limit of 4 ppt. Hazen has been providing funding support in the undertaking of this project. Hazen's funding team is aiding the City with the management and compliance of Federal Community Project Funding (CPF) by way of a grant issued through the Consolidated Appropriations Act. As well as offering additional funding services for compliance and management of a planning and design loan issued by the FDEP's Drinking Water State Revolving Fund (DWSRF). Hazen has also been tasked with the identification, application, and administration of any additional funding sources that would become available and are applicable to the City's needs.



Project Spotlight

PFAS Testing and Pilot Study at WTP

City of Margate, FL

Hazen is researching available opportunities for funding the design and construction of the City's selected PFAS project and will present funding alternatives to the City for consideration. Hazen will assist the City with the funding program selection process regarding which alternatives should be pursued based upon availability of funds and project cost and schedule as well as complete the application package for submittal.



The Hazen team's funding expertise helps Pembroke Pines secure, manage, and comply with funding

for critical water projects, including PFAS mitigation.

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Our team provides Proactive CA/CEI Expertise for Effective Construction Management and Seamless Project Delivery.

In addition to providing experienced construction managers and resident engineers to keep projects on schedule and within budget, we use proven methods such as pre-bid reviews, collaboration techniques, dispute review boards, and timely handling of all documents and requests. We also incorporate best-practice technologies to expedite requests for information (RFI), review and markup drawings, and permitting. The figure below highlights our typical construction management services This approach, complemented by best practices in technology and collaboration, ensures projects are managed effectively, preventing errors and maintaining schedules..

Hazen has identified key strategies to minimize change orders during construction projects, which is a critical component

Project Planning
- Project Administration
- Cost Controls
- Document Mgmt.
- Scheduling

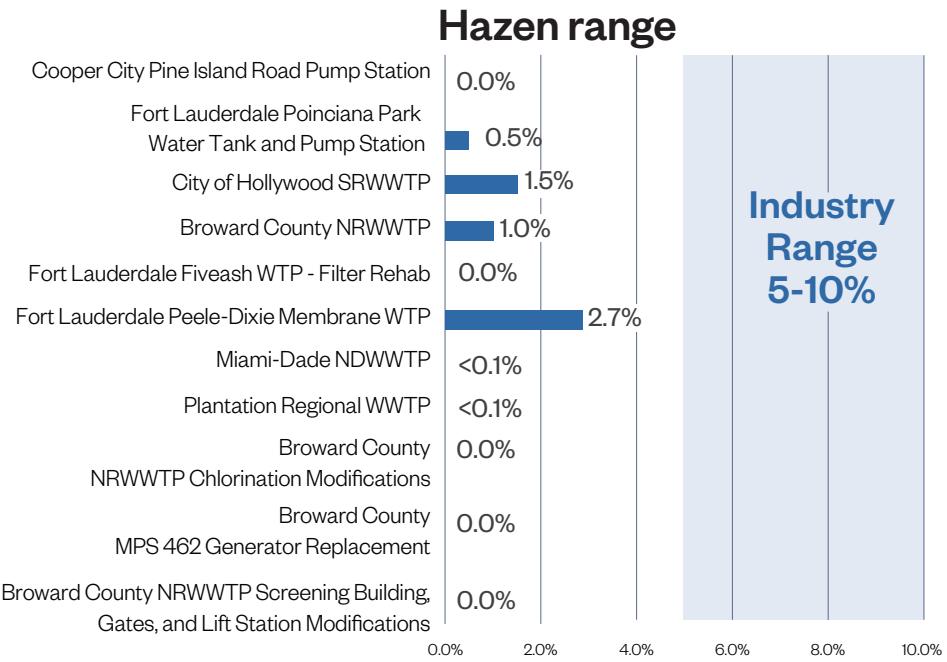
Resident Engineering
- Inspection
- Constructability Reviews
- Quality Control

Cost Management
- Cost Estimating
- Budget Control

Vendor Management
- Change Order Mgmt.
- Claims Resolution
- Equipment Pre-Purchase

Risk Management
- Quality Assurance
- Startup and Testing
- Commissioning
- Project Closeout

of project success. The approach emphasizes a quality design and effective contact documents, as well as a strong field team with state-of-the-art tools to manage the construction phase of the project. This is demonstrated by our strong track record of less-than-industry-average final change order costs. This framework not only reduces change orders but also enhances overall project quality and client satisfaction.



We are proud of the fact that construction change orders for Hazen design projects have historically been

< 3%

of the contractor's bid price (industry range is 5-10%).

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Minimizing Change Orders

Hazen's approach to minimizing change orders is based on our extensive construction management (CM) experience. Our team believes that proper planning is an integral part of this approach, which is based on the six principles described below.

1 Qualified CM Staff



Our staff performed CM services on some of the most complex water and wastewater treatment design and utility projects in the region. Our team understands the pitfalls to be expected and areas of concern to be noted on facility construction projects. This experience will allow our team to properly prepare for and correct construction issues in the field. Our planning and preparation will effectively mitigate or eliminate opportunities for the development of change conditions during construction.

2 Pre-Construction Activities



We will perform a constructability review on the contract design documents that will bring to bear the collective experience of our firm in providing construction management for billions of dollars of facility and utility construction. This activity will be crucial to the mitigation of change orders and will commence as soon as practicable. **An early proactive identification of the issue allows for cost and time mitigation in evaluating the solutions.**

3 Committed Partner



A project is more likely to be a success if all stakeholders, the owner, contractor, supplier, and construction manager are committed to working together toward a common goal. Hazen encourages our team to initiate partnering in a project as soon as possible as it has proven extremely successful for our clients.

4 Risk Management



Another key partnering activity, which begins in the pre-construction phase and carries through construction, is the development of a **risk management plan.** A key component of this plan is the creation of a project risk register. The City, Hazen, and the Contractor can develop the register through a series of risk management meetings. **Due to our vast knowledge of water and wastewater infrastructure design and construction, we are able to recognize, understand, and help identify ways to mitigate potential risks.**

5 Quality Management Plan



Quality Management ensures that the systems of equipment and processes that the City procures work as designed and as intended. Ultimately, our quality management program will not only ensure that the operations and maintenance staff have a properly working and fine-tuned system, but will also assist in the mitigation of potential change orders. Our team of inspectors and construction managers, will **ensure that the contractor plans their construction quality rather than reacts to deficiencies.**

6 Document Control

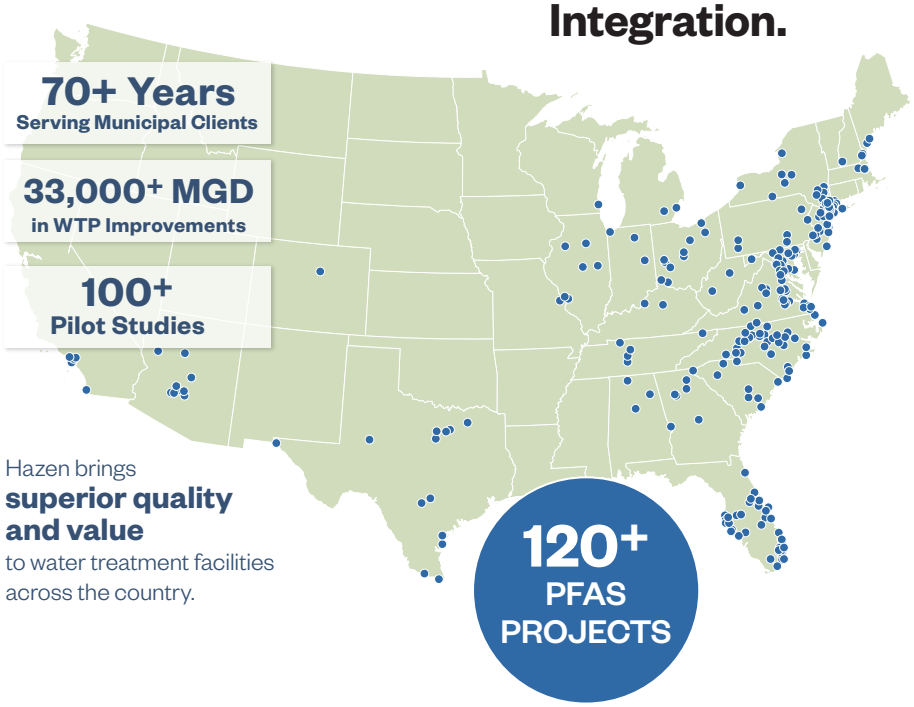


Our knowledgeable staff of inspectors and construction managers utilizes specific tools to ensure proper construction documentation, which limits the opportunity for change orders and claims by the contractor. Through years of experience, we have developed checklists and verification documentation that will be implemented on the City's projects to ensure quality and thus mitigate the opportunity for change order requests. Some of these documents include inspection reports, concrete placement tickets and logs, and equipment storage logs.

1021-728

Why Hazen?

Proven Retrofit Experience and Smart IX Integration.



Hazen brings **superior quality and value** to water treatment facilities across the country.



Hazen's **Florida experts** have delivered

875 mgd

of **local lime softening** and **filtration treatment capacity**

Ion Exchange Expertise at a Glance

40+ IX Projects

10+ IX Pilot Studies

Peer-reviewed publications related to the application of

6 IX for PFAS Removal

Hazen brings unmatched South Florida experience retrofitting lime softening plants and integrating "bolt-on" IX systems.

We know how to condition the feedwater, protect your investment, and deliver an IX solution that meets today's regulatory demands and tomorrow's operational realities.

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Project Sheets





Relevance to Pembroke Pines

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, GAC, and FLUORO-SORB® for PFAS removal
- Utilize Hazen PFAS prediction tool to evaluate IX resin selection
- Gather water quality data to understand the impact of TOC on IX resin performance
- Pilot testing will define full-scale design and O&M costs
- Communication and regulatory support
- Comparison of the RSSCT results with Pilot data to determine scale-up approaches for IX

PFAS Treatment Pilot

Miami-Dade County, FL

Since 2019, water quality sampling at the Miami-Dade Water and Sewer Department (MDWASD) wellfields has confirmed the presence of per- and polyfluoroalkyl substances (PFAS) in the water supply. Because conventional treatment processes such as lime softening and filtration are not effective for PFAS removal, this project aims to evaluate both conventional and emerging treatment technologies at MDWASD's three regional water treatment plants: Alexander Orr, Jr. Water; John E. Preston; and Hialeah.

The PFAS Treatment Pilot is intended to provide a comprehensive assessment of treatment and management strategies, with the goal of identifying the most effective and cost-efficient solutions to ensure compliance with EPA maximum contaminant levels (MCLs) for PFAS.

Media Demonstration Testing: Adsorptive media testing is currently underway to evaluate the performance of various ion exchange (IX) products, granular activated carbon (GAC), and novel adsorbent materials for the removal of PFAS at two of MDWASD's water treatment plants (WTP). An initial screening of adsorbents was conducted using rapid small-scale column tests (RSSCTs) with source water from the Alexander Orr and John E. Preston WTPs. The study monitors PFAS breakthrough times and assesses key operational factors relevant to full-scale implementation, including pretreatment requirements, head loss, and finished water quality. Testing is tailored to the specific treatment objectives of each WTP. At John E. Preston WTP, a total organic carbon (TOC) pretreatment system is being evaluated for its impact on media longevity. At Alexander Orr WTP, the investigation includes novel approaches such as the use of FLUORO-SORB® media in filter configurations with varying surface loading rates to optimize head loss. Simultaneously, the stratification of low-uniformity IX resin is being evaluated to enhance PFAS removal efficiency while minimizing hydraulic resistance. Additionally, lead/lag GAC configurations are being assessed to evaluate staged treatment performance for PFAS removal at these WTPs.

Project Duration
05/2024–Present

Project Cost
$2.3 million (fee)

Client Reference
Virginia Walsh, PhD, PG
Senior Professional Geologist,
Chief of Hydrogeology Section
Miami-Dade Water and Sewer Department
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Miami, FL 33146
(786) 552-8266
virginia.walsh@miamidade.gov

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Relevance to Pembroke Pines

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, GAC, and FLUORO-SORB® for PFAS removal
- Utilized Hazen PFAS prediction tool to evaluate IX resin selection
- Gathered water quality data to understand the impact of TOC on IX resin performance
- Pilot testing will define full-scale design and O&M costs

PFAS Study and Pilot Testing at WTP

Margate, FL

The City of Margate's Water Treatment Plant is a 10.1-mgd lime softening facility that has been experiencing elevated levels of per- and polyfluoroalkyl substances (PFAS), particularly PFOA and PFOS, in both the City's wells and finished water. The existing lime softening processes are insufficient to achieve compliance with the recently promulgated EPA maximum contaminant levels (MCL).

The City contracted Hazen to develop a PFAS Management Plan that includes a desktop evaluation of three adsorptive media options: granular activated carbon (GAC); two ion exchange (IX) resins; and FLUORO-SORB® using Hazen PFAS Prediction Model, along with an assessment of membrane alternatives using projection software as part of Phase 1. In the next phase of this project, the performance of GAC, two IX products, and FLUORO-SORB®will be evaluated in a pilot-scale system to determine treatment longevity, quantified by bed volumes processed and the time to breakthrough of the earliest regulated compound beyond an established threshold needed to meet water quality goals.

The outcome of this project will guide recommendations in the PFAS Management Plan for the City of Margate. The number of bed volumes treated for each adsorbent will inform the City of Margate on the effectiveness of each option for PFAS removal in full-scale design and its associated operational and maintenance costs. Additionally, by performing pilot-scale assessments with the selected adsorbents, other important operational factors, such as head loss accumulation as a function of water throughput and seasonal fluctuations in influent water quality, can be evaluated as they play a critical role in determining the most suitable adsorbent for full-scale implementation.

Project Duration
12/2024–Present

Project Cost
$490,895 (fee)

Client Reference
Marta Reczko
Assistant Director Utilities
City of Margate
Dept. of Environmental &
Engineering Services (DEES)
901 NW 66 Avenue
Margate, FL 33063
(954) 884-3632
mreczko@margatefl.com



John E. Preston Water Treatment Plant Optimization

Miami-Dade County, FL

Hazen assisted Miami-Dade Water and Sewer Department with start-up and operational optimization of the new process at the John E. Preston WTP, in addition to training of the plant operating staff.

The 165-mgd John E. Preston Water Treatment Plant is a conventional lime softening facility with three 30-mgd Accelator units and three 25-mgd Hydrotreator softening units. Accelator bench-scale tests conducted by Hazen and Sawyer indicated that a simultaneous coagulation and softening process was efficient at reducing TTHMs, THAAs, and color in the finished water and produced the highest quality process water from the Accelator units.

The full-scale test program demonstrated the performance of the simultaneous coagulation and lime softening process could achieve the goals of the Department.

The Accelator bench-scale testing indicated that the simultaneous coagulation and softening process could meet the Stage 1 DBP regulations and may meet the Stage 2 criteria. The full-scale Accelator tests confirmed that both the Stage 1 and Stage 2 DBP criteria could be met with the process.

The full-scale test results showed a marked improvement over the bench test data with the exception of the color removal. However, the color can be further reduced by increasing the process chlorine contact time until the TTHM and THAA concentrations approach the Stage 2 DBP criteria; or by using ozone.

Hazen provided process evaluation, pilot/full scale testing, design oversight, bidding, and construction management services to Miami-Dade for this project. Hazen's role was also to prevent any construction, operational, and maintenance problems in the future. Hazen developed the design criteria and performance specification standards through extensive pilot- and full-scale testing. Hazen continues to work at the Preston Plant as part of MDWASD's PFAS Management Plan.

Relevance to Pembroke Pines

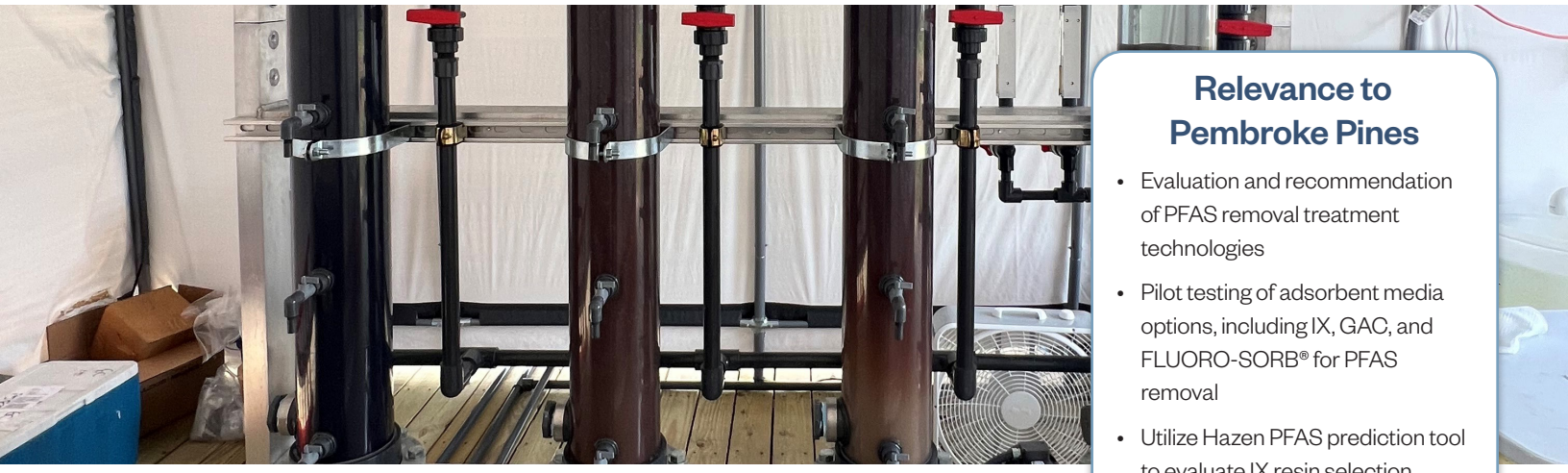
- We understand lime softening and filtration plants. Hazen's Florida staff have designed, upgraded and evaluated 875 mgd of lime softening and filtration treatment plants. Nationwide we have designed billions of gallons per day of new and upgraded treatment capacity.
- Additionally, the Hazen team has extensive expertise in optimizing the performance of lime softening and filtration plants throughout Florida.
- This experience will benefit the City; we will assist the City in maximizing the performance of its existing infrastructure through identification of cost-effective improvements.

Project Duration
1998–2005, 2024-2025

Project Cost
$2 million (fee)
$23.4 million (construction)

Client Reference
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1021-728



Relevance to Pembroke Pines

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, GAC, and FLUORO-SORB® for PFAS removal
- Utilize Hazen PFAS prediction tool to evaluate IX resin selection
- Gather water quality data to understand the impact of TOC on IX resin performance
- Pilot testing will define full-scale design and O&M costs
- Evaluation of the impact of EBCT on IX performance
- Detailed evaluation of short-chain PFAS removal by IX

Winson WTP Pilot and PFAS Management Plan

North Miami, FL

The City of North Miami's Winson Water Treatment Plant is a 9.3-mgd lime softening facility that is experiencing elevated PFOA and PFOS concentrations in the City's groundwater and cannot achieve the recently promulgated EPA MCLs through existing lime softening processes.

The City contracted Hazen to develop a PFAS Management Plan to test multiple adsorbent media and determine PFAS removal efficiencies along with associated life cycle costs. The pilot testing investigated three media options (GAC, two IX products, and FLUORO-SORB®) and was operated until PFAS breakthrough occurred.

A unique collaboration with the EPA's Technical Assistance Program enabled the City to expand the number of adsorbent media tested along with additional sample ports throughout the media depth. The increase in the frequency and number of samples analyzed provided a more comprehensive assessment of the City's current water quality, PFAS concentrations, and media performance. This enhanced dataset allowed for the evaluation of the impact of an important operational parameter, i.e., empty bed contact time (EBCT) on the performance of the four investigated adsorbents, particularly for the removal of short-chain PFAS, an area often over-looked, even though future EPA regulations may increasingly target these compounds.

The results of the pilot testing will guide the recommendations made in the PFAS Management Plan. The number of bed volumes treated for each adsorbent media will inform the City on full-scale design considerations and operational and maintenance costs. Alternative options available to the City will also be evaluated including replacing the lime softening treatment plant with a full-scale membrane plant, and finding alternative water sources.

Project Duration
09/2023–Present

Project Cost
$350,000 (fee)

Client Reference

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1021-728



Relevance to Pembroke Pines

- Preparation of a facility plan that evaluated treatment alternatives to determine the most cost-effective treatment option for replacement of the WTP
- Pilot testing, preliminary and final design services, permitting, funding assistance, and construction-phase services for the new 1.5-mgd WTP
- Project components included new 300-gpm raw water supply well, piping, booster pump station, two-stage ion exchange system, ground storage tank, high-service pumping, chemical systems, operations and control center, related site improvements, and refurbishment of five existing wells
- Project funded through loans and grants through FDEP's State Revolving Fund

Eugene Hickson Ion Exchange WTP and Well Improvements

Arcadia, FL

Hazen provided engineering services for the study, design, permitting, construction administration, and start-up for a new 1.5-mgd ion exchange WTP and well improvements.

The City's 3-mgd lime softening water treatment plant (WTP) was over 40 years old and had reached the end of its serviceable life. The plant treated a groundwater source that exceeded water quality standards for radionuclides with high concentrations of hardness, sulfides, organic carbon, and fluoride. Treatment was primarily focused on meeting the radionuclides standards by raising the pH to 8.5 with lime, followed by settling and filtration. Free chlorine was used for primary disinfection and chloramines were used for residual chlorine in the distribution system and to control disinfection byproducts.

Hazen prepared a facility plan that evaluated lime softening, ion exchange, nanofiltration/membrane softening, and purchasing water from the local water supply authority. Ion exchange was determined to be the most cost-effective option.

Following completion of the facility plan, Hazen provided bench-scale pilot testing, preliminary and final design, permitting, and construction-phase services. Hazen performed bench-scale pilot testing, testing on the source groundwater to determine the effectiveness of anion and cation exchange resins, efficiency of brine regeneration, vessel headloss, and run time for both ion exchange resins. The pilot test verified the ion exchange system would meet the design criteria and water quality goals achieved by blending a portion of raw water with treated water. The blended flow reduced the ion exchange regenerant waste, a pivotal factor in the ion exchange process selection.

This project was funded through loans and grants through FDEP's State Revolving Fund (SRF); Hazen secured over half of the nearly $8 million in costs for this project as loan forgiveness grants.

Project Duration
01/2012–03/2011 (design)
01/2012–07/2015 (construction)

Project Cost
$740,000 (fee)
$7.7 million (construction)

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1021-728



Relevance to Pembroke Pines

- Process change requiring analysis and caution to ensure public is protected
- Desktop analysis and full-scale pilot testing of various advanced treatment options, including FIX for TOC removal
- Planning, detailed design, permitting and bid of proposed FIX and brine system, chemical systems and pumping systems
- Integration of FIX into an existing groundwater treatment system

Buenaventura Lakes WTP Process Upgrades

Osceola County, FL

Toho Water Authority (Toho) owns and operates the 5-mgd Buenaventura Lakes WTP (BVLWTP). Hazen is responsible for pilot testing and design of process upgrades to eliminate the routine flushing and control disinfection byproducts (DBP) through additional removal of total organic carbon (TOC).

The BVLWTP currently treats groundwater from on-site Upper Floridan Aquifer wells for hydrogen sulfide and TOC. The existing treatment consists of granulated activated carbon (GAC) for TOC removal, a ground storage tank with cascade tray aeration and spray recirculation (which can be used for both sulfide removal and stripping of DBPs).

BVLWTP produced finished drinking water that met regulatory limits associated with DBP control. However, Toho observed that the GAC media was exhausted rapidly and required change-outs at a higher frequency than originally anticipated. Hazen was hired to perform pilot testing and design of process upgrades to eliminate the routine flushing and control DBPs through additional removal of TOC.

Hazen performed a desktop analysis and shortlisted four configurations to be evaluated through pilot testing. The following configurations were proposed:

- Modified GAC (decreased hydraulic loading rate with different GAC media) followed by Post-Stripping
- Pre-Chlorination and Spray Aeration (Pre-Stripping) ahead of Existing GAC followed by Post-Stripping
- Fixed Bed Ion Exchange (IX) followed by Post-Stripping
- Hybrid Configuration of IX and GAC followed by Post-Stripping
- Based on the pilot results, a hybrid configuration was selected and is currently in design

The design and commissioning of our BVL pilot relied on our team's broader experience with designing, deploying complex pilots, which included the following recent pilots: The Plant City Potable Reuse Pilot, which utilized MF, RO, and UVAOP; and the Tampa Bay Water Desalination pilot, which relied on DAF, media filtration, membrane filtration, and reverse osmosis.

Project Duration
05/2022–Present

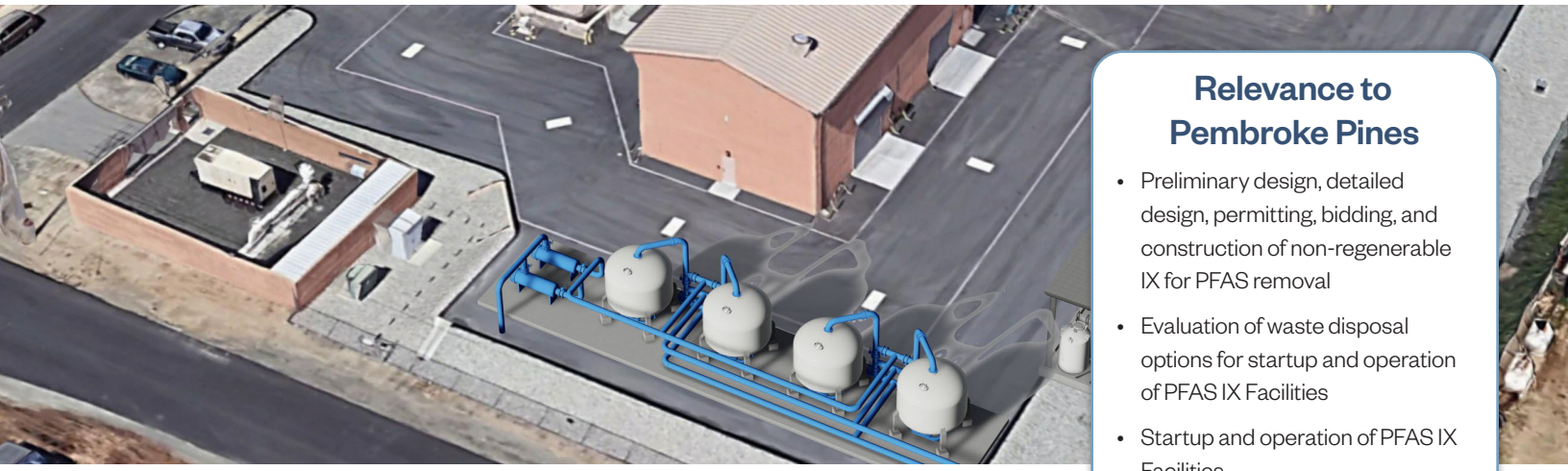
Project Cost
$1.87 million (fee)

Client Reference
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The aeration pilot could be used to test sulfide removal and air stripping of THMs post formation.

1021-728



Relevance to Pembroke Pines

- Preliminary design, detailed design, permitting, bidding, and construction of non-regenerable IX for PFAS removal
- Evaluation of waste disposal options for startup and operation of PFAS IX Facilities
- Startup and operation of PFAS IX Facilities

PFAS Groundwater Treatment Improvements

Santa Clarita, CA

Hazen provides engineering services to the Santa Clarita Valley Water Agency for the design of PFAS treatment for 53 wells in the Santa Clarita Valley.

Project Duration
04/2020–Present

Project Cost
$9 million (fee)

Client Reference
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Equipment Sizing and Procurement: Hazen provided engineering services for sizing and layout of PFAS treatment systems, including pre-filtration system, AIX system, and chemical feed and storage system for 53 Santa Clarita Valley Water groundwater wells totaling 64,000 gpm capacity. In addition, Hazen is preparing technical specifications and preliminary plans for the equipment procurement for the long-lead equipment such as IX vessels.

Santa Clara & Honby Wells PFAS Treatment Final Design: Hazen is providing engineering services for the final design of Santa Clara and Honby Wells PFAS groundwater treatment improvements (design capacity was 3.5 mgd). The final design includes preparation of plans, specification, cost estimate, permitting, and support during bidding and construction phases of the project.

7, U4, U6, Saugus 1 and Saugus 2 Wells PFAS Treatment Final Design: Hazen provided engineering services for final design of the IX and GAC treatment systems for removal of PFAS and VOC compounds from Wells T7, U4, and U6 (PFAS removal) and Saugus 1 and Saugus 2 (VOC removal), including a new disinfection facility. The design capacity was 8.5 mgd. The final design and bid phase are complete and the construction began in June 2024.

S-Wells PFAS Treatment Final Design: Hazen is providing engineering services for final design of IX treatment system for removal of PFAS and Perchlorate for Wells S6, S7, and S8 (Design Capacity = 8.7 mgd), including a new disinfection facility, landscape architecture, and novel perimeter wall structural and architectural design.

Newhall Wells (N11, N12, and N13) PFAS Treatment Final Design: Hazen will provide engineering services for the final design of the IX treatment system for removal of PFAS and Perchlorate from Newhall Wells (N11, N12, and N13 - design Capacity = 7.8 mgd).

1021-728



Relevance to Pembroke Pines

- Risk management during treatment process conversion to protect public health
- Owner's Representative for design review and construction oversight of a new WTP (combination of nanofiltration and ion exchange treatment technology)
- Technical review of process design, including approach to optimization of corrosion control and removal of PFAS

Prospect Lake Clean Water Center

Fort Lauderdale, FL

Hazen was selected by the City of Fort Lauderdale to provide owner's representative services for design and construction of the proposed 50-mgd (finished water capacity) water treatment plant.

The City of Fort Lauderdale's existing Fiveash WTP was constructed in the 1950s and is at the end of its useful life. The City commissioned an engineering study to determine the future of the facility. That study recommended replacing the Fiveash WTP with a new state-of-the-art WTP using a combination of nanofiltration and ion-exchange treatment technology to provide clear, safe, potable water.

The new plant will be located approximately three miles from the Fiveash WTP at the City's Prospect Wellfield. The new plant is designated as the Prospect Lake Clean Water Center. The Fiveash WTP treatment facilities will be decommissioned and used only for finished water storage and pumping.

The City decided to procure this project through a Public-Private-Partnership agreement. The City received multiple unsolicited proposals and selected the team to design and construct the plant. In parallel, the City selected Hazen as the Owner's Representative to review the design and oversee the construction of the $700 million water treatment plant.

Hazen's services include review of permit application, review of design packages, coordination with permitting agencies and City departments. Hazen also provides technical review of process design including the team's approach to optimization of corrosion control.

Hazen maintains a risk register for the City, identifying the risks and mitigation strategies for each risk. As the team moves from design to construction, Hazen will provide multiple inspectors and Resident Project Representatives to observe the construction of the WTP and support facilities, as well as process specialists for the startup phase of the project.

As a subconsultant to Hazen, Craven Thompson is providing construction administrative services for this project.

The Prospect Lake Clean Water Center has been named the Best P3 Utility Project of the Year Award by P3 Bulletin. This prestigious award exemplifies how this project will lead to the delivery of resilient and innovative critical infrastructure through collaboration between public and private industry partners.

Project Duration
04/2023–Present

Project Cost
$700 million (est. const. cost)
$4.7 million (fee)

Client Reference
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1021-728

Hazen

CRAVEN THOMPSON & ASSOCIATES, INC.



Relevance to Pembroke Pines

- Improvements to an existing operating lime softening treatment plant
- Affordability analysis
- Public communications/ education
- Evaluate options for PFAS removal, including the addition of a bolt-on ion exchange system

PFAS Removal and Regulatory Compliance Evaluation

Hollywood, FL

The City of Hollywood owns and operates a series of potable water supply wells and treats the Biscayne Aquifer with well water through lime softening and nanofiltration treatment, and also treats the Floridan Aquifer well water through reverse osmosis treatment. The City also treats Biscayne Aquifer well water from the Broward County South Regional Wellfield at Brian Piccolo Park through the nanofiltration plant.

These three treatment process streams blend together to provide high quality drinking water to the residents of Hollywood and adjacent areas outside the City, such as parts of Town of Davie, City of Dania Beach and the Seminole Tribe of Florida. PFAS has recently been detected in the City's wells. The final regulations require those compounds be removed to below the regulatory limits (4 parts per trillion) prior to the compliance deadline.

This multi-phase project includes planning, design, permitting, construction, and start-up services for improvements to the existing water treatment plant to remove PFAS to below the regulatory limits.

Hazen is assisting the City with its EPA Community Grant application and advising on alternative funding sources for PFAS improvements.

Under this project, Hazen will also provide public communication support for the City concerning PFAS. Hazen will organize workshops and townhalls to inform residents, create social media posts and website content, and develop responses to public statements and frequently asked questions about PFAS.

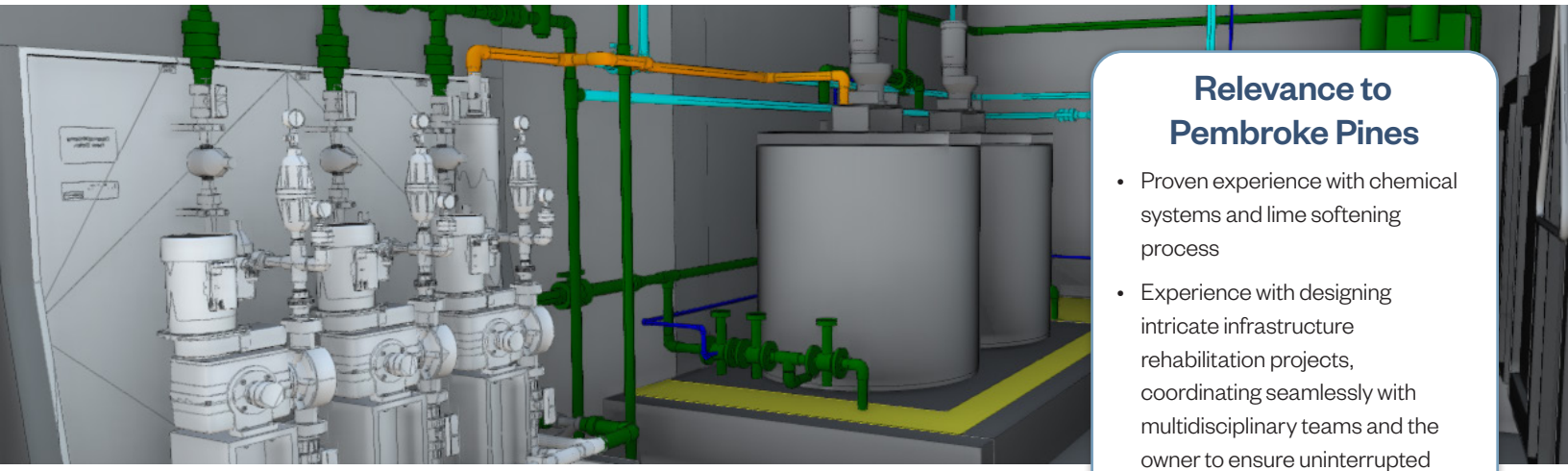
Hazen is preparing to design the first additional membrane softening skid to the existing plant under Phase 2. Phase 2 also includes performing a detailed corrosion control study and developing a preliminary design report for the design of the remaining membrane softening kids, chemical systems, post-treatment systems, and electrical systems.

Project Duration
Phase 1: 11/2024-Present
Phase 2: 11/2024-Present

Project Cost
Phase 1: $385,170 (fee)
Phase 2: $2 million (est. fee)

Client Reference
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1021-728



Relevance to Pembroke Pines

- Proven experience with chemical systems and lime softening process
- Experience with designing intricate infrastructure rehabilitation projects, coordinating seamlessly with multidisciplinary teams and the owner to ensure uninterrupted operations during construction

Building 11 Rehabilitation and Improvements at the WTP

Boca Raton, FL

The City of Boca Raton's Glades Road Water Treatment Plant utilizes a 30-mgd capacity conventional lime softening process in parallel with a 40-mgd nanofiltration process.

Building 11 is the lime softening treatment process chemical building, which was originally constructed in the early 1970s. This building houses the lime storage silos, lime slakers, lime feed equipment, coagulant storage and feed equipment, sodium hypochlorite storage and feed system, polyphosphate feed system, electrical room, and other associated supporting systems. Hazen provided preliminary and detailed design engineering services for the Building 11 rehabilitation and improvements.

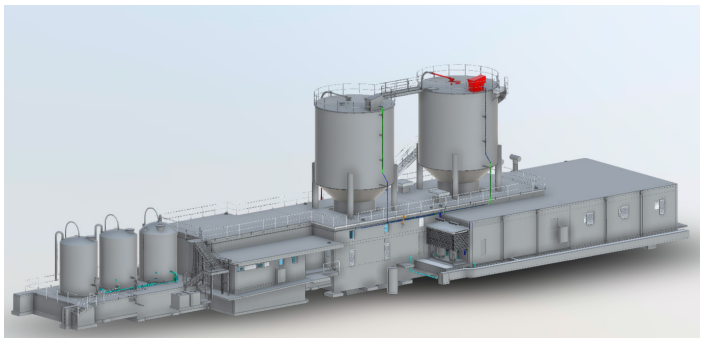
This project includes a complex rehabilitation and hardening of the building as well as replacement of the process mechanical equipment, electrical, and instrumentation and controls. The implementation of rehabilitation and improvement elements require extensive coordination with the City staff and multidisciplinary system to maintain systems in operation at all times during construction.

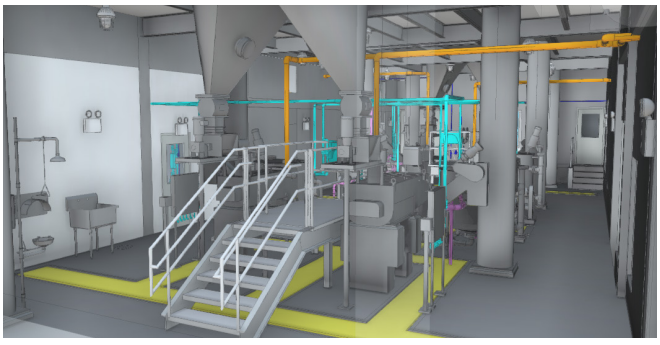
In addition to design engineering services, Hazen is providing construction management services. The estimated construction cost is $21 million with a construction duration of 27 months.

Project Duration
02/2022–Present (design-bidding)
04/2024–Present (construction)

Project Cost
$2 million (fee)
$21 million (est. construction)

Client Reference
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1021-728



Relevance to Pembroke Pines

- Improved safety for operators by separating chemicals and installing safeguards
- Maintenance of plant operations during construction (MOPO) was developed to allow demolition activities and new construction to take place without interfering with the water production activities

East Water Treatment Plant Chemical Storage Facility

Plantation, FL

Hazen provided design, permitting, and construction management services for the replacement of chemical storage and feed facilities at the City of Plantation's East WTP.

The City of Plantation's East Water Treatment Plant (WTP) utilizes several chemicals as part of the overall treatment process, including antiscalant, sodium hydroxide, corrosion inhibitor, sequestrant, sodium hypochlorite and fluoride. These chemical systems were designed as part of the original membrane plant design under prior building code requirements and as such required improvement and/or relocation to achieve current code requirements. Additionally, outdoor located sodium hypochlorite and sodium hydroxide chemical systems were relocated indoors to improve utilities infrastructure and harden against adverse conditions.

To meet the City's budget, the project was bid and awarded in two phases. Phase I included the fluoride chemical storage and feed facility and Phase II including all remaining chemical storage and feed facilities. The project included:

- Separation of the existing chemical storage area within the membrane building into three separate, ventilated chemical storage rooms. Each room was provided with proper ingress/egress, adequate ventilation, and safety provisions
- Replacement of six chemical storage and feed systems
- Modifications to existing chemical injection points
- Replacement of ancillary equipment, including electrical and instrumentation and control for the six chemical systems and chemical rooms
- Structural and architectural improvements for the three new chemical rooms
- Demolition and removal of existing chemical storage and feed facilities
- Development of WTP Maintenance of Operations Plan

Phase I construction was completed in December 2021. Phase II construction was completed in May 2024.

Project Duration
05/2017–09/2019 (Design)

03/2020–12/2021 (Construction Management Services – Phase I)

01/2022–05/2024 (Construction Management Services – Phase II)

Project Cost
$290,780 (Design)

$298,790 (Construction Management Services – Phase I)

$533,270 (Construction Management Services – Phase II)

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1021-728



Relevance to Pembroke Pines

- Full range of engineering and construction services
- Rehabilitation of existing filter infrastructure
- Water treatment plant condition evaluation
- Development of a highly complex and detailed sequence of construction to ensure maintenance of plant operations

Fiveash Water Treatment Plant Upgrades

Fort Lauderdale, FL

Hazen was retained to design, permit, assist with bidding, and provide services during construction for upgrades at the City's 70-mgd Fiveash WTP. The WTP is a conventional lime softening plant treating groundwater.

Hazen evaluated the condition of the WTP. The evaluation included raw water supply, wellfield and transmission system improvements, concentrate disposal alternatives, lime solids disposal alternatives for existing lime softening facilities, and additional improvements to maintain the reliability of existing lime softening facilities.

Work performed under Phases I-III is highlighted in the paragraphs that follow.

Reliability Upgrades – Phase I: Phase I upgrades were critical to maintaining the reliability of the existing lime softening process. Phase I construction was completed in 2009. Improvements included the north high-service pump replacement, 60-inch clearwell interconnect, filter control upgrade, lime system upgrade, hydrotreator influent valve modifications, coagulant polymer system upgrade, flow meter replacement for high-service pumps 12-16, and lime sludge pump station replacement.

Reliability Upgrades and Disinfection System – Phases II and III: Phase II and III design was completed in 2019. Improvements included weatherproofing improvements, plant air system piping replacement, two new 1.5 megawatt diesel engine generators, outdoor switchgear replacement, control upgrades for high-service pumps 6-16 and transfer pumps 1-3 and 6, chlorine system replacement, lime fill system, plant air, vacuum priming, diesel air start system replacements, operations building renovations, and plant control system replacement. Phase II and III was not constructed due to the City's budget and their decision to replace Fiveash WTP with a new plant constructed at another location.

Filter Rehabilitation: Hazen provided design, permitting, bidding, and construction management services for rehabilitation of 12 filters at the Fiveash WTP. This project, completed in multiple phases, included the following: removing and replacing the existing filter media; removing and replacing the underdrains; removing and replacing all internal piping and media agitators.

Hazen provided services during construction of the Reliability Upgrades – Phase 1 and the Filter Rehabilitation projects. The complexity of construction required nearly four years to reach substantial completion.

Project Duration
Phase I: 2001–2009
Phases II and III: 2004–2019
Filter Rehabilitation: 2005–2008

Project Cost
Phase I: $2.5 million (fee); $12.5 million (construction)
Phases II and III: $4.2 million (fee)
Filter Rehabilitation: $262,500 (fee); $3.3 million (construction)

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1021-728

Hazen



Relevance to Pembroke Pines

- Experience with operation of lime softening facility
- Ability to remove PFAS
- Water quality/process evaluation
- Design, permitting, and pilot testing oversight services for a new facility
- Developed sequence of construction to ensure maintenance of plant operations

14.5-mgd Nanofiltration Facility (Expandable to 17 mgd)

Jupiter, FL

Hazen designed the nanofiltration (NF) facility to replace the lime softening facility and blend with the Town of Jupiter's reverse osmosis (RO) plant. Hazen's center port design saves the Town 30% in annual electrical costs for the facility.

The Town operated a water treatment plant with three independent treatment processes: lime softening, ion exchange, and RO. The Town planned to add an NF facility to produce potable water from the surficial aquifer. The NF treatment will continue ongoing product water quality improvement and, ultimately, allow retirement of a portion of the lime softening treatment plant. The Town requested that the design include the center port arrangement, an innovative technology not previously used in the U.S.

Predesign activities for the project included preparation of 22 separate technical memoranda (TM) and review of the Town's pilot testing data. These documents were developed to identify design parameters for the new NF facility. The TM were developed with Town input and continuous review concurrently with the Town's pilot testing of NF elements.

The design included preparation of contract documents for construction of the new NF facility's ancillary facilities. This bid package included detailed design drawings and technical specifications that incorporated:

- Pretreatment Facilities (including Pressure Media Filters and Booster Pumps)
- Raw Water Booster Pump Station and Backwash Waste Pump Station
- Cartridge Filtration and Membrane Feed Systems
- NF Skids
- Chemical Storage and Feed Facilities
- Degasifiers and Odor Control System
- Clearwell and Transfer Pumps
- NF Building

The predesign TM were completed in January 2005. Hazen completed the design of the Jupiter NF plant in January 2007, with construction and start-up complete by October 2010. Total construction costs for the facility were $37 million.

Project Duration
01/2005–01/2007 (design)
03/2007–10/2010 (construction)

Project Cost
$2 million (fee)
$37 million (construction)

Client Reference
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1021-728



Relevance to Pembroke Pines

- Craven Thompson & Associates, Inc. and Hazen have collaborated on detailed design projects for over four decades, which ensures rapid and efficient design development
- This benefits the City of Pembroke Pines because efficient design development means less money spent on engineering, and more money spent on infrastructure
- Experience with complete survey of a water treatment plant, including piping and underground utility locations

Winson Water Treatment Plant Upgrade and Well Sites Survey and Landscape Architecture

North Miami, FL

Craven Thompson & Associates, Inc. provided boundary and topographic survey and landscape architecture/tree disposition plans for the City of North Miami's Winson Water Treatment Plant site as a sub to Hazen.

The survey included a complete survey for design purposes of all of the improvements on the site, including underground utility locations on site and within the adjacent roadways. The landscape architectural services included tree disposition (relocation) plans, landscape, and hardscape plans.







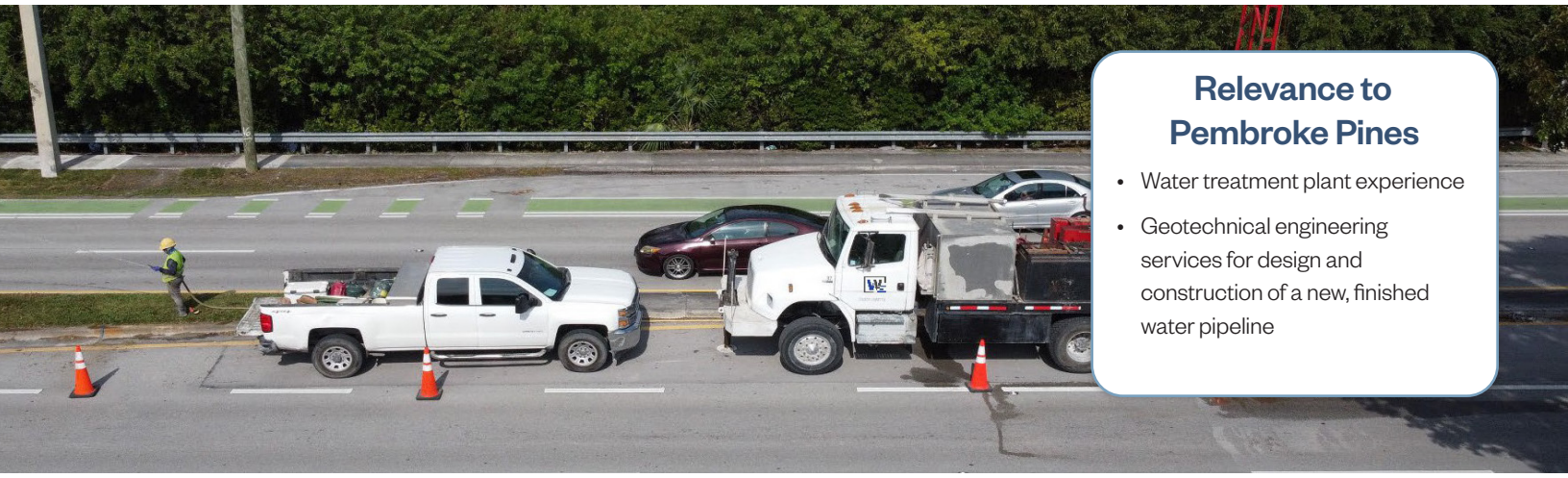


Project Duration
01/2010 - 04/2024

Project Cost
$91,500 (fee)

Client Reference
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Utility Operations Center
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1021-728



Relevance to Pembroke Pines

- Water treatment plant experience
- Geotechnical engineering services for design and construction of a new, finished water pipeline

54-inch Finished Water Line from Prospect Clean Water Center to the Fiveash Water Treatment Plant

Fort Lauderdale, FL

The project includes design and construction of a new 54-inch-diameter finished water pipeline (approximately 3.75 miles) from the new Prospect Clean Water Center to the Fiveash WTP.

The pipeline will be installed using a combination of open cut, jack and bore, and horizontal directional drilling (HDD) methodology.

The field exploration program consisted of performing 16 Standard Penetration Test (SPT) borings – five to depths of 20, seven to depths of 45 feet, and four to depths of 70 feet below the existing ground surface.

WIRX also prepared a Temporary Traffic Control (TTC) Plan and provided TTC equipment, including signs, cones, and flaggers for traffic control and safety purposes.

Soil samples were classified in general accordance with ASTM D 2488. Laboratory tests consisting of moisture content tests (ASTM D 2216), organic content tests (ASTM D 2974), mechanical grain size analysis (ASTM D 422), and percent of material passing through No. 200 tests (ASTM D 1140) were conducted to aid in soil classification for engineering purposes in accordance with ASTM D 2487.

WIRX provided a Geotechnical Services Report, which includes detailed graphical logs of the soil borings, groundwater levels, subsurface soil stratigraphy, and classifications. WIRX also provided engineering recommendations for the proposed HDD crossing, pavement restoration and for various components of the project, including clearing and grubbing; excavation safety; select fill composition, placement and compaction criteria; underground utilities construction; site and subgrade preparation; and protection of the existing structure.

Project Duration
12/2023–03/2024 (design)

Project Cost
$81,400 (fee)

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Plantation, FL 33324
(954) 414-9016
jose.custodiohernandez@arcadis.com

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Relevance to Pembroke Pines

- Geotechnical engineering services
- Laboratory testing
- Utility design and construction recommendations

Powerline Road & NW 33rd Street Stormwater Improvements

Pompano Beach, FL

The project consists of stormwater improvements on NW 33rd Court, NW 33rd Street, and NW 32nd Street, immediately to the east of Powerline Road.

The field exploration program consisted of obtaining six Pavement Cores from the existing roadways to determine the thickness and nature of the pavement section. Work also included performing six SPT borings to depths of 10 feet to determine the subsurface conditions and measurement of the groundwater level at each of the drilled boreholes. WIRX also performed two South Florida Water Management District (SFWMD) exfiltration tests within 10 feet of the deep boreholes to obtain soil hydraulic conductivity values for others to use in the design of drainage facilities. The tests were performed in accordance with the methods described in the SFWMD Permit Information Manual, Volume IV.

Soil samples were classified in general accordance ASTM D 2488. Laboratory tests consisting of moisture content tests (ASTM D 2216), organic content tests (ASTM D 2974), mechanical grain size analysis (ASTM D 422), and percent of material passing through No. 200 tests (ASTM D 1140) were conducted to aid in soil classification for engineering purposes in accordance with ASTM D 2487.

WIRX provided a Geotechnical Services Report, which includes the detailed graphical logs of the soil borings, groundwater levels, subsurface soil stratigraphy, and classifications. WIRX also provided engineering recommendations for the proposed horizontal direction drilling crossing, pavement restoration, and for various components of the project including clearing and grubbing; excavation safety; select fill composition, placement, and compaction criteria; underground utilities construction; site and subgrade preparation and protection of the existing structure.

Project Duration
03/2024–04/2024 (design)

Project Cost
$15,000 (fee)

Client Reference
Jeffrey Hiscock, PE
Associate Vice President/
Stormwater Dept. Manager
Baxter Woodman
1601 Forum Place, Suite 400
West Palm Beach, FL 33401
(561) 425-7760
jhiscock@baxterwoodman.com

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Relevance to Pembroke Pines

- Familiarity with Pembroke Pines' electrical systems
- Increased reliability by adding redundancy
- Additional easy generator connection point by installing quick connect box
- Replace aging equipment
- New LED lighting for electrical room

Pembroke Pines Water Treatment Plant Electrical Improvements and Hurricane Hardening

Pembroke Pines, FL

Hillers Electrical Engineering, Inc. is providing the electrical and instrumentation & control design and construction services for the City of Pembroke Pines Water Treatment Plant Electrical Improvements and Hurricane Hardening project.

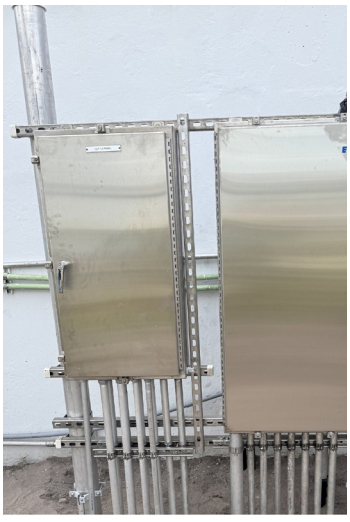
Project Highlights:

- Replacement of aging main switchboards, automatic transfer switches (ATS), main breaker and generator parallel switchboard with new main breaker, ATS, and switchboards
- Design the replacement of electrical equipment while keeping the plant in operation
- Design new manual transfer switches with portable generator quick connection boxes in case of emergency generator failure
- Design replacement of outdoor motor control center with redundant power feeds to improve reliability and redundancy
- Design new LED lighting, new HVAC system, new convenient power outlets, new overhead wireways, etc. for the main electrical room.

Project Duration
02/2022–07/2023 (design)
02/2024–Present (construction)

Project Cost
$138,795 (fee)
$4.2 million (construction)

Client Reference
George Wrves, PE
Assistant Utility Director
City of Pembroke Pines
8300 South Palm Drive
Pembroke Pines, FL 33025
(954) 435-7979
gwrves@ppines.com



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Relevance to Pembroke Pines

- Familiarity with Pembroke Pines' electrical systems
- Designed new CO_2 system
- Additional control for hypo metering pumps from SCADA
- Added CO_2 dilution system to existing treatment unit

Pembroke Pines Water Treatment Plant Sodium Hypochlorite Rehabilitation and CO_2 Injection System

Pembroke Pines, FL

Hillers Electrical Engineering, Inc. provided the Instrumentation and Control, SCADA, and Electrical Design and Construction Services for the Rehabilitation of the Sodium Hypochlorite and CO_2 Injection System at the Water Treatment Plant.

Project Highlights:

- Replacement of existing Sodium Hypochlorite metering pumps, bulk storage tank, and transfer pump.
- Update SCADA system for monitoring and control for Hypochlorite system.
- Design power and controls for temporary CO_2 system.
- Design power and controls for permanent new CO_2 storage tank and CO_2 feed panels for monitoring and control of CO_2 injection into the water system.
- Design power and controls for existing and new instruments associated with new CO_2 system.

Project Duration
02/2018–03/2019 (design)

Project Cost
$80,447 (fee)
$1.8 million (construction)

Client Reference
George Wrves, PE
Assistant Utility Director
City of Pembroke Pines
8300 South Palm Drive
Pembroke Pines, FL 33025
(954) 435-7979
gwrves@ppines.com







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Additional Information

Experience of the Project Team



Experience of the Project Team

A Proven Team, Built for Pembroke Pines—Local Leadership, National Expertise, Reliable Results

Trusted Project Leaders Focused on the City's Success

We have assembled a highly qualified team to serve the City of Pembroke Pines, as shown in the organizational chart on the next page. Our team emphasizes clear and direct communication between key Hazen staff and the City, ensuring streamlined coordination and responsiveness throughout the project. We understand that clients select consultants based on the strength of the proposed team, and we are proud to present individuals who will actively work on your project—what you see is what you get. Many of our team members have a long history of working together, with relationships spanning more than 20 years, and are primarily based in South Florida, offering the City ready access to experienced engineering, construction management, and inspection staff.

Our project leadership team consists of seasoned professionals who have successfully delivered similar projects together. **Janeen Wietgrefe, PE, PMP,** will serve as Project Director, bringing deep experience in lime softening replacement and PFAS treatment. **Monique Durand, PE,** will lead day-to-day efforts as Project Manager, supported by **Jayson Page, PE,** as Deputy Project Manager. Their leadership is reinforced by a team of technical experts across all key disciplines.

The City Of PEMBROKE PINES Florida

Ms. Durand will serve as the **primary contact on this project.**



29 **years** of experience

Janeen Wietgrefe, PE, PMP
Project Director



19 **years** of experience

Monique Durand, PE
Project Manager



27 **years** of experience

Jayson Page, PE
Deputy Project Manager

Ms. Wietgrefe, Ms. Durand, and Mr. Page will remain on the project throughout the term of the contract, and will be responsible for the following:

- Direction of all work
- Review of all work
- Approval of all work
- Program administration for contract compliance
- Interpretation of scope
- Project budget
- Coordination with City staff

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Organizational Chart

Locally-Based Team Leadership: 75% of our project team leads are based in the Tri-County area.

Core leadership—including the PM, PD, Deputy PM, and Lead Technical Advisor—is located in Broward and Miami-Dade, with several team members in Hollywood, just 7 miles from Pembroke Pines.

The City Of PEMBROKE PINES Florida

QA/QC; Technical Advisory Committee
Patricia Carney, PE
Erik Rosenfeldt, PhD, PE*
Paul Biscardi, PhD, PE
Nicole Blute, PhD, PE*
Conner Murray, PhD, PE*
Darren Lytle, PhD, PE*

Project Director
Janeen Wietgrefe, PE, PMP

Project Manager
Monique Durand, PE

Deputy Project Manager
Jayson Page, PE

Planning and Design

Ion Exchange Process / Mechanical
Alex Rahimian-Pour, PE*
Tyler Davis, PE
Taima Kayali, EI

Lime Softening Process / Mechanical
George Brown, PE
Jayson Page, PE
Monica Pazahanick, PE

Filter Process / Mechanical
George Brown, PE
Jennifer McMahon, PE
Taima Kayali, EI

Hydraulics
Guillermo Regalado, PE
Nandita Ahuja, PE

PFAS Management
Jayson Page, PE
Nathan Rothe, PE

Corrosion Control
Becki Rosenfeldt, PE*
Roger Arnold, PE*

Storage / Pumping Systems and Pipelines
George Brown, PE
Jennifer McMahon, PE
Zack Farmer, PE

Site Civil / Stormwater
David Bannett, PE, LEED AP
Lucia Medina, PE

Electrical
John Burke, PE
Jose Cano, PE
Thein Win, PE[3]

Instrumentation and Automation
Evan Curtis, PE
Alfredo Jimenez

Structural / Architecture
Jean Paul Silva, PE, FRSE
Samuel Smith, PE
William Russell, RA, AIA, LEED AP

Support Services

Grants / Funding
Sharon Simington

Permitting/ Regulatory Compliance
Marta Alonso, PE, ENV SP
Monique Durand, PE
Michael Robinson, EI

Cost Estimating and Scheduling
Rose Jesse, CPE
Tom Zakrzewski, PSP

Survey / Mapping / Subsurface Utility Investigation
Richard Crawford[1]

Bidding Services
Tyler Davis, PE
Daniela Diaz, PE

Geotechnical
Andrew Nixon, PE [2]

BIM / CADD
Jason Johnson
Michael Niemiec

Communications / Public Outreach
Jeffrey Neale
Stephanie Ishii, PhD, PE, ENV SP

Plant Optimization and Efficiency

Operations and Start-up Assistance
Tyler Davis, PE
Paul Biscardi, PhD, PE

Process Optimization and Pilot Testing
Bahareh Tajdini, PhD
Nathan Rothe, PE

Treatment Plant Operations Manual / Dashboard
Nathan Rothe, PE

Construction Services

Construction Management / Inspections
Elie Andary, PhD, PE
Adrian Myrie, EI
Darius Manikas

Sequence of Construction / Maintenance of Plant Operations
Elie Andary, PhD, PE
George Brown, PE



Progress Together, **Deliver** Together

- **Tailored expertise** from completing the most lime softening retrofits in South Florida
- **Proven PFAS solutions**, with over 40 ion exchange systems designed across the U.S.
- **Rapid response and local support** from 140 staff based in South Florida—the region's largest water design center
- **Deep community connection**, with a Project Director who has called Pembroke Pines home for 24 years
- **Shared history and trust**, built through decades of collaboration on local treatment projects
- **Smarter designs**, informed by in-house modeling and IX media testing capabilities
- **Faster implementation**, backed by a track record of success with permitting, funding, and regulatory compliance

Subconsultants
1. Craven Thompson & Associates, Inc.
2. WIRX Engineering, LLC ** (SBE, DBE, MBE)
3. Hillers Electrical Engineering, Inc.

* Licensed in a state other than Florida
** Certified Minority, Small, County, and/or Woman Business Enterprise

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Proven Leaders With Unmatched Local PFAS and Lime Softening Retrofit Experience

Leading South Florida in PFAS Solutions and Lime Softening Modernization

Key Team Members

This section includes brief bios of select key team members, while full SF330 Section E resumes have been uploaded to OpenGov. Additional staff bios can be found in our online questionnaire.

Project Director

Janeen Wietgrefe, PE, PMP



Ms. Wietgrefe has extensive experience designing, piloting, and overseeing construction of South Florida water treatment plants, including those involving or replacing lime softening. She has served as Lead Process Mechanical Engineer, Project Manager, Project Director, and Design Manager.

- Ms. Wietgrefe's PFAS experience in South Florida—leading evaluations, pilot testing, and alternative analyses for multiple utilities—equips her to guide the City in selecting cost-effective, site-specific treatment solutions that address regulatory compliance and operational challenges.
- Has designed and/or managed water treatment plant projects in South Florida since 2001 and will utilize this experience to identify and avoid potential issues on the City's project.



City of Fort Lauderdale Prospect Lake Clean Water Center

- Project Manager for Owner's Representative services on the $700 million Prospect Lake Clean Water Center, overseeing design reviews, permitting coordination, risk management, and construction/startup support.



City of Margate PFAS Study and Pilot Testing

- Project Director for the City of Margate's PFAS Management Plan, overseeing evaluation and pilot testing of treatment alternatives to inform full-scale design recommendations.



City of Hollywood PFAS Removal Regulatory Compliance Evaluation

- Project Director for the City's PFAS removal alternatives comparison, leading the development of decision criteria and overseeing the analysis to select the optimal treatment technique.



Town of Jupiter 14.5-mgd Nanofiltration Facility

- As Project Manager, led Hazen's design of a nanofiltration facility to replace the lime softening plant and integrate with Jupiter's RO system—achieving a 30% reduction in annual electrical costs through an innovative center port design.

"As a 24-year resident of the City and a proven expert in advanced treatment solutions—including PFAS removal and lime softening replacement—you have my personal and professional commitment to ensuring this critical water quality upgrade is delivered as a high quality project while achieving the City's time and budget requirements." - Janeen Wietgrefe, PE, PMP

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Experienced Water Treatment Leader Specializing in PFAS Solutions to Help the City Achieve Compliance and Protect Public Health

Project Manager **Monique Durand, PE**



Ms. Durand has 19 years of experience and **currently leads PFAS evaluations, pilot testing and alternatives analyses treatment projects for the Cities of North Lauderdale, Plantation, Margate, and Hollywood**. She has managed multi-disciplinary teams in the planning, design, permitting, bidding, and construction of water treatment facilities, including projects addressing Lead and Copper Rule compliance, simultaneous groundwater rule and DBPs compliance, master planning, and water supply evaluation. She has also served as Lead Process Mechanical Engineer on chemical system upgrades for water treatment plants in Florida, including City of Plantation and Deerfield Beach. Aside from her engineering expertise, Ms Durand excels at client communication and successful project management which will ensure that the City's IX addition for PFAS compliance is successfully completed on-time and on-budget.

- **Project Manager/Lead Engineer** on multiple projects, including the Cities of North Lauderdale, Plantation, Deerfield Beach, and Hallandale Beach, and Broward County to name a few.



City of Hollywood WTP Upgrades for PFAS Compliance

- Project Manager for the City of Hollywood's multi-phase PFAS treatment project, leading planning, design, construction, and startup services to upgrade the WTP and achieve compliance with regulatory limits.



City of North Lauderdale Engineering Services for Water Treatment Plant Improvement

- Project Manager overseeing PFAS treatment planning and design for the City's lime softening WTP, including water quality analysis, pilot testing, process evaluation, detailed design, permitting, and funding assistance.



City of Margate PFAS Study and Pilot Testing

- Serves as Project Manager for the City of Margate PFAS Management Plan, leading evaluation and pilot testing of treatment technologies to inform full-scale design recommendations.



City of Plantation PFAS Outreach Campaign

- Project Manager for the planning, management, and materials development to assist with public communications support regarding PFAS.



City of North Miami Winson WTP PFAS Management

- Technical Reviewer for pilot testing and development of the PFAS Management Plan to evaluate treatment alternatives and guide the City of North Miami's response to elevated PFAS levels.



City of Fort Lauderdale Prospect Lake Clean Water Center

- Mechanical Design Reviewer supporting technical design reviews, permitting coordination, and risk management as part of Hazen's owner's representative team for the City of Fort Lauderdale's new 50-mgd Prospect Lake Clean Water Center.



City of Fort Lauderdale Fiveash WTP Reliability Upgrades

- Mechanical Design Reviewer supporting design and construction of phased reliability upgrades and filter rehabilitation at the City's 70-mgd Fiveash WTP. The WTP is a conventional lime softening plant treating groundwater.



City of Deerfield Beach West WTP Chemical Systems Replacement

- Project Manager and Lead Mechanical Engineer for the design of upgrades to chemical systems, including NF and RO chemical facilities. Responsible for the overall project management and multi-disciplinary design coordination.

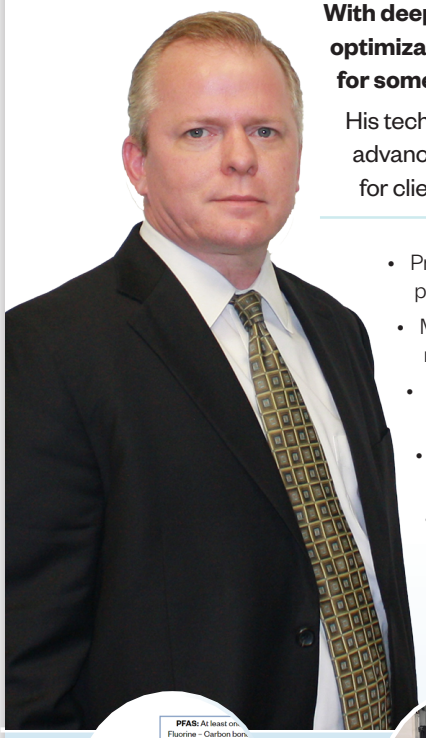
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Ms. Durand has the technical expertise and leadership the City needs to implement a proven, cost-effective PFAS solution.

Expert in Lime Softening and Advanced Treatment for South Florida Water Facilities

Deputy Project Manager

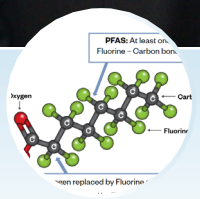
Jayson Page, PE



With deep process engineering expertise, Mr. Page has led major upgrades and optimizations—including bench-, pilot-, and full-scale lime softening systems—**for some of the largest and most complex facilities in South Florida.**

His technical expertise includes water process design, PFAS management, advanced water/wastewater technologies, operations assistance, and pilot testing for clients throughout South Florida.

- Project Manager for MDWAD's John E. Preston WTP, one of the largest lime softening plants in the world, featuring process conversion for regulatory compliance (D/DBP Rule)
- Mr. Page performed several pilot and full-scale studies for process improvements to remove total organic carbon at WASD's 165-mgd John E. Preston Lime Softening WTP.
- Directed Miami-Dade WASD water management strategy for PFAS, wellfield management, and treatment options.
- Serves as Technical Advisor for the City of North Miami Winson WTP Pilot and PFAS Management Plan.
- Experience includes feasibility and pilot plant studies involving state-of-the-art drinking water treatment technology relating to organic contaminants, disinfection, disinfection by-products, and corrosion by-products.
- Conducted bench- and pilot-scale testing to optimize water quality for the Miccosukee Tribe of Indians of Florida's WTP.



Miami-Dade Water and Sewer Department (MDWASD) PFAS Management Plan

- As Project Director, Mr. Page led Hazen's support for Miami-Dade in addressing PFAS in wellfield supply, analyzing occurrence patterns, wellfield management, and treatment options to reduce PFAS levels in drinking water.



City of North Miami Winson WTP Pilot and PFAS Management Plan

- Technical Advisor for Hazen's $350K PFAS pilot study, testing GAC, IX, and FLUORO-SORB® to assess breakthrough times and inform full-scale treatment costs and compliance strategies through EPA partnership.



MDWASD John E. Preston Water Treatment Plant Bench-Scale Testing

- Project Manager for a project to develop, design, construct, and operate lime-softening bench-, pilot-, and full-scale systems for WASD to meet stringent TOC, DBP, and color limits for Biscayne Aquifer compliance.



Seminole Tribe of Florida Hollywood Reservation WTP Improvements

- Project Manager for $1.3M membrane softening facility upgrades at STOF's Hollywood Reservation, including acid system replacement, well improvements, and new engine-driven high service pump installation.

Mr. Page brings extensive expertise in repurposing aging water treatment plants with modern processes,
delivering cost and time savings.

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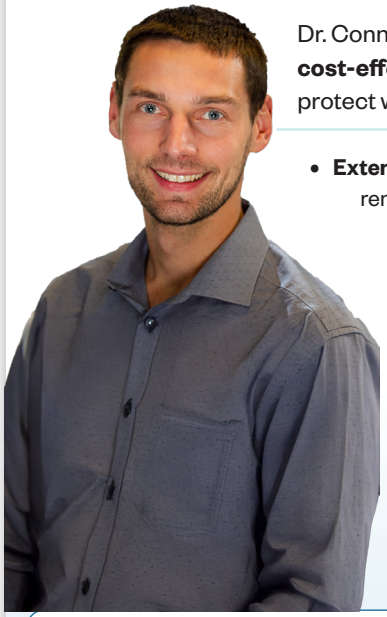
National IX Expert with Local PFAS Insight

Conner Murray, PhD, PE, is a PFAS treatment expert with national project experience and a focus on adsorption, residuals management, and treatment optimization. In South Florida, he has led PFAS piloting and planning for Miami-Dade's major groundwater facilities, including evaluation of GAC, ion exchange, and membrane technologies. At North Miami's Winson WTP, for the City's PFAS Management Plan, he is supporting a yearlong PFAS adsorbent pilot program which includes IX with design and costing of full-scale pressure vessel systems.

Having contributed to a variety of IX testing programs in South Florida, Dr. Murray's role in pilot design and technical guidance equips the City with scalable, practical PFAS treatment solutions tailored to local water conditions. Dr. Murray has contributed to applied research efforts associated with PFAS treatment with IX including examining the cost of IX treatment for short-chain PFAS removal as well as the impact of hazardous designations on spent IX disposal.

Technocal Advisor

Dr. Conner Murray



Dr. Conner Murray's ion exchange expertise and pilot testing experience enable **cost-effective, tailored PFAS treatment solutions** that ensure compliance and protect water quality.

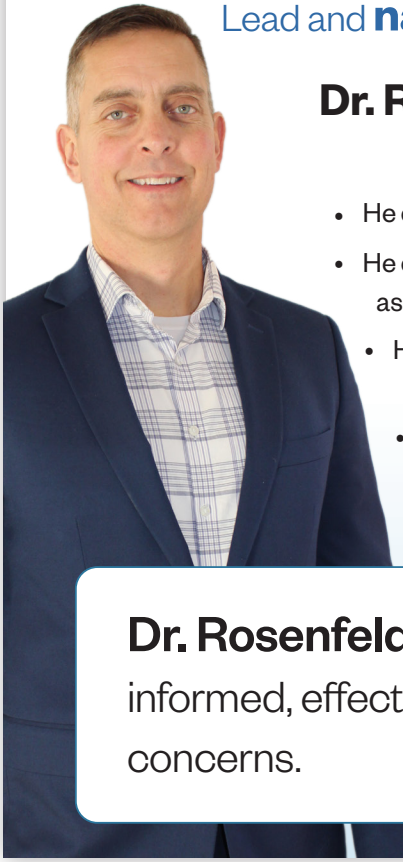
- **Extensive IX Experience:** Designed and piloted ion exchange systems for PFAS removal at more than a dozen utilities, ensuring proven, effective treatment for Pembroke Pines.
- **Data-Driven Design:** Has contributed to the development of advanced PFAS adsorption models which enables rapid simulation of PFAS treatment longevity as a function of water quality. These desktop modeling approaches ultimately save time and money associated with determining treatment longevity.
- **Regulatory Insight:** Guides compilance for Pembroke Pines to achieve compliance with the PFAS MCL while managing risk associated with PFAS spent IX disposal and potential corrosion control impacts of treatment upgrades.

Dr. Murray's extensive ion exchange and water treatment expertise will provide valuable insight to help the City tackle PFAS.

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National PFAS Expert with Deep Understanding of Local Treatment Nuances

Our team is strengthened by our national experts, including Erik Rosenfeldt, PhD, PE, Hazen's Corporate Drinking Water Practice Lead and **nationally-recognized PFAS expert.**



Dr. Rosenfeldt provides VALUE

to Pembroke Pines

- He can leverage industry-leading PFAS research for the City.
- He can leverage Hazen's national PFAS experts to assist the City with any aspect of treatment or management.
- He will engage with the City as his priority PFAS client to provide superior technical service with a collaborative spirit.
- Has been actively engaged in local South Florida PFAS piloting programs at Miami-Dade and North Miami and understands the nuances of PFAS treatment at the local level.

Dr. Rosenfeldt will support the City in developing informed, effective solutions for PFAS and other emerging concerns.

Our team will help ensure Pembroke Pines stays ahead of evolving PFAS regulations and treatment challenges.

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Why Hazen?

A Proven Team, Built for Pembroke Pines. Local Leadership. National Expertise. Personal Commitment.

Hazen's team combines deep roots in South Florida with national leadership in PFAS and advanced treatment. We have assembled seasoned professionals who have successfully delivered similar projects together—and who know your water system, your regulatory environment, and your priorities. With Janeen Wietgrefe, PE, PMP, a 24-year resident of the City, leading the team, you will benefit from a personal and professional commitment to your success. Our approach is grounded in strong relationships, proven collaboration, and unmatched technical depth.



29 years of experience

Janeen Wietgrefe, PE, PMP
Project Director



19 years of experience

Monique Durand, PE
Project Manager



27 years of experience



Progress Together, **Deliver** Together

- **Tailored expertise** from completing the most lime softening retrofits in South Florida
- **Proven PFAS solutions**, with over 40 ion exchange systems designed across the U.S.
- **Rapid response and local support** from 140 staff based in South Florida—the region's largest water design center
- **Deep community connection**, with a Project Director who has called Pembroke Pines home for 24 years
- **Shared history and trust**, built through decades of collaboration on local treatment projects
- **Smarter designs**, informed by in-house modeling and IX media testing capabilities
- **Faster implementation**, backed by a track record of success with permitting, funding, and regulatory compliance

The team you see here is the team that will deliver—
ready to get to work on day one.

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Additional Information

Firm's Understanding and Approach to the Work



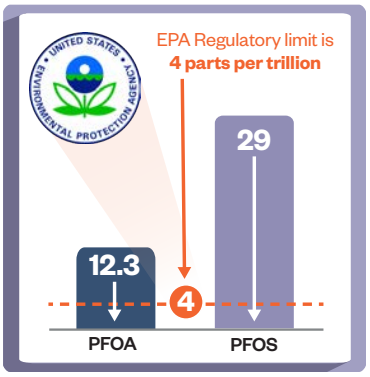




Firm's Understanding and Approach to the Work

The Hazen team's approach includes the design of an ion exchange treatment system, without water treatment plant interruption, to remove PFAS to below the National Primary Drinking Water Regulations.

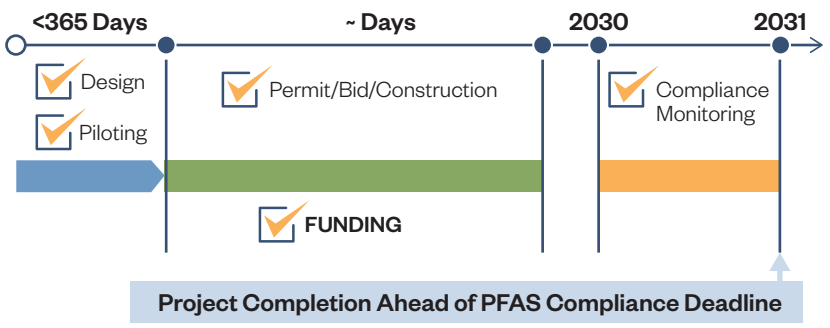
The City of Pembroke Pines has successfully maintained and operated its Water Treatment Plant for over 60 years. The City's water treatment plant has historically operated as a low cost lime softening facility with regenerable fixed-bed ion exchange (FIX), capable of reducing regulated contaminants to below US EPA regulatory limits. The recent PFAS results show that – like many other utilities reliant on the Biscayne Aquifer in southeast Florida – the City's water supply is contaminated with PFAS (specifically PFOA and PFOS), known in the media as "forever chemicals." On April 10, 2024, the U.S. EPA finalized the National Primary Drinking Water Regulation (NPDWR) for six PFAS compounds, setting enforceable Maximum Contaminant Levels (MCLs) of 4 ppt for PFOA and PFOS, along with a Hazard Index approach for PFHxS, GenX, PFNA, and PFBS. Public water systems were initially required to achieve compliance by 2029.



Average Pembroke Pines finished water PFOA and PFOS concentrations (in parts per trillion)

However, on May 14, 2025, the EPA announced its intent to extend the compliance deadline to 2031 for PFOA and PFOS, in response to widespread feedback from utilities and stakeholders about the challenges of meeting the original timeline. This extension aims to give utilities additional time to plan, pilot, and implement treatment systems while minimizing financial burden. Simultaneously, EPA plans to rescind and reconsider the regulatory determinations for PFHxS, PFNA, HFPO-DA (GenX), and PFBS, and hazard index to ensure legal consistency under the Safe Drinking Water Act, signaling a more phased and flexible regulatory approach to PFAS in drinking water.

The City's existing lime softening water treatment infrastructure cannot remove these contaminants. Hence, the City is faced with a major investment decision to upgrade its water treatment infrastructure to achieve PFAS compliance by the second quarter of 2031. This supports the City's decision to expand its existing FIX system for additional total organic carbon removal (TOC) and to incorporate an 18-mgd maximum day single-use selective ion exchange system for effective PFAS removal.



The City of PEMBROKE PINES

Hazen will prepare the piloting and design in the first 365 days while procuring funding for construction.

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The City provided a PFAS Treatment Feasibility Evaluation document as part of the Request for Qualification (RFQ), which outlines the project objectives and current conditions of the water system, and includes a final recommendation for WTP improvements to achieve PFAS compliance. Additionally, members of the Hazen team attended a meeting and site visit on Monday, November 18, 2024, as well as a pre-bid meeting on Wednesday, May 14, 2025, to gather first-hand information regarding the project.

Goals and Objectives for the IX Addition to the WTP for PFAS Removal Project

- Improve the finished water quality by adding a single use ion exchange to achieve PFAS compliance.
- Expand the existing regenerable fixed bed ion-exchange (FIX) system for additional TOC/color removal.
- WTP optimization to improve resin performance of the FIX system.
- Improve system hydraulics to provide City's desired operational flexibility and reliability of the WTP.
- Provide flexibility to comply with current and future FDEP and EPA drinking water standards and operational requirements, 4-log certification, and lead and copper rules.
- Improve the resilience and sustainability of the water infrastructure.
- Minimize impacts to public health and demonstrate environmental stewardship.

To achieve its goals, the City is soliciting the services of a qualified full-service engineering firm to provide engineering services to complete the project including:

- ✓ Site Visits (Task 1)
- ✓ Data Collection (Task 1)
- ✓ Testing (Task 1)
- ✓ Water Treatment Process Design (Task 2)
- ✓ Electrical Engineering Design Services (Task 3)
- ✓ Instrumentation and Control Engineering Design Services (Task 3)
- ✓ Structural Engineering Design Services (Task 3)
- ✓ Geotechnical Engineering Design Services (Task 2)
- ✓ Sub-surface Utility Locations (Task 2)
- ✓ Cost Estimating (Task 3)
- ✓ Permitting (Task 4)
- ✓ Bidding Support (Task 4)
- ✓ Engineering Services during Construction (Task 5)
- ✓ Final Certification (Task 5)

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By partnering with Hazen, the City will benefit from our extensive experience and expertise in all the areas of service requested in the RFQ, as well as our proven cost-effective approach to treating emerging contaminants of concern, including PFAS, and their downstream impacts.

Our goal is to create a long-term partnership with the City
that goes beyond the completion of this project and that supports your vision and mission for a future resilient drinking water system that is easy to maintain and operate.



Progress Together, **Deliver** Together

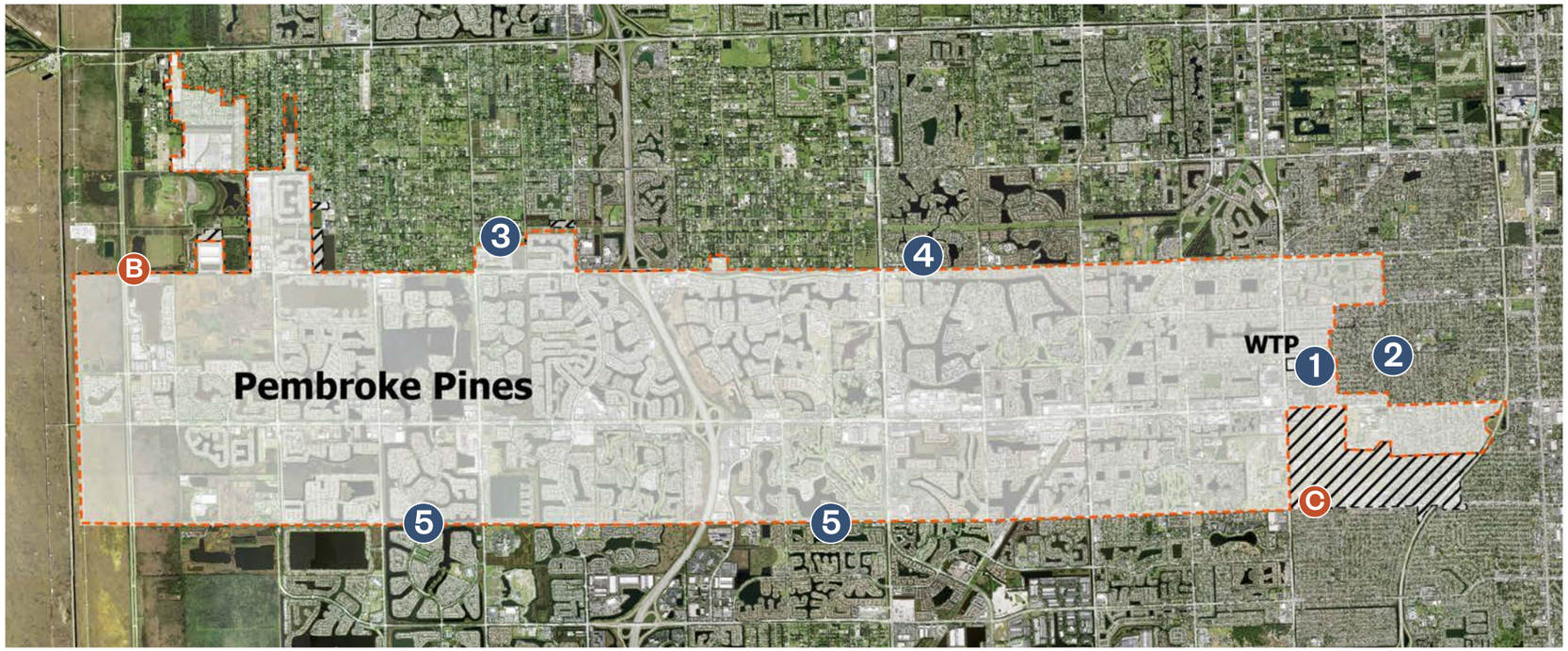
Our proven approach to define and implement WTP improvements to achieve the City's objectives is presented on the following pages.

The Hazen team's visit to the City of Pembroke Pines WTP site, and review of available record drawings, PFAS Treatment System Feasibility Evaluation document, 2023 Water Master Plan, and historical data has provided a deep understanding of the City's water system, key challenges, and goals and objectives for the WTP Improvement Project to add ion exchange for PFAS removal.

1021-728

Existing Water System at-a-Glance

The City of Pembroke Pines is very similar to many utilities we have worked for in Broward County and we intend to utilize all of that knowledge and experience in our approach to manage time, control budgets, and provide the most maintenance-friendly system possible.





Consumptive Use Permit

- SFWMD CUP annual average allocation of 5,695 MG and maximum monthly allocation of 516.45 MG through August 18, 2030
- Rated combined wellfield capacity of 18,455 gpm (9,700 MGY or 807.9 MGM)

PFAS Detection

- Average PFOA and PFOS concentrations:
  - Raw water supply wells = 11.2 ppt, 39 ppt
  - Point of Entry to Water System= 12.3 ppt, 29 ppt

Water Supply

- Existing Biscayne Wells

(1) Central Wellfield - 5 wells
- Wells 1-5

(2) East Wellfield - 4 wells

Water Treatment

(A) Lime softening treatment process
- Permitted capacity of 18.0 mgd
- 12 mgd Ion Exchange system for TOC and color removal
- Sufficient capacity for current and future projected water demands
- Historical average day finished water demands of 13.3 mgd and 14.4 mgd
- Projected 2045 Average Finished Water Demand of 13.85 mgd
- Originally constructed in the early 1960s

Water Service Area

(B) City Potable Water Service Area
- Approximately 53 square miles
- Comprises ~93% of City's population; remaining ~7% is served by Neighboring utilities.
- Emergency Interconnects with:

(3) City of Sunrise,
(4) City of Cooper City, and
(5) City of Miramar

(C) Areas served by Broward County or are Unclaimed

Legend

- City Potable Water Service Area
- City of Pembroke Pines Limits
- Areas not served by Pembroke Pines WTP

The Hazen team understands your challenges and is ideally suited to provide solutions.



PFAS and Future Regulatory Compliance

A new single use ion exchange (IX) technology has been proposed as a bolt on to the lime softening system for compliance with PFAS regulations.

Hazen Solution: Hazen will evaluate the feasibility of utilizing IX vessels that could also house GAC or other novel sorbents for future emerging contaminant removal, that would serve as a drop-in replacement for the IX.



PFAS Disposal

Removal of PFAS and any other contaminant necessitates its handling and disposal.

Hazen Solution: Regardless of treatment technology, we have engineered solutions. For the proposed IX facility, we will evaluate feasible alternatives for disposal such as emerging PFAS destruction approaches and hazardous waste incineration, to minimize regulatory and environmental impacts while balancing disposal costs.



Expedited Schedule

PFAS compliance by April, 2031 (extended deadline) will require the new WTP improvements to be fully commissioned by late 2030.

Hazen Solution: Hazen will be proactive in working collaboratively with the City staff to address schedule risks inherent in the current regulatory, bidding, and construction environment. We have a deep bench capable of completing the project within your timeframe.



New Facilities Site Planning

Space limitations will affect the duration, cost, sequencing and siting of construction elements.

Hazen Solution: We will work with City to develop a maintenance of operations (MOPO) plan that minimizes disruptions to the existing WTP operations and facilitates implementation of cost-effective solutions.



Community Outreach and Education

New PFAS regulations and the costs associated with improvements will generate concerns from residents.

Hazen Solution: Our national communications experts have implemented public outreach programs to diplomatically address sensitive issues. Leveraging existing communications materials developed as part of a WRF study focused on PFAS communication, Hazen's communications staff can quickly engage to provide resources and support to Pembroke Pines.



Water Demand Projections

Firm treatment capacity needs and the timing for expansion impact regulatory discussions, costs and overall system resiliency.

Hazen Solution: A 18-mgd IX PFAS removal system was recommended in the PFAS Treatment System Feasibility Evaluation document. We will work with the City staff early to evaluate the possibility of partial treatment and or re-purposing existing assets to provide PFAS treatment capacity that meets the regulatory deadline and minimizes capital costs.



Agency Funding

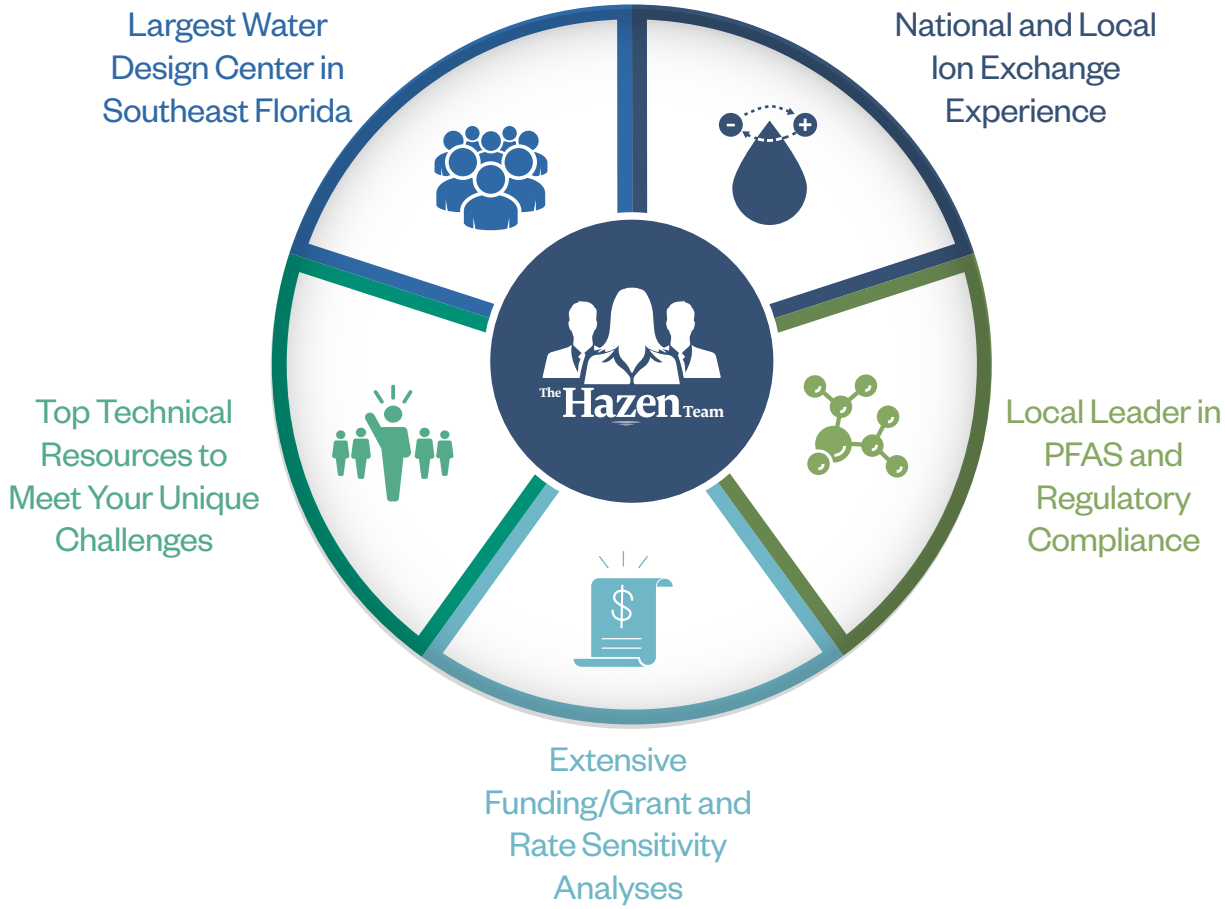
The amount and timing of grants affect the sequencing of construction elements and potential need for alternative or supplemental funds.

Hazen Solution: Our funding experts have secured over $4 billion in state and federal funding over the last ten years, including the FDEP Drinking Water State Revolving Fund, and are able to efficiently navigate federal and state policies and procedures.

1021-728

The Hazen team possesses these key attributes to efficiently and successfully address the project challenges.

On the following pages, as well as throughout the proposal, we have detailed our ability to satisfy all of the scope requirements.



Our team has a deep understanding of the project requirements.

We have already performed a preliminary engineering analysis to confirm WTP IX treatment technology and are ready to hit the ground running.

1021-728

Detailed Project Approach

Hazen's proven approach for project execution is simple and direct. We begin by:

Listening to the City of Pembroke Pines and understanding your specific concerns and goals.

Formulating innovative, but sound and technically feasible solutions as if we were spending our own money.

Expeditiously developing a design that is easily understood by contractors using tried and proven project management methods.

Sequencing planning, design, permitting, and construction elements **to optimize space, budget, and schedule** with minimal interruption to the plant operations.

The Hazen Team

Project Execution

Completing the project expeditiously and cost-effectively is of utmost importance. This entails addressing every aspect of the project in an efficient and thoughtful manner, from initial planning through construction and startup of the new WTP IX facilities. Our goal is to demonstrate that, without a doubt, the Hazen team is the most qualified to move this project forward.

We recommend implementing project improvements as one bid package to ensure seamless integration and minimal disruption to the existing WTP facilities.



One complete Bid Package to include IX vessels, pumping facilities, filter piping modifications, dechlorination system and other plant modifications as requested by City.

The package will be executed through design teams overseen by our Project Manager and Deputy Project Manager **to expedite the project.**

The design teams will focus on their individual components but will communicate at internal joint bi-monthly design meetings to share information and address any design, permitting, and/or construction-related issues. The following pages describe in greater detail our technical approach to each task. Our proposed preliminary schedule appears on page 40.

1021-728

The Hazen team's comprehensive and proven project approach provides a roadmap to success.

Our journey of success begins with collaborative planning to define innovative solutions

and ends with a Robust Ion Exchange Facility that provides flexibility to comply with current and future EPA and FDEP drinking water regulations.

The Hazen team **Advantage**

- Unmatched Ion Exchange Treatment experience Nationally and Locally **will ensure that the City's expansion of the existing ion exchange system and addition of new PFAS IX system is completed efficiently.**
- Knowledge of the City's operations and existing lime softening WTP **will limit the impact to plant operations during the construction phase.**
- Hazen has over 120 ongoing or completed PFAS projects nationwide, including many evaluations, pilot tests, and full-scale designs for Florida utilities, **which will provide unsurpassed breadth and depth of knowledge to the City.**
- Significant experience in PFAS best available treatment technologies (GAC, IX ,NF, RO), **allows Hazen to quickly evaluate the City's options, reducing the overall project schedule.**
- Extensive understanding of local water quality, including experience with Biscayne and Floridan Aquifers **allows Hazen to provide a thorough assessment of all available water source options.**
- Our local and national funding experts have secured over $4 billion in state and local funding, **demonstrating our ability to reliably secure funding for the City.**
- Deep bench of local talent **will maintain the project on time and within budget.**

1 Task 1: Planning and Evaluation

1A Holistic Evaluation of City's Water System

- Collect available PFAS and Water Quality Data
- Fill in data gaps with additional sampling
- Analyze water quality results
- Review project costs and available funding sources
- Address funding gaps for construction

Hazen Benefits

Hazen has already compiled historical water quality data and will build a PowerBI dashboard to efficiently evaluate PFAS treatment technology selection and design.

Pertinent City Raw Water Quality

pH	7.5	SU
Total Hardness	232	mg-CaCO3/L
TOC	3.5-5.5	mg/L
Calcium	208	mg-CaCO3/L
Magnesium	24	mg-CaCO3/L
Chloride	24.6	mg/L
Sulfate	16.5	mg/L
Alkalinity	209	mg-CaCO3/L
PFOA	14	ng/L
PFOS	53	ng/L

Finished Water Quality (FIX Effluent)

pH	9	SU	Total Chlorine	3.9	mg/L
Total Hardness	79	mg-CaCO3/L	Turbidity	0.2	NTU
Alkalinity	38.3	mg-CaCO3/L	Chloride	27.2	mg/L
TOC	0.5-1.5	mg/L	Sulfate	14.8	mg/L
Calcium	69	mg-CaCO3/L	PFOA	12.3	ng/L
Magnesium	15	mg-CaCO3/L	PFOS	29	ng/L

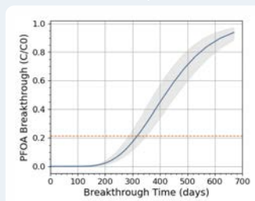
1B Desktop Analysis of Best Available Technology (BAT)

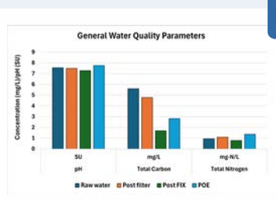
- Hazen's Machine Learning and projection tools are used to predict IX and/or GAC time to PFAS breakthrough.
- The predicted data will be compared to our extensive PFAS breakthrough dataset for IX/GAC systems with similar water quality and TOC levels across South Florida to confirm accuracy of simulations.

Hazen Benefits

In conjuction with the City's RSSCT results, our machine learning tool allows Hazen to:

- screen media options,
- understand O&M costs, and
- help have a targeted pilot test





1C Ion Exchange Pilot Study

- Evaluate the performance of various IX products for PFAS removal specific to the water quality at Pembroke Pines WTP
- Evaluate the impact of TOC levels on PFAS-selective IX changeout times and O&M costs
- Identify and evaluate necessary upstream treatment processes to prevent lime solids from interfering with IX systems and dechlorination to preserve the integrity of gel-type IX resins
- Evaluate the impact of different TOC levels on finished water quality parameters including color, turbidity, and DBPs
- Conduct the pilot study in parallel with the full-scale design process to inform system specifications and operational planning



1D Water Stabilization Desktop Evaluation and Corrosion Control

- Distribution system materials assessment.
- Impact on water quality before and after ion exchange treatment will be compared focusing on parameters most likely to impact corrosion control.
- Propose additional assessment approaches based on observations.

2 Task 2: Preliminary Design

2A Survey and Geotechnical Investigations

Geotechnical investigations will commence immediately to assess soil conditions essential for the construction of new facilities. Simultaneously, a detailed sub-surface utility investigation and site survey will verify existing utility locations, elevations, property boundaries, and utility tie-in points.

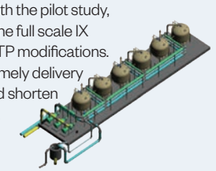
2B Basis of Design

Preparation of a series of design technical memoranda (TM) will allow design to begin early and will summarize hydraulic evaluation results, process design criteria, conceptual site layout. TMs will be complied into a final Preliminary Design Report (PDR) that complies with Florida Administrative Code 62-555.520(4)(a)1–19.

3 Task 3: Detailed Design

Treatment System Design

Working in parallel with the pilot study, Hazen will develop the full scale IX design and other WTP modifications. This will guarantee timely delivery of bid documents and shorten the project schedule.





4 Task 4: Permitting and Bidding

Permitting

- Florida Department of Environmental Protection
  - Application for Specific Permit to Construct Public Water System Components
- South Florida Water Management District
- Broward County Resilient Environmental Department
- Pembroke Pines Building Department

5 Task 5: Comprehensive Construction Oversight Services

5A Construction Administration

- Pre-construction meeting
- Technical Services during construction
- Provide oversight ; address change management
- Periodic review of record drawings
- Close out all permits and final certifications
- Archive project material

5B Start-up Services

- Training
- Operational Support
- Process Confirmation



MOPO

Hazen offers construction specialists with experience in complex maintenance of plant operations (MOPO) requirements. The City can trust Hazen to protect it from unexpected MOPO challenges.

New Ion Exchange Facilities fully commissioned by late 2028

1021-728

Task 1 - Planning and Evaluation

The Hazen Team is actively working on 10 local PFAS projects in the South Florida Region. This work has allowed us to gain excellent understanding of the conditions here and the requirements for successful planning and evaluation of projects. The careful planning and evaluation are essential first steps to select and design the most effective and efficient treatment system for protecting the public from PFAS.

To ensure that we meet the City's goals and objectives, our approach will begin with detailed planning and evaluation, based on our recent experience, to immediately formulate a road map that provides clear direction for execution of all elements of the project. Necessary components of the planning phase are discussed below.

Water Quality Analysis – Raw and Finished Water

Our approach to developing the City's PFAS management strategy has already begun with Hazen's local PFAS team conducting a brief examination of Pembroke Pine's historical water quality data, including:

- Year 2020–2024 Monthly Operating Reports
- PFAS data from the City of Pembroke Pines PFAS Treatment Feasibility Evaluation
- Published UCMR 5 PFAS data available through the EPA's UCMR website

Hazen also coordinated collection and analysis of grab samples at the Pembroke Pines WTP
to provide a more thorough understanding of the City's raw water and finished water quality.



Hazen staff sampling the City of Pembroke Pines raw water.

Project Initiation / Scope Development

- Conduct kickoff meeting.
- Define goals, budget, vision, and schedule early on.
- Meet with City to define scope elements.
- Create a project management plan to optimize scope and schedule.

Pertinent City Raw Water Quality		
pH	7.5	SU
Total Hardness	232	mg-CaCO3/L
TOC	3.5-5.5	mg/L
Calcium	208	mg-CaCO3/L
Magnesium	24	mg-CaCO3/L
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Sulfate	16.5	mg/L
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PFOS	53	ng/L

Finished Water Quality (FIX Effluent)		
pH	9	SU
Total Hardness	79	mg-CaCO3/L
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TOC	0.5-1.5	mg/L
Calcium	69	mg-CaCO3/L
Magnesium	15	mg-CaCO3/L
Total Chlorine	3.9	mg/L
Turbidity	0.2	NTU
Chloride	27.2	mg/L
Sulfate	14.8	mg/L
PFOA	12.3	ng/L\
PFOS	29	ng/L

1021-728

The elevated levels of Total Organic Carbon (TOC) in raw water was an immediate concern due to TOC's impact on the performance and life cycle costs of adsorptive technologies. While TOC has been shown to significantly impact the performance of nonselective adsorbents such as Granular Activated Carbon (GAC), due to selectivity of PFAS-specific ion exchange (IX) media, their performance will be less impacted compared to that of GAC.

Hazen's team members have authored multiple peer-review publications on the impact of TOC on the performance of IX, GAC, and other adsorbents and is currently leading a pilot-scale effort in South Florida evaluating the impact of TOC pretreatment on the performance of various GAC and IX products.



ELSEVIER

Water Research

Volume 241, 1 August 2023, 120105

Impact of effluent organic matter on perfluoroalkyl acid removal from wastewater effluent by granular activated carbon and alternative adsorbents

Bahareh Tajdini [a], Hooman Vatankhah [a b], Conner C. Murray [a c], Alexander Liethen [a], Christopher Bellona [a]

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ELSEVIER

Journal of Hazardous Materials

Volume 454, 15 July 2023, 131481

Research Article

PFAS adsorbent selection: The role of adsorbent use rate, water quality, and cost

Conner C. Murray [a b], Andrew Safulko [a c], Hooman Vatankhah [a], Charlie J. Liu [d], Bahareh Tajdini [a], Robert E. Marshall [a], Christopher Bellona [a]

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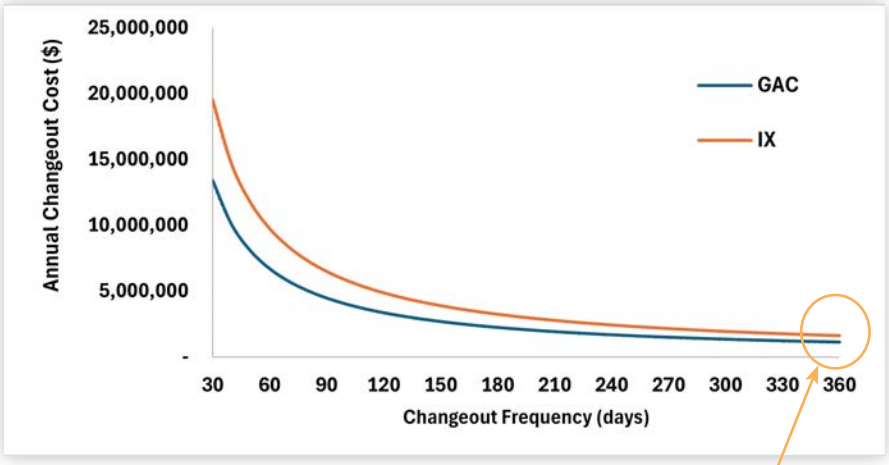
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Elevated TOC levels in South Florida can reduce the effectiveness of IX and GAC systems, increasing media replacement frequency and O&M costs. This makes TOC a key factor in long-term system performance (see graph below). To select the optimum IX product, Hazen will implement a tiered evaluation, beginning with a desktop analysis and progressing to pilot-scale testing, to optimize IX performance under site-specific conditions.

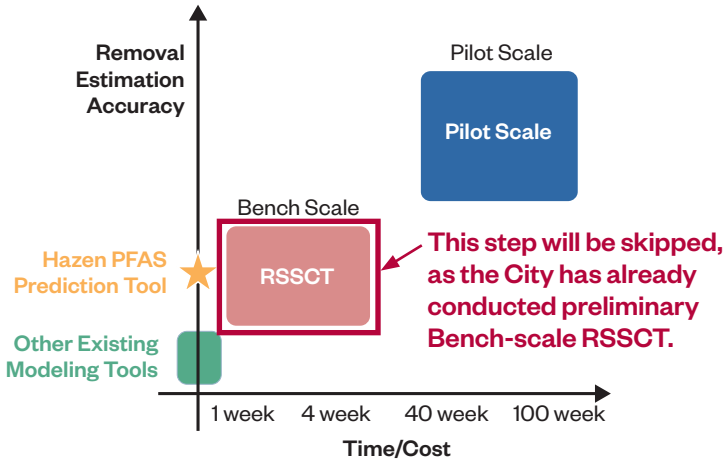
Under Ideal conditions, GAC can outperform IX systems.

The Hazen Team will confirm the specific conditions at the City, early, to optimize change-out frequency and reduce long-term costs of the project.



Initial testing indicates the IX resins perform in this range, and beyond, depending on the TOC concentrations. This illustrates the need for some specific testing.

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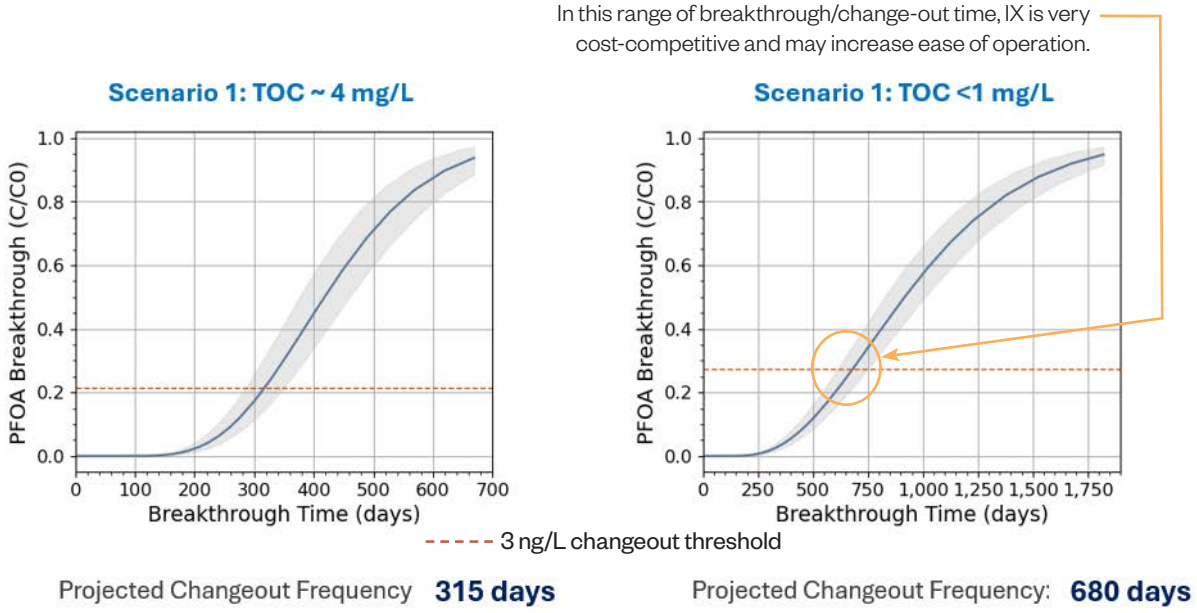


Our prior PFAS design experience indicates that annual O&M costs associated with media change-out time may contribute 60-70% of the 20 Year Net Present Value of the treatment installation.

Desktop Analysis Results

Based on the City's timeline, Hazen has completed a desktop analysis using Hazen's PFAS machine learning models and IX tools. Results suggest PFOA is the primary driver of breakthrough, with estimated median breakthrough times of 315 and 680 days for TOC levels of 4 mg/L and <1 mg/L, respectively. While modeling and bench-scale RSSCT data provide valuable insights, the City may find value in pilot testing to capture site-specific conditions and plan operations.

Modeling results of IX breakthrough performance at different TOC levels



1021-728

Unlike RSSCTs, which cannot be directly used to predict full-scale IX performance, **pilot studies provide reliable data** to accurately estimate bed life, media changeout intervals, and associated O&M costs under real-world conditions.

Motivation for conducting pilot-scale testing prior to full-scale design



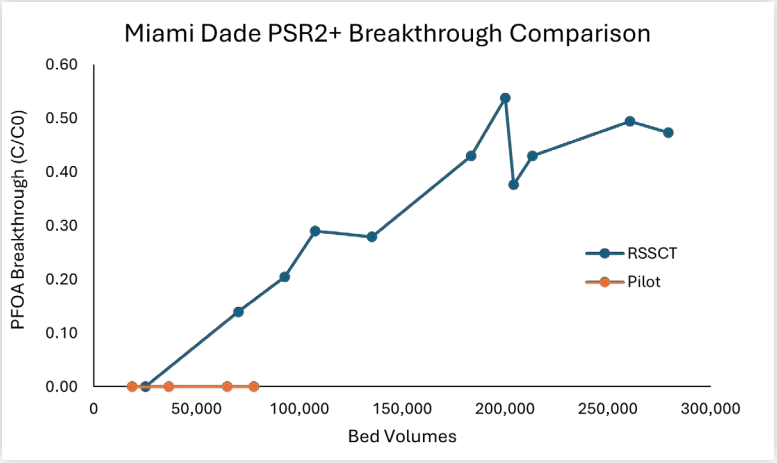
Bench-scale RSSCT

Versus



Pilot-Scale

RSSCTs were not able to accurately predict the pilot-scale breakthrough performance!



RSSCT versus pilot-scale PFAS breakthrough performance

Hazen has conducted side-by-side RSSCT and pilot-scale studies for Miami-Dade Water and Sewer Department. As shown in the figure below, the results demonstrated that RSSCTs did not consistently predict pilot-scale performance, highlighting the importance of conducting pilot-scale for full-scale design decisions.

Investigated Scenarios

The desktop analysis demonstrated that IX can deliver reasonable performance even under elevated TOC conditions. Moreover, given that TOC concentrations in the finished water at the Pembroke Pines WTP (0.5–1.5 mg/L) are low enough, expanding the existing TOC pretreatment system may not be necessary. Avoiding such expansion could result in substantial cost savings for the City.

1021-728

Building on these findings, Hazen proposes to evaluate an additional treatment configuration beyond Option 1A identified in the PFAS Treatment Feasibility Evaluation. This new configuration, referred to as Alternative 1B, will be tested alongside Option 1A in the proposed pilot study.

Option	Description	Number of TOC-FIX Vessels	Proposed Number of PFAS Lead-lag IX Vessels	System Firm Capacity (mgd)
1.A (City's Feasibility Evaluation Report)	Expansion of existing TOC FIX pretreatment with addition of a bolt-on PFAS IX system	8 existing 4 proposed new	20 vessels (10 Trains) proposed new*	TOC IX = 18 PFAS IX = 18
1.B (Hazen Proposed Alternative to be tested as a part of pilot-study)	No expansion of the existing TOC FIX pretreatment with addition of a bolt-on PFAS IX system	8 existing	14 vessels (7 trains) proposed new	TOC IX = 12** PFAS IX =18

*Oversized design

** 6 mgd of water will bypass the TOC IX and be treated directly by PFAS IX

Pilot Study Evaluation

Building on the City's preliminary bench-scale RSSCTs, Hazen will conduct a comprehensive pilot study to evaluate Scenarios 1A and 1B, as described in the previous section. The study will focus on the following key objectives:

HAZEN BENEFIT

Breadth and depth of national experience leads to development of useful, time-saving tools.

- Assessing PFAS removal performance of **various best-performing IX** products that have demonstrated success in Biscayne Aquifer conditions
- Optimization of **operational parameters** such as EBCT and HLR.
- **Comparing Scenarios 1.A and 1.B** not only for TOC and PFAS removal but also for impacts on finished water quality parameters, including color and disinfection byproduct (DBP) formation
- Assessing **corrosion control** implications for the distribution system

Piloting of IX for PFAS reduction should include monitoring important water quality parameters to fully identify any potential impacts. Regular monitoring and optimization of treatment parameters as necessary are recommended to maintain the desired water quality, particularly at the start-up, to minimize unintended consequences.

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With Hazen's extensive portfolio of pilot projects across South Florida, we have significant experience in implementing all necessary processes to ensure successful pilot-scale system operation and that this piloting system gets underway quickly to provide longer piloting runtimes, including:

- **Cartridge filtration** to minimize the impact of suspended particles and lime-softening solids on the adsorption skid
- A **dechlorination step** upstream of the PFAS-specific IX system to preserve the integrity of gel-based IX
- **Multiple sample ports** through the media bed depth to allow for better tracking of PFAS breakthrough
- **Established relationships with analytical labs** to perform quick and accurate results
- **Trained Field Staff** that can quickly and efficiently procure, build, and operate the pilot systems

Through successful pilot study execution, Hazen will provide the City of Pembroke Pines with a comprehensive and actionable recommendation that includes:

- **Scalable data:** Unlike RSSCTs, pilot results can be directly used to estimate full-scale changeout frequency and system performance under real operating conditions.
- **Design support:** Findings will inform capital and O&M cost estimates, as well as key parameters such as EBCT, HLR, and necessary pretreatment steps.
- **Operational insights:** The pilot will define backwash frequency and headloss development to support reliable full-scale implementation.
- **System flexibility:** The final design will accommodate evolving regulations, including future PFAS listings and DBP control needs.
- **Future-proofing:** The configuration will be designed to allow integration of additional treatment technologies as future needs arise.



Pretreatment stage (Cartridge filtration) prior to adsorption skid



Dechlorination step to preserve the gel-based IX resins

Hazen has a strong relationship with multiple pilot vendors, including the Colorado School of Mines (CSM), a national leader in PFAS research, **which will allow us to have a pilot unit onsite within 6 weeks of notice-to-proceed.** CSM supplied the pilot unit for the ongoing City of Margate PFAS Study.

Hazen will develop adaptable treatment solutions that enable the City to easily expand, modify, or optimize operations in response to evolving PFAS regulations or the emergence of other contaminants of concern—

ensuring long-term regulatory compliance and operational resilience.

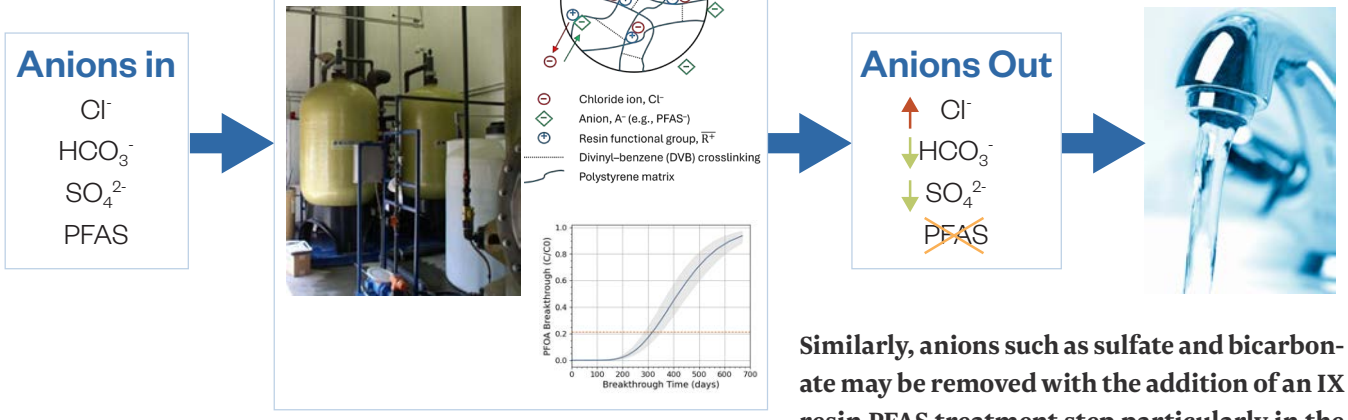
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Finished Water Stability

Hazen team members have been involved with research efforts to evaluate the impact of IX PFAS systems on water quality. Studies showed that the treatment process is effective in targeting PFAS compounds without significantly altering the overall stability of the finished water in the long term. However, the stability of the finished drinking water can be influenced by the specific ion exchange resin used, the water composition, source water quality variability, and other treatment processes combined with ion exchange.

In some cases, ion exchange may slightly alter the mineral content or pH of the treated water, which can affect stability and corrosion chemistry.

For example, **resins typically employed for PFAS adsorption release chloride as the counter ion in the ion exchange process.** While the impact of chloride release or other short term water chemistry changes may be insignificant for some waters, these changes can be managed through post-treatment stabilization techniques, such as pH adjustment or remineralization, ensuring the water remains stable for distribution and consumption.



Similarly, anions such as sulfate and bicarbonate may be removed with the addition of an IX resin PFAS treatment step particularly in the short term.

Overall, when properly designed and implemented,

ion exchange for PFAS removal is not anticipated to negatively impact finished drinking water's chemical stability in the long-term with proper planning.

A preliminary desktop evaluation of corrosion stability indices and any long term changes to the chloride to sulfate mass ratio will be included to address lead and copper release concerns, copper pitting, and iron corrosion.

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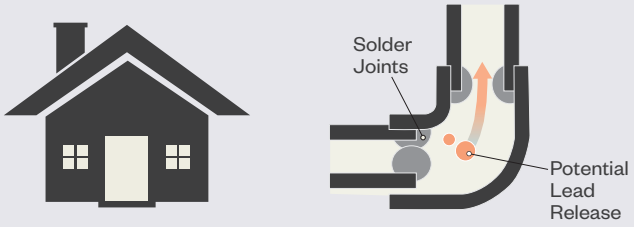
Hazen recommends performing a desktop corrosion control evaluation and a pipe loop study to ensure compliance with the Lead and Copper Rule Revision.

Hazen is currently leading the LCRR program for several utilities and is well positioned to lead the corrosion control efforts **to ensure compliance.**



Protecting our Customers from Lead and Copper Release is a Critical Aspect of PFAS removal Ion Exchange (IX).

Lead can be released from our home plumbing if the finished water chemistry is not properly adjusted.



Lead release from service lines and household plumbing materials must be minimized



Ion Exchange

Water Chemistry Adjustments

- pH Adjustment
- Alkalinity Adjustment
- Corrosion Inhibitor Addition

The water chemistry of the IX water may need to be adjusted so that the finished water will be stable (not corrosive).

If selected, Hazen will pilot-test multiple corrosion inhibitors to identify **the highest level of protection.**

Hazen Mobile Laboratory





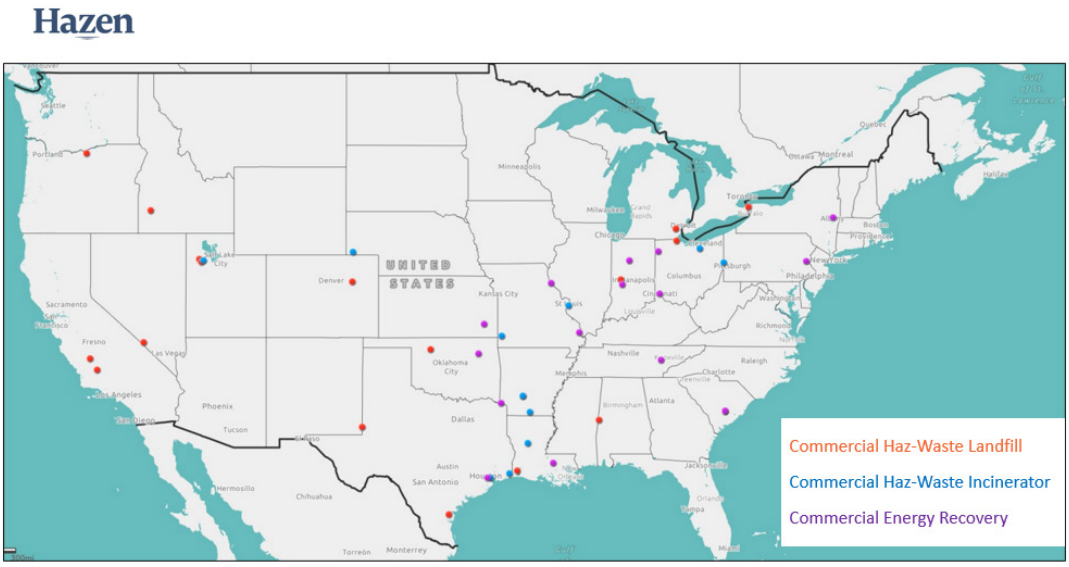
Pipe Loop Study

1021-728

PFAS Disposal

Spent resin disposal is a critical component of closing the PFAS treatment loop with spent IX resins typically sent for incineration by resin vendors. Although no federal PFAS-specific thresholds currently exist to dictate PFAS spent resin as hazardous waste, most service providers offer full solutions, including TCLP testing, transport, and disposal to Subtitle D or Subtitle C facilities. If hazardous disposal is preferred, off-site disposal may include hazardous waste incineration or landfilling, based on regulatory or site-specific considerations.

Commercial Hazardous Waste Disposal Facilities Across the United States



Domestic Hazardous Waste Disposal Alternatives

EPA - 2019 National Capacity Assessment Report

Hazardous waste incinerators, operating above 1,000 °C, can achieve high PFAS destruction efficiency but raise concerns about fluorinated byproducts, ash liability, and post-incineration residues. With destruction technologies still developing and infrastructure limited, the most practical approach is to extend resin life through optimized system operation, minimizing changeouts and mitigating rising disposal costs under tightening regulations.

Operating the existing lime plant as efficiently as possible will remove some TOC and provide the best water quality to the FIX system.

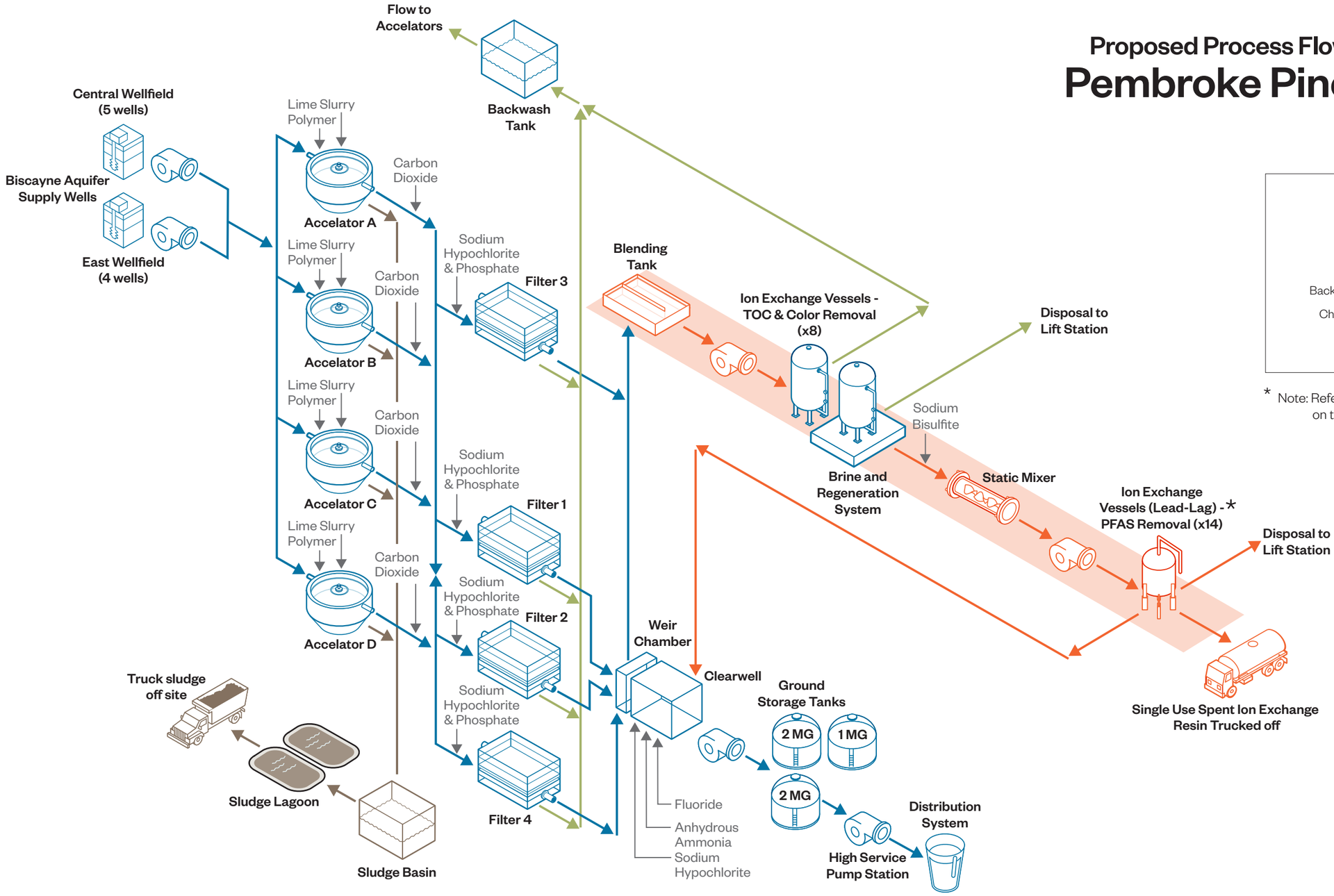
Achieving the highest FIX TOC effluent quality will allow the PFAS IX to be optimized.

The optimized PFAS IX will reduce the number of change-outs to be disposed of in the future and therefore reduce disposal costs.

Hazen will take this holistic approach to lower cost and improve ease of operation.

1021-728

Proposed Process Flow Diagram
Pembroke Pines WTP



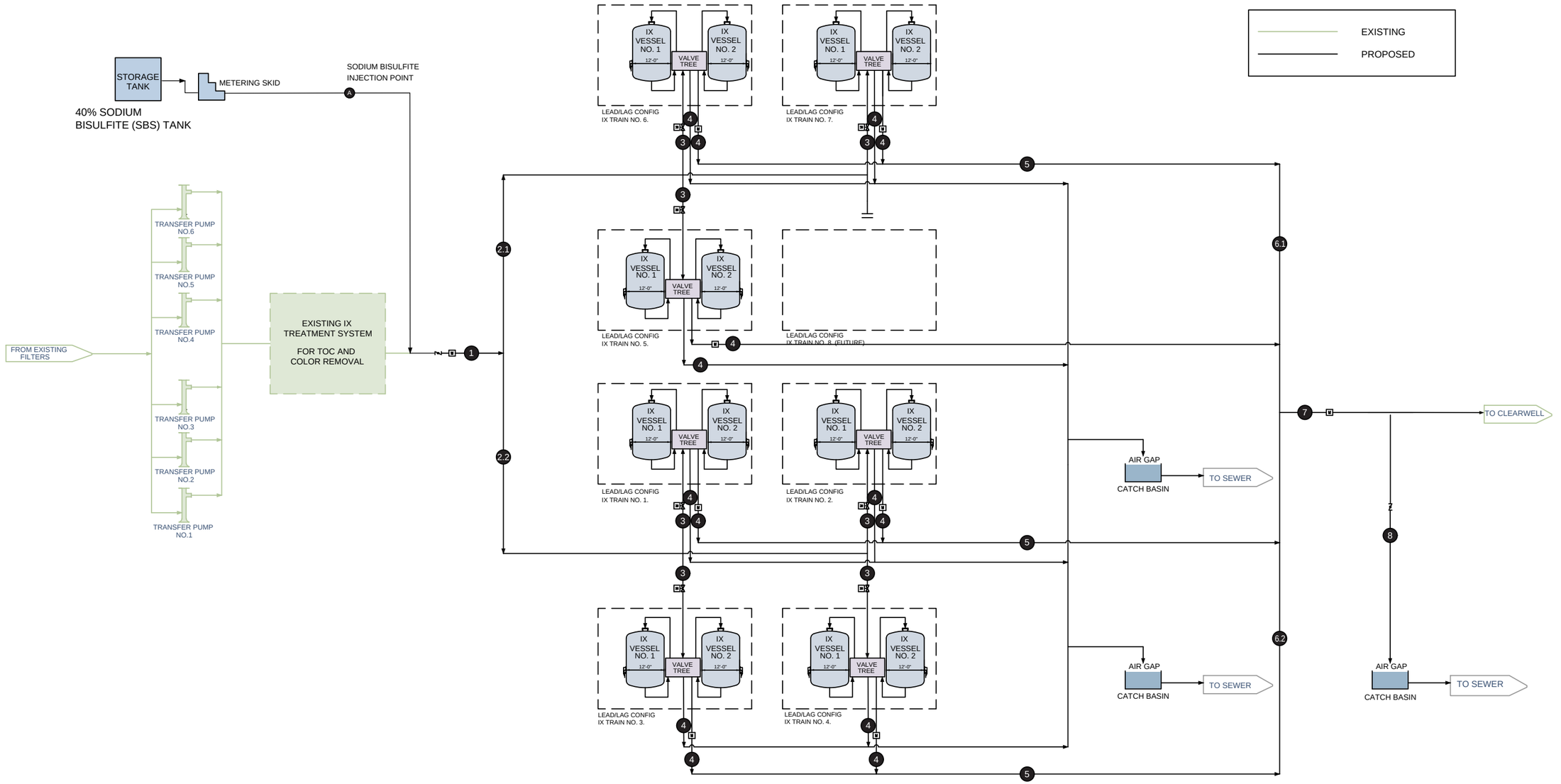
Legend

- Flow Stream
- Sludge
- Backwash Recovery
- Chemical Addition
- Proposed

* Note: Refer to proposed P&ID drawing on the next page

1021-728

We have developed preliminary Process and Instrumentation Diagrams (P&IDs) for proposed selective PFAS Ion Exchange System to accelerate the overall design schedule.



PFAS TREATMENT	1		2.1 2.2		3		4		5		6.1 6.2		7		8	
	UNTREATED WATER		IX SYSTEM INFLUENT		IX TRAIN INFLUENT		IX TRAIN EFFLUENT/FLUSH WATER		IX SYSTEM EFFLUENT/TREATED WATER		IX SYSTEM EFFLUENT/TREATED WATER		IX SYSTEM EFFLUENT/TREATED WATER		FILTER TO WASTE	
	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)	FLOW (GPM)	PIPE DIAMETER (IN)
	12500	30	5355 / 7145	20	1785	12	1785	12	3570	16	5355 / 7145	20	12500	30	12500	30

1021-728

Task 2 - Preliminary Design Activities

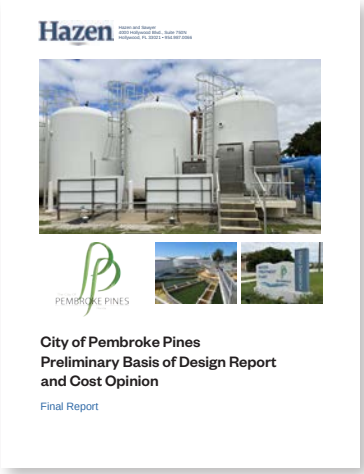
Preliminary Design activities for the City of Pembroke Pines will begin in parallel to Task 1, which will incorporate several conventional pre-design activities, such as site visits, data review, and site layout alternatives evaluations. In this case, Preliminary Design Activities will focus on moving more quickly to a final design criteria document, drawings and specifications.

The following are the major activities that will be completed: Design Kickoff Meeting – Attend a design kickoff meeting with City staff to review project scope, data requests, deliverables, schedule, and other pertinent information. Meeting minutes will be prepared and distributed.

- Workshops – Lead a workshop with City staff to define the Ion Exchange layout and other key design components.
- Survey – Conduct site survey to confirm elevations, property boundaries, existing underground utilities, key features and tie-in locations.
- Geotechnical – Obtain relevant geotechnical information on the plant site to determine the foundation and loading requirements for the structures. This task will be initiated after finalizing the site plan.
- Conduct Environmental Assessment – Obtain and review existing environmental documents and coordinate with regulatory agencies to address any environmental issues that could impact permitting and design elements during design.
- Prepare design Technical Memorandums and final Preliminary Design Report (PDR) (10% Design) – The PDR will comply with Florida Administrative Code sections 62-555.520(4)(a)1 through 19 and will consist of the following:
  - A project summary
  - Hydraulic evaluation
  - Design criteria for proposed process improvements
  - 10% Schematic Design Documents
  - Preliminary schematic layout
  - Preliminary process and instrumentation diagrams (P&IDs) that illustrate process along with brief written control narratives
  - List of major equipment
  - Class 5 Cost Estimate
  - Summary of Pilot testing results and recommendations

Preliminary Design

- Conduct site visit with Hazen staff and the City.
- Review alternatives and agree on a final facility layout.
- Initiate survey and field investigations .



BENEFITS OF PREPARING P&IDS AT 10% DESIGN STAGE

- Serves to eliminate misunderstandings relative to project goals and scope
- Early production of these schematics accelerates design, yielding efficiencies to the owner

1021-728

Hydraulic Evaluation

Our Team has already begun the preliminary hydraulic evaluation of the Pembroke Pine facility. This includes the configuration of filters 1-4 with respect to the clearwell and FIX resin components of the plant. There are some hydraulic constraints/connectivity issues in this area that will be rectified in the redesign of the flows for more consistent and measurable conveyance between the units and processes.

Our Team has proven experience in using a suite of tools to perform hydraulic analyses for water treatments plants and intake structures, ranging from desktop analyses to state-of-the art modeling tools such as InfoWorks, InfoWater, KYPipe, Surge, and 3D Computational Fluid Dynamics (CFD) software packages. Desktop analyses are often performed using Hazen's proprietary software, HazenPro. HazenPro is a Microsoft Excel based hydraulic model customizable for gravity hydraulic calculations through pipes, channels, gates, weirs, ports, etc. It was developed primarily for WTP and WWTP hydraulic profile calculations, however its flexibility allows for it to be used for other applications. Pump calculations and selections are done with PumpCalc. This is another tool tailored to ensure that key aspects of pump selections are considered in the design, and it provides ease of verifying calculations. HazenPro, PumpCalc, and the other modeling tools can be leveraged to maximize hydraulic capacity of existing units and identify the capacity thresholds of proposed upgrades. Practical experience tying desktop tools and models to the real world is what sets us apart.

Our hydraulic engineers specialize in integrating a deep understanding of the process with models and working closely with field engineers, operators, and designers **to bridge the gap between models and reality.**

Most often we use our suite of hydraulic analysis tools to:

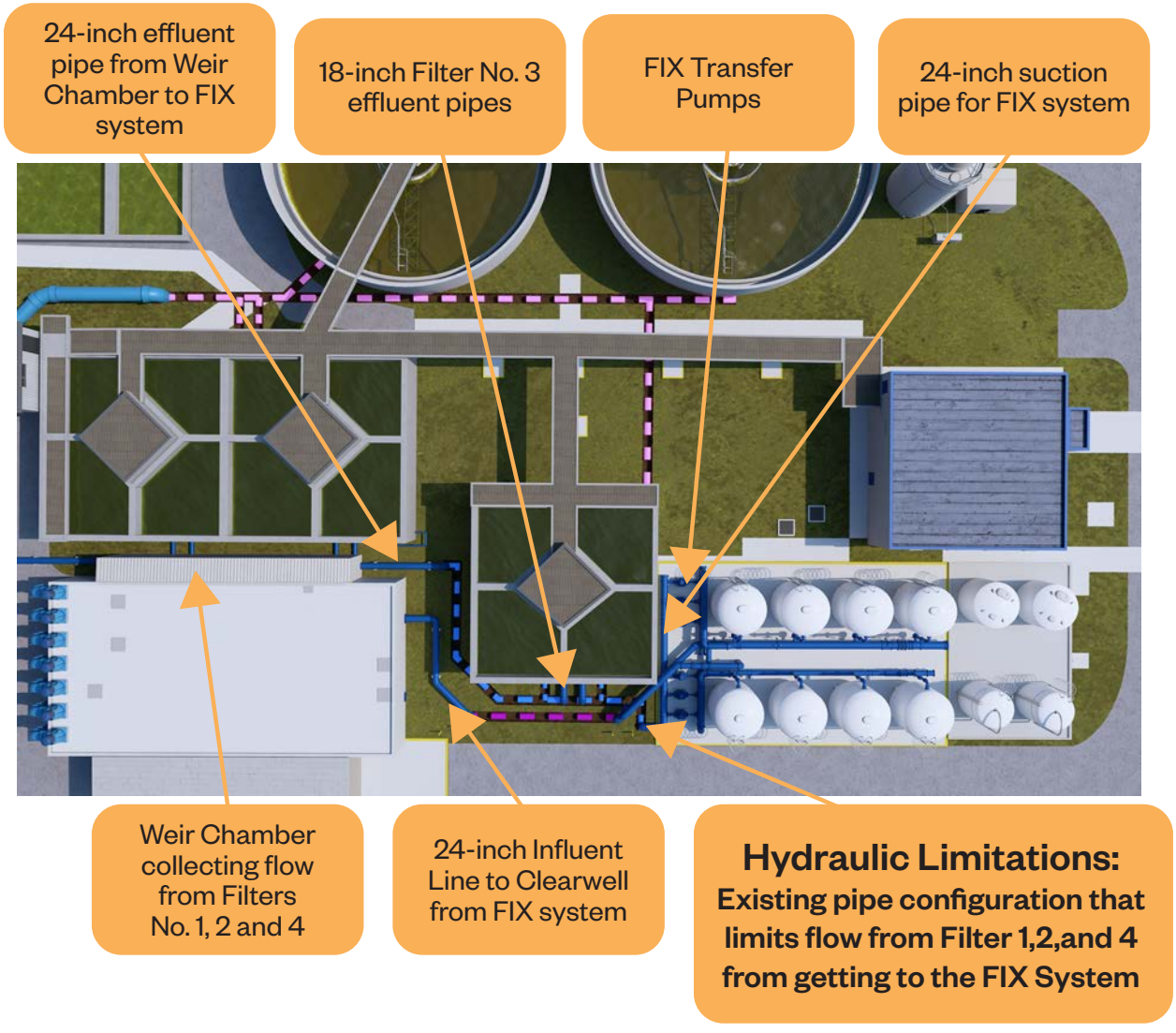
- Accurately measure flows for process control and chemical addition
- Identify and mitigate hydraulic constraints
- Verify proposed design of infrastructure and help owners meet regulatory requirements
- Perform surge analysis to reduce system vulnerability

1021-728

Filter Effluent Piping

Based on our discussion with City staff, we understand that there are hydraulic limitations in the existing filter effluent piping that affect system operation and restrict flow to the FIX color removal system. Currently, only Filter No. 3 can send flow to the FIX system, though the original design intended for all four filters to do so. A comprehensive review of the City's record drawings and 2023 Water Master Plan provided a deeper understanding of the existing filter effluent piping arrangement contributing to this hydraulic limitation.

Exisiting Piping Configuration Between Weir Chamber, Filter 3, FIX vessles, and Clearwell

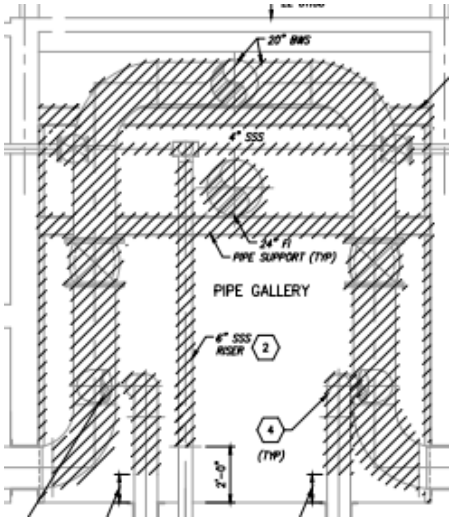


1021-728

To ensure efficient operation of the options previously proposed for the TOC pretreatment FIX system and non-regenerable PFAS IX system, the hydraulics of the water system need to be properly analyzed. We will develop a plant hydraulic model to perform the analysis. The results will inform decisions and provide cost-effective recommendations regarding the sizing and final location of the blending tank proposed for equalizing flow prior to entering the IX systems.

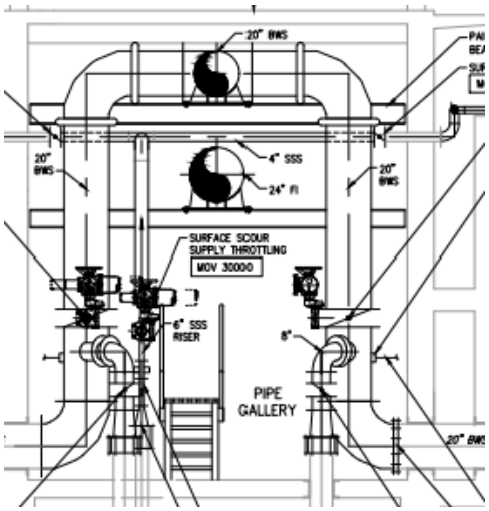
Before





After





The Hazen team will leverage our expertise and the experience gained from designing and constructing improvements to the North Miami Winson WTP Filters,

ensuring that the City's filter piping modifications are executed with minimal disruption to plant operations and ease of long-term operation.

1021-728

Ion Exchange Transfer Pumping Systems:

The addition of the single use IX treatment system for PFAS removal will add headloss to the system. **The existing transfer pump station upstream of the existing FIX treatment system will be evaluated and upgraded to avoid construction of a new pump station.** We have already performed preliminary hydraulic evaluations to determine the additional headloss due to the PFAS IX treatment vessels.

Additionally, we have performed preliminary electrical load evaluations. MCC No.1 powers Transfer Pump No.1, 2,3 and 4 and has two spare circuits. This MCC is rated for 1600A and has 455A unused capacity. The existing loads on the MCC will be verified during preliminary design.

Dechlorination For Optimal PFAS IX System Operation

We understand that the design and operation of a sodium bisulfite dechlorination system requires careful attention to safety to mitigate risks associated with handling, storage and application. The City can trust the Hazen team to design a sodium bisulfite dechlorination system that is reliable and safe to operate. We will work with the City to identify the best location on site for installing the new sodium bisulfite chemical storage and feed facility to minimize impacts to the WTP operation.



Our team is experienced with the design and/or retrofit of chemical storage and feed systems at existing plants, having recently designed and delivered upgraded chemical systems at multiple plants in Florida.

A double walled sodium bisulfite tank with capacity for 30 days of storage will be sized, designed and specified along with skid mounted metering pumps in a duty/standby configuration to feed to an application point downstream of the FIX system for TOC removal, prior to the PFAS IX system. If desired, a low-maintenance system such as erosion tablet dechlorination may be considered as an alternative to an automated liquid bisulfite dosing system.

Our team focuses our chemical system designs on compliance with regulatory requirements,
maintaining operating safety, and system reliability and redundancy.

1021-728

Site Planning Options

Optimizing the site layout for the new IX facilities is critical for Operations and Maintenance staff.

Based on discussions with City staff and our review of the PFAS Treatment Feasibility Evaluation document, the most viable site for the proposed Ion Exchange PFAS removal facility is near the front gate entrance in the northeast corner of the WTP. This location presents minimal challenges for siting of the new facilities.

Addressing the site planning challenges with minimal disruption

to your existing facilities is our priority.

The Hazen team has reviewed the existing WTP site as well as facilities site recommendations in the PFAS Treatment Feasibility Evaluation Report and identified specific challenges to design and construction of the proposed Ion Exchange facilities:

Challenge	Hazen Approach
Minimize disruption to existing WTP	The Hazen team will integrate the new facilities with the existing WTP infrastructure, such as piping, electrical, and control systems, without compromising the functionality and reliability of the current operations. We will also coordinate construction activities with existing WTP staff to avoid interfering with daily tasks. Alternatively, the City could consider the purchase of water from a neighboring utility during construction.
Constrained space	The Hazen team will develop a design for the new facilities that will fit within the available space and comply with the zoning and setback requirements.
Minimization of environmental impacts due to proximity to the adjacent properties	The existing WTP site is surrounded by residential and commercial properties, which may be sensitive to the noise, dust, traffic, and visual impacts of the new facilities and construction activities. The Hazen team will develop a final site plan that minimizes environmental impacts to the extent possible.

1021-728

One example of a constrained site location is the existing transfer pump station west of the FIX system.



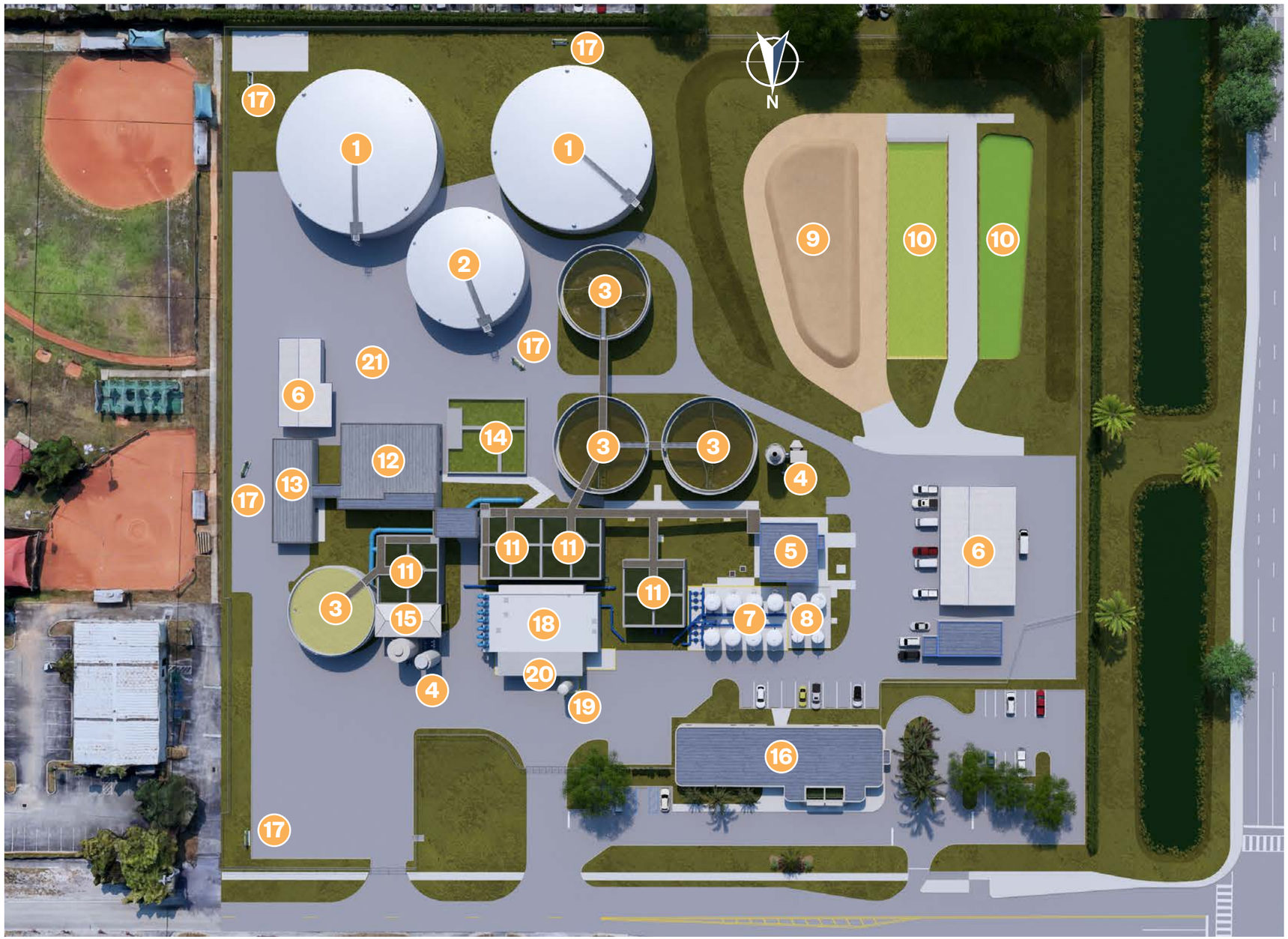
In consideration of these challenges, the Hazen team has developed two options (previously described on page 48) for a cost-effective and schedule-sensitive site layout. We recognize that there are variations for these options based on the priorities and needs of City staff. The Hazen team will further refine and validate site layouts during preliminary design of the project after consultation with the City. **Our approach aims to utilize as much of the existing infrastructure as possible to minimize cost.**

1021-728

Existing Site Plan

Pembroke Pines WTP

1. Storage Tank (2.0 MG)
2. Storage Tank (1.0 MG)
3. Accelerator
4. Lime Silo
5. Chemical & Control Building
6. Maintenance Garage
7. Fix Vessel
8. Brine & Regeneration System
9. Lime Sludge Storage
10. Sludge Lagoon
11. Filter
12. High Service Pump Building
13. Electrical Bldg. & Generators
14. Backwash Recovery
15. Sodium Hypochlorite Storage & Feed
16. Administration Building
17. Supply Well
18. Clearwell
19. Carbon Dioxide System
20. Old Chlorine Building
21. Fluoride Bulk Storage



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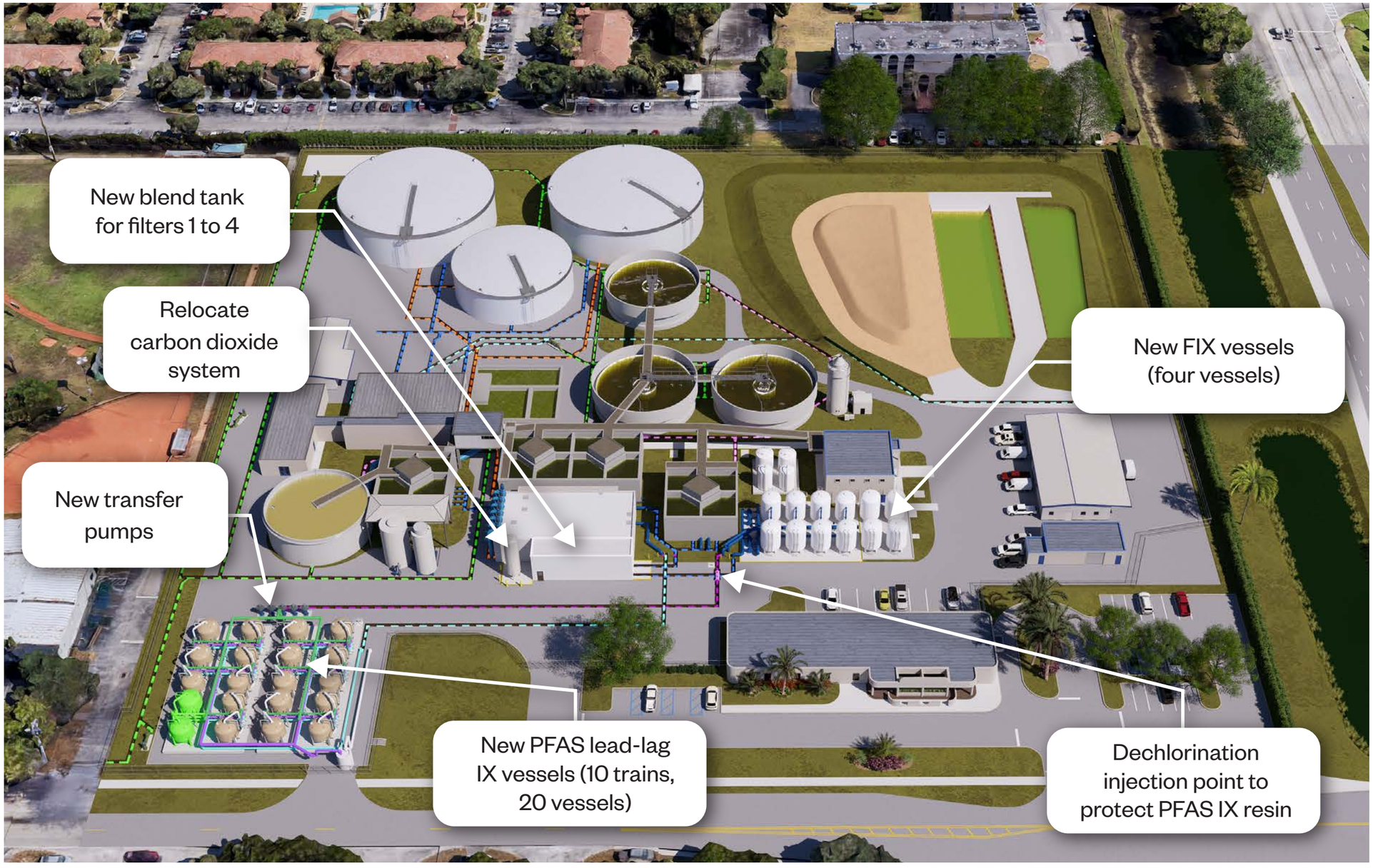
Expand existing fixed-bed ion exchange (FIX) system and add single-use PFAS IX treatment.

Expand the existing FIX system from 12 MGD to 18 MGD at its current location to enhance removal of total organic carbon (TOC) and color. This will be followed by the construction of a new 18 MGD PFAS lead-lag IX system (10 trains) at the southwest corner of the water treatment plant (WTP).

- Demolish the former chlorine building and relocate the existing carbon dioxide system to create space for the new blending tank.
- Construct a new blending tank to collect flow from Filters 1, 2, 3, and 4, addressing hydraulic limitations that currently prevent flow from Filters 1, 2, and 4 from reaching the FIX vessels.
- Relocate the brine system to the west of the existing chemical and controls building, including associated yard piping modifications.
- Install new transfer pumps to support the new PFAS treatment system.
- Modify existing yard piping to improve hydraulic performance and integrate the new PFAS treatment system.
- Construct a new chemical injection vault and static mixer in the yard piping between the FIX and PFAS IX systems to dose sodium bisulfite for dechlorination, protecting PFAS resin and optimizing system performance.

Our team will conduct workshops with City to finalize the most sustainable and cost-effective new facilities layouts and design.

Option 1A: Base Project Layout - leverages existing assets, better use of available land, and reduction in vessels needed.



1021-728

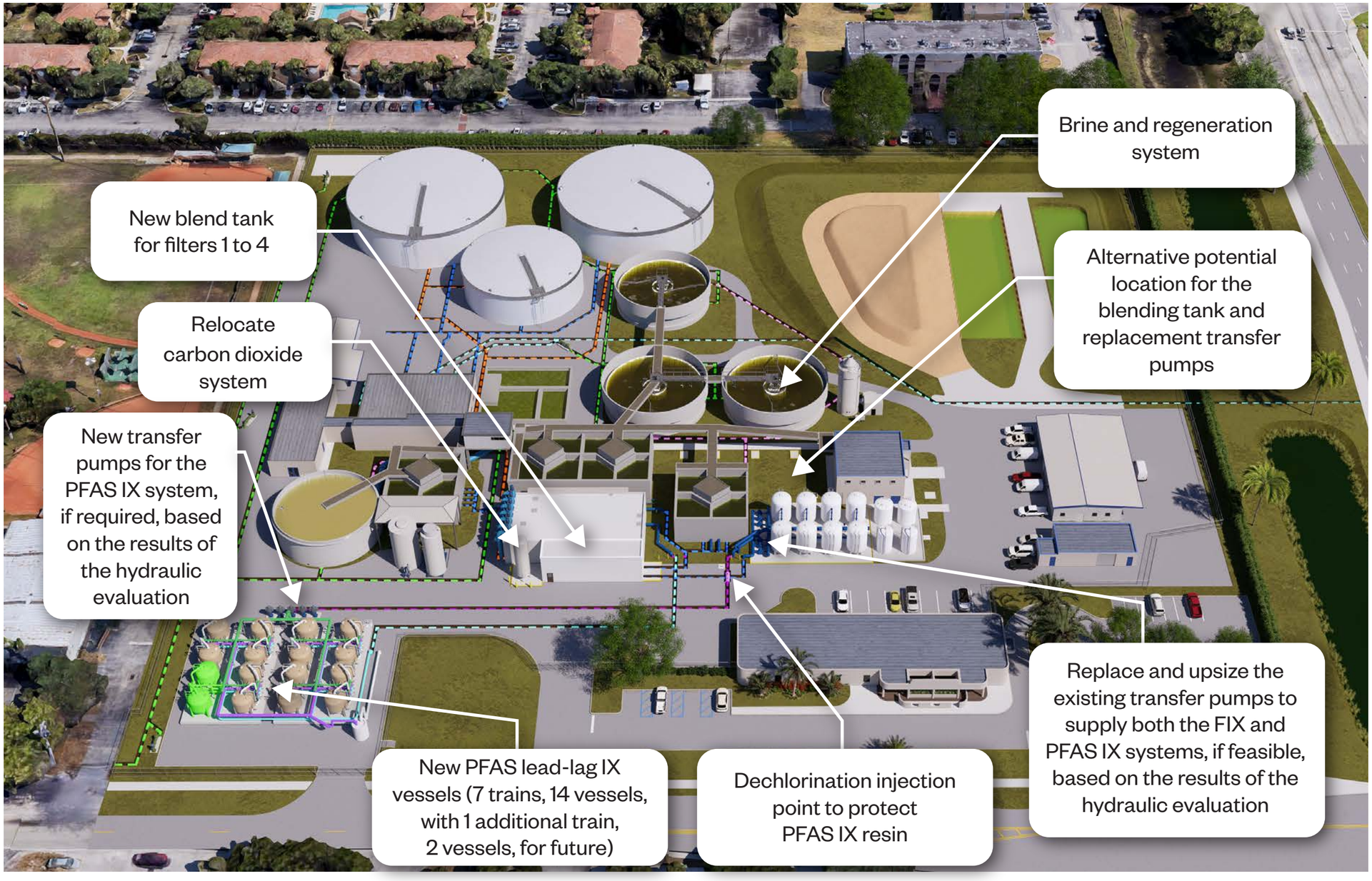
Maintain existing fixed-bed ion exchange (FIX) capacity and add single-use PFAS IX treatment.

Optimize the existing 12 MGD FIX system. Construct a new 18 MGD PFAS lead-lag IX system (7 trains, with space for a future train) at the southwest corner of the WTP.

- Demolish former chlorine building and relocate the existing carbon dioxide system to create space for the new blending tank.
- Construct a new blending tank to collect flow from filters 1, 2, 3, and 4, addressing hydraulic limitations that currently prevent flow from filters 1, 2, and 4 from reaching the FIX vessels.
- Install new transfer pumps to support the new PFAS IX treatment system. Further hydraulic evaluations will be performed to confirm whether new pumps are needed or if existing FIX transfer pumps can be upsized to overcome headloss across both IX systems—an approach that could reduce project costs if feasible.
- Modify existing yard piping to improve hydraulic performance and integrate the new PFAS treatment system.
- Construct a new chemical injection vault and static mixer in the yard piping between the FIX and PFAS IX systems to dose sodium bisulfite for dechlorination, protecting PFAS resin and optimizing system performance.

Our Team will conduct workshops with the City to finalize the most sustainable and cost-effective approach for ion exchange to accomplish TOC, Color and PFAS removal.

Option 1B: Value Engineered Project Layout



1021-728

Ensuring reliable service through Expert Maintenance of Plant Operations (MOPO)

We have thoroughly reviewed the City's Master Plan, PFAS Feasibility Study, and record drawings, and we fully understand the hydraulic limitations identified. Addressing these restrictions will require modifications that add construction complexity.

This complexity introduces a significant risk of unplanned interruptions to water production. To proactively mitigate this risk, Hazen has designated George Brown, PE, as the lead civil and process mechanical design engineer. Mr. Brown has a well-established track record of successfully delivering complex improvements at operational water treatment plants.

He will develop a comprehensive construction sequencing specification, including detailed Maintenance of Plant Operations (MOPO) sequencing drawings, to ensure uninterrupted water production throughout the construction phase.



The City can have full confidence in the Hazen team

to deliver design documents that anticipate potential challenges and safeguard against unplanned service disruptions during construction.

1021-728

Our design approach will ensure that the proposed water plant improvements are certified for four-log virus treatment with the FDEP.



Broward boil alert remains in place

Water notice affects eight cities

BY DAVID FLESHLER
Staff writer

A boil-water notice that has caused hassles across much of eastern Broward County will last at least through Tuesday afternoon, according to the city of Fort Lauderdale.

News clipping source: South Florida Sun Sentinel 08/11/2015 p. B1.

Benefits of obtaining and maintaining four-log virus treatment certification:

- Added level of protection for City's customers.
- Boil water alerts are avoided.
- Cost of triggered source water monitoring is avoided.

Hazen is a leader at four-log virus treatment.







Hazen's proposed project manager and process mechanical lead are Hazen's leading experts at obtaining four-log virus treatment certification from the FDEP.

Our deep understanding of these requirements ensures a successful application.

1021-728

Task 3 - Detailed Design

Preparation of Construction Documents

Hazen and Sawyer has developed standard drawings of the proposed PFAS IX systems to allow our Team to more effective and efficiently execute this type of project. With this level of previously developed and reviewed material, we can focus on the bespoke portions of the design that are critical to maintenance of plant operations and ease of future functionality.

Fundamental to meeting the City's site and time constraints, while ensuring continuous WTP operation, is breaking the project down into logical bid packages. This approach will provide flexibility with construction phasing to facilitate accelerated project completion. We have analyzed the project requirements and as previously noted, have determined that one bid package would be most advantageous to the implement the new ion exchange facilities and other required WTP plant modifications from a cost and schedule perspective:

Final Design

Following preparation of the preliminary design report, 30%, 60%, and 100% design-level contract documents bid package will be prepared for the City's review. This will include drawings, City front-end specifications, and technical specifications. An updated cost opinion and construction schedule will be provided at each design phase along with the contract document submittal. The design drawings will consist of general, civil, mechanical, structural, architectural, electrical, HVAC, plumbing, instrumentation and controls, as applicable.

HAZEN BENEFIT

- Our cohesive team is focused on water work that includes the full range of engineering design services required for this contract.

30% — 90% — 100% — Bid

30% Deliverable

- Final P&IDs
- Plan view and major elevation drawings
- Electrical schematics
- 30% schematic-level engineering drawings
- Final design calculations
- Applicable permit applications
- Construction sequence summary
- Updated schedule
- Class 4, 30% cost estimate

90% Deliverable

- 90% engineering drawings
- 90% specifications, special conditions and bid form
- Updated schedule
- Final QC performed
- Class 2, 90% cost estimate

100% Deliverable

- 100% engineering drawings
- 100% specifications, special conditions and bid form
- Updated schedule
- Class 2, 100% cost estimate

Bid Documents

- Bid set engineering drawings
- Bid set written specifications
- Bid form
- Related bid documents

1021-728

Task 4 - Permitting and Bidding

Permitting

Obtaining all pertinent permits is crucial since any delays in the permitting process can ultimately delay construction of the improvements. The Hazen team has in-depth familiarity and excellent relationships with the regulatory and permitting agencies (and their procedures) that regulate water supply and water treatment in Florida. We have prepared permit applications for new facilities in addition to renewals and modifications.

Additionally, Hazen has worked closely with many of our clients to develop operational tools that can be used to track monitoring and permit requirements, which can be added to the computerized maintenance management system. We will work closely with operations staff to review plant records, perform detailed facility inspections, coordinate sampling and testing programs, and develop tools based on the computerized operational system to track permit compliance. This allows us to quickly prepare and process permit applications, avoiding potential permitting delays.

It is our standard practice to hold preliminary meetings with each agency to determine the earliest possible stage at which a permit application may be submitted to ensure that permitting does not delay overall project implementation. We will participate in meetings, submissions, and respond to RAIs that will result in successfully obtaining necessary construction and operating permits.



Hazen will initiate permitting activities with the applicable agencies in concert with final WTP design development.

Permitting, Bidding, and Award

- Initiate permitting process early to ensure that there are no surprises.
- Develop a logical bid approach that will meet the City's schedule for project completion.

The Hazen team's ability to quickly secure permits from the various regulatory agencies that have jurisdiction over our client's projects **allows for the rapid implementation of improvements.**

HAZEN BENEFIT

Detailed knowledge of the permitting process and excellent relationships with regulatory agencies ensure smooth navigation of the requirements and success with permit applications.

Building Department

1021-728

Bidding

Following completion of the detailed design, Hazen will assist the City with bidding of the project, including finalizing the City's front end/contractual documents and ensuring that unit price bid items manage the City's cost escalation risk. The scope items for bid package:

- **Pre-Bid Conference.** Attend a pre-bid conference at the date and time established by the City.
- **Addenda Preparation.** Provide timely responses to the inquiries of prospective bidders by assisting the City while preparing written addenda to clarify the bidding documents. The City will distribute addenda to bidders.
- **Award.** Prepare recommendation for award letter
- **Prepare Conformed Drawings and Specifications.** Prepare conformed drawings and specifications by incorporating revisions made by addenda during the bidding period. These will be provided to the City before award of the construction contract for distribution to the Contractor.

Hazen has the experience and local knowledge to help clients expedite delivery and reduce construction costs. Packaging critical process units into complete packages with performance guarantees and reasonable warranty periods when appropriate will avoid risk. Our Team's strategy to proactively address an increasingly challenging bidding environment is presented in table below.

Potential Issue/ Opportunity	Hazen Mitigation/Enhancement Strategies
Establishing qualifications without discouraging participation	Ion Exchange systems are specialized facilities that require qualified contractors to ensure their optimal performance and reliability. Our team will carefully consider minimum qualifications – based on relevant experience and expertise – for the work required for this project. We will pay attention to the trade-off between competitive bidding and the potential risk to schedule and cost of contracting with a less qualified contractor.
Low bid participation/ Compliance with Build America Buy America (BABA) Act	The inclusion of multiple manufacturers for major equipment items will encourage competitive bidding. This is important to ensure a cost effective project, and specifically, to remain in compliance with the BABA Act. In addition, the team will identify a list of qualified potential bidders to the City for invitation to bid.
Wide distribution of bid prices	The Hazen team recognizes that the more comprehensive the information provided to bidders, the tighter the bids. This includes clear and complete information on existing site conditions, WTP infrastructure, and operational constraints (detailed sequence of construction and MOPO) for the Ion Exchange WTP.
Bid proposals exceeding the City's budget	Bid package will benefit from Hazen's cost estimating expertise to assist the City in developing a realistic budget for the work. Hazen will take full advantage of previous design and operational experience for Ion Exchange and Lime softening systems to maximize opportunities for cost savings.

1021-728

Task 5 - Comprehensive Construction Oversight Services

Professional Services During Implementation

The Hazen Construction Team is entirely local. They know the local conditions, local contractors and are very familiar with building techniques that have been used in the past in South Florida and the best way to upgrade facilities here in the region. This experience and knowledge will translate into a well executed construction project that will stay on schedule and control costs.

Hazen has provided construction administration services ranging from full-time to limited involvement and every combination in between. Another key factor is the involvement of Hazen's design engineers throughout the construction and start-up of the project. Given that our team members are local, they will be available for site visits and inspections as needed.

Our construction administration services will begin at issuance of the construction notice to proceed. Hazen will hold a Pre-Construction Meeting to familiarize all parties and delineate lines of communication and procedures for the project. This will establish a guideline for the Contractor, Hazen, the City and any other involved parties.

Once the Contractor begins submittal of shop drawings, Hazen will log their receipt and begin review. In some cases, Hazen may contact the Contractor and/or its vendors to request supplemental information or clarification in an effort to expedite the process. Shop drawings will be returned as quickly as possible, bearing in mind that certain items, like pumps, require multidisciplinary reviews.

Throughout the duration of the project, we will provide oversight and address change management items, including requests for information, contract document clarifications, field orders, and change orders. These items will be thoroughly discussed with the City's representatives to ensure approval prior to modifications to the project cost or time.

Another important activity will be periodic review of record drawings, which will be done to ensure the Contractor provides a complete set of "red line" drawings at the end of the project. These regular reviews are critical in ensuring a useful set of record drawings that will become a valuable tool for future projects.



We take pride in the fact that our engineers will see this project through from the conceptual design phase to the start-up and testing period.

CONSTRUCTION MANAGEMENT

PRE-CONSTRUCTION
- Permitting
- Bid/Award Services
- Pre-Construction Meeting
- Verification of Maintenance of Plant Operations Plan

CONSTRUCTION
- Document Control
- Reviews: Submittals, RFIs, Payment Application, O&M Manuals, Certifications, etc.
- Progress Meetings
- Construction Observation
- Special Inspections
- Start-up/Commissioning
- Training

POST-CONSTRUCTION
- Operation Assistance & Optimization
- Permit Closeout
- Project Closeout
- Record Drawings

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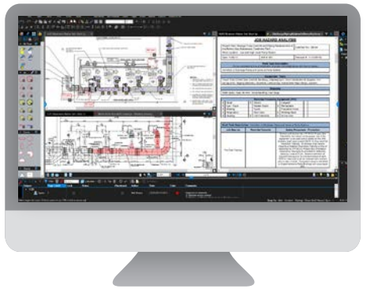
We embrace the use of technology to produce high-quality designs.



Cloud-Based Systems

Hazen team members are familiar with cloud-based systems including SharePoint, Procore, and e-Builder.

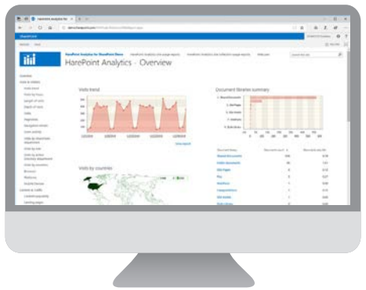
- We will adapt document control to the meet the City's desired requirements, level of accessibility, and cost.
- Project information/records are available at all times.
- Common file cabinet allows for project information to be shared with the entire team.



BLUEBEAM® REVU®

We use Bluebeam throughout the life of a project, from preliminary design through construction.

- Allows team members to concurrently review and collaborate on drawings and automatically creates a log of comments to facilitate QA/QC activities.
- Provides instant access to details, shop drawings, RFIs, etc. through hyperlinks on the contract drawings. No need to open additional windows or carry extra documents.
- Creates redline drawings as work is constructed, thus initiating close-out as the project progresses.



SharePoint

Hazen will utilize SharePoint for its main document repository with the City.

- Utilization of SharePoint will allow project participants to efficiently interact with team members, manage content and workflow, and store organizational resources.



AUTODESK® BIM 360™

Hazen CM embraces the use of the BIM model.

- Facilitates coordination between the various project trades (i.e., electrical, piping, HVAC, and equipment).
- Simulates critical and dangerous work activities. Can run various scenarios through the model to identify clashes and risks, resulting in better conflict resolution and delivery of a higher-quality project to the City.
- Creates a final as-built project record.



Power BI

All members of the Hazen Team can assist the City in leveraging the benefits of Power BI.

- Interactive personalized dashboards and reports with real-time information presented visually.
- Integration with a wide array of data sources.
- Efficient collaboration and sharing.



Tablets

We use tablets extensively in the field. All project information is available to our staff in the field in real-time.

- Condition assessment inspections can be conducted efficiently using tablets that allow the user to immediately upload photos and notes to the Cloud.
- For any issues or questions, photos can be taken, correlated to a drawing and location, and transmitted to the project team for resolution.
- On-site access to the full project record, including shop drawings, BIM models, etc., allows collaboration with contractors, facilitating safety, quality, and efficiency.

Closeout Services

The Hazen team will ensure that all permits are properly closed out. Hazen will also archive the project materials (contract documents, construction records, warranties, and operation and maintenance manuals) to make them easily searchable and retrievable. Closeout services also offered by Hazen include one-year operational assistance on an as-needed, as-requested basis.

We take pride in the fact that our engineers will see this project through

from conceptual design phase to the start-up and testing period.

Construction Services

- Engage City staff to ensure construction is not disruptive to plant operations.
- Ensure items required for Certificate of Occupancy are streamlined to avoid delays.
- Provide ongoing feedback regarding deficient (punch list) items.

Start-up, Training, and Operations Services

Operation and Maintenance (O&M) of a water facility can pose challenges for even the most seasoned utility staff personnel. Hazen can help you meet those challenges.

With over seven decades of experience in the design and operation of environmental infrastructure, along with over 1,800 of the most experienced and specialized engineers, operators, and administrative staff in the industry, Hazen is ready to meet your O&M challenges and help solve your toughest challenges. From individual O&M services to multi-million dollar, large-scale O&M programs, Hazen has the experience and resources to meet all your O&M needs.

Startup and Operations

- Execute membrane startup testing procedures, including process optimization and performance monitoring.
- Engage WTP operator personnel early to ensure that O&M manuals, standard operating procedures, and training workshops are tailored to meet the City's specific needs.

Make Your First Step a Success

Successful start-up and facility operation depends not only on design, but also on operating personnel who understand the interaction between systems and equipment. This is where expertise from our O&M professionals can help. A sampling of the wide spectrum of services Hazen can provide includes the following:

- Personnel training
- Plan of operation, Standard Operating Procedures (SOP), O&M manuals, and pocket guides
- First-year operations certification
- Process troubleshooting and optimization
- Computerized maintenance manuals and equipment maintenance databases
- Effective predictive and preventive maintenance programs
- Safety program preparation
- Vulnerability analysis and emergency planning



Hazen's O&M professionals offer a mix of learning approaches tailored to the specific needs of your organization. Our user-friendly training allows attendees to bring new concepts and skills back to their workplace.

1021-728

The Hazen Difference

100 percent of our business is in the water and wastewater fields. Hazen is one of the very few engineering firms in the *Engineering News-Record* Top 500 listing who share this specialization. This focus enables us to achieve excellence in water resources engineering and facilities O&M. As a client, you can rest assured that we anticipate and solve problems before they turn into setbacks for your organization.

Hazen's portfolio of work ranges from smaller facilities to many of the most sophisticated plants in the world. We provide O&M assistance, from bringing a new piece of equipment on line to analyzing your entire operation.

Start-up, Shakedown, and Testing

Drawing on Hazen's in-depth knowledge of process design and environmental engineering, our start-up, shakedown and performance/acceptance testing services assist with a broad range of facilities, processes, and equipment.

User-Friendly Training and Safety Support Services

In collaboration with your staff, Hazen's O&M professionals offer hands-on classroom training, innovative training facilitation, as well as the creation of O&M manuals, SOPs, SEMPs, and related documents.



We also have extensive knowledge of Occupational Safety & Health Administration (OSHA) regulatory requirements and have years of experience helping personnel put these requirements into practice at water and wastewater facilities. Hazen instills a proactive, "safety first" attitude, whether we are writing OSHA- compliant, site-specific safety procedures and written safety programs; conducting facility safety audits and existing safety program peer reviews; or providing safety training of your facility personnel.

Hazen places a strong emphasis on user-friendly training and facilitation to keep your facilities in optimal condition and your employees safe.



Hazen I&C engineers work closely with the Contract System Integrator to optimize system operating setpoints, alarms, data recording, etc., ensuring smooth startups and transition to fully commissioned water facilities.

1021-728

Troubleshooting and Improved Operations

Hazen has helped some of the world's largest and most complicated water and wastewater facilities with troubleshooting services and money-saving operations improvements, such as Process Control Systems (PCS) and consumables optimization. We also offer assistance with regulatory compliance issues.

Maintenance Management:
A Predictive Approach

Our predictive, preventive, and corrective maintenance services use a mix of real-world condition assessments and advanced techniques. Hazen utilizes a Computer Maintenance Management System (CMMS) to help our clients effectively manage assets and avoid costly unplanned failures.



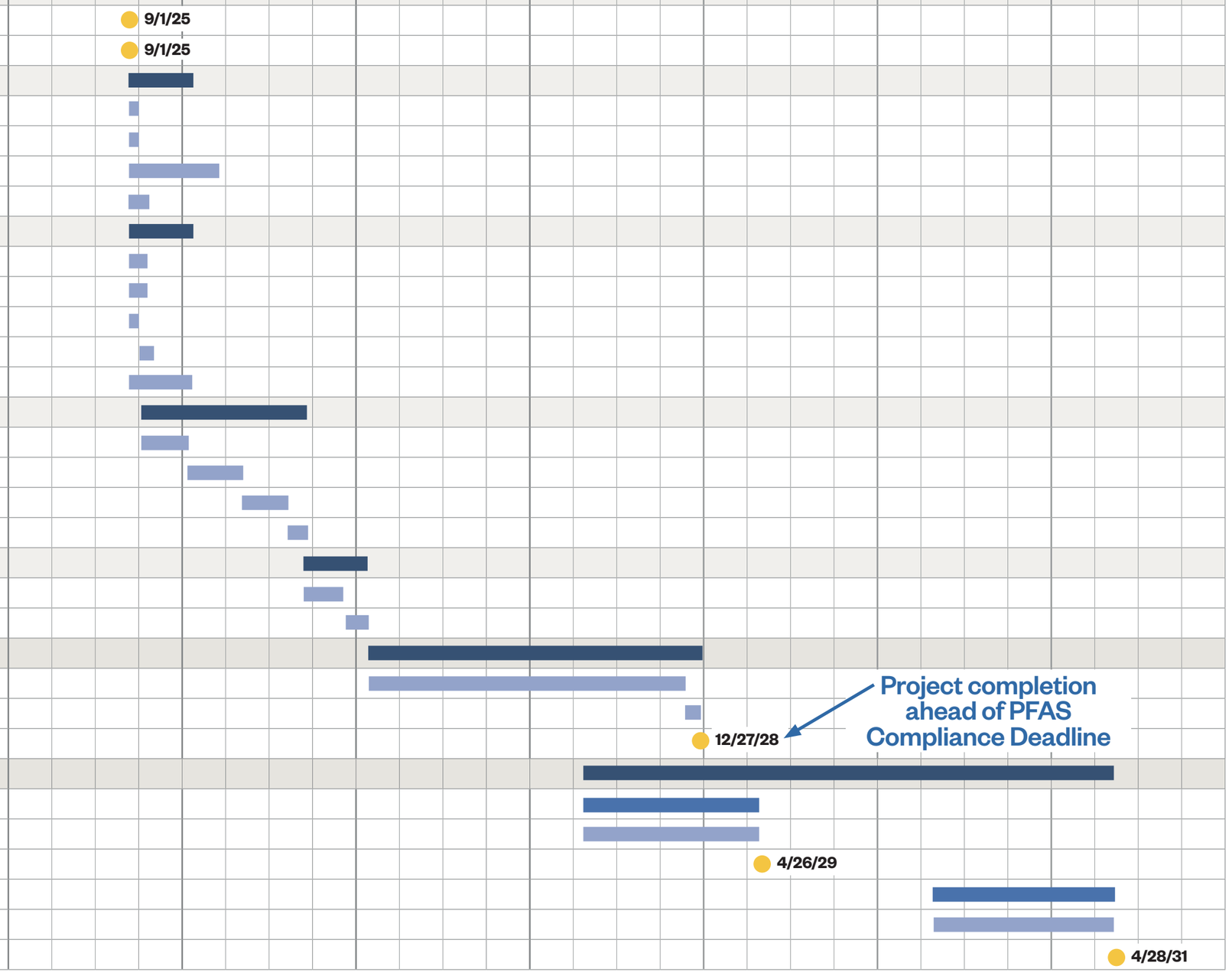
For the City of Plantation, Hazen provides ongoing operational assistance during the start-up of five chemical systems for the 12-mgd East Membrane Softening Plant.

With over seven decades of experience,
we can solve problems before they turn into setbacks.

1021-728

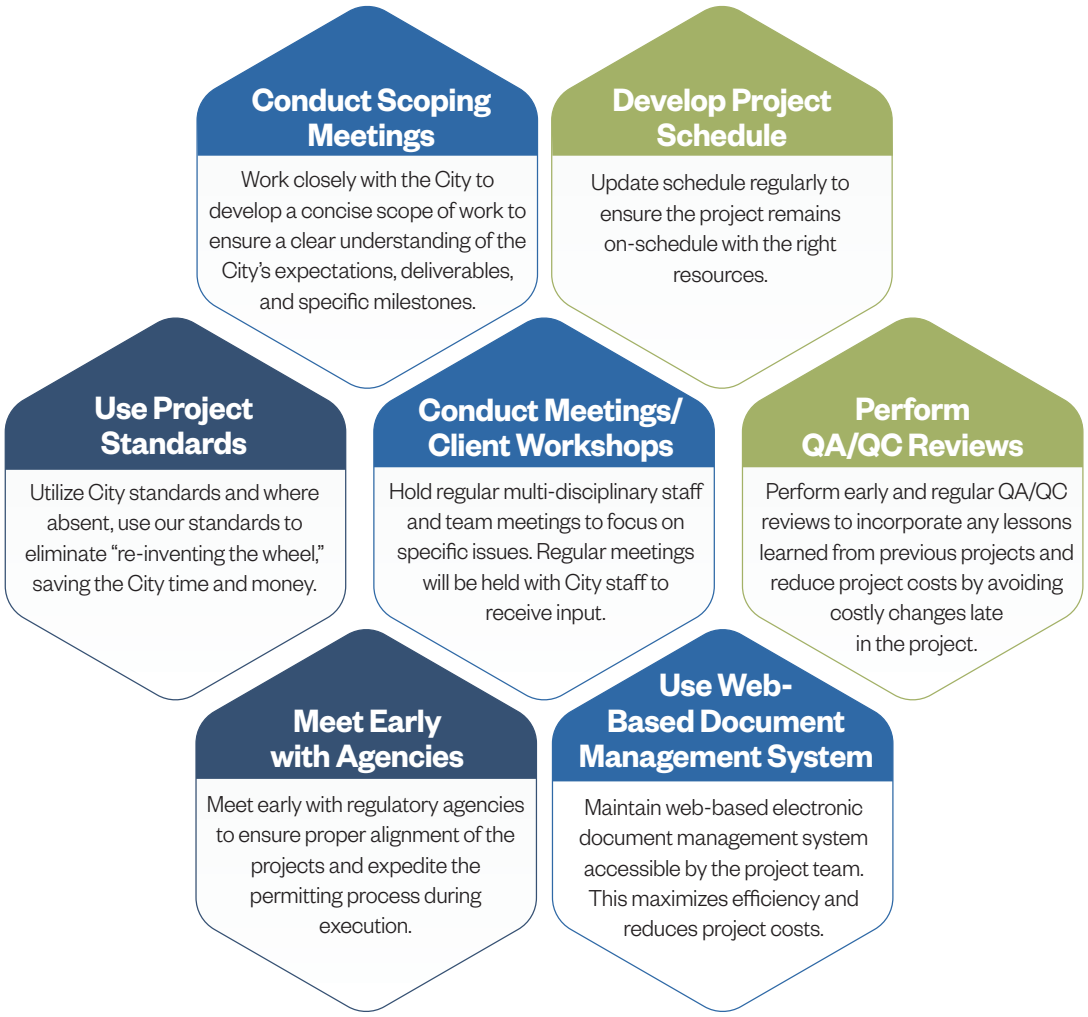
City of Pembroke Pines Water Treatment Plant - Preliminary Schedule

	Start	Finish
Project Initiation	**9/1/25**	**9/1/25**
Notice to Proceed (NTP) - Fully Executed	9/1/25	9/1/25
Kick-Off Meeting	9/1/25	9/1/25
Task 1: Planning and Evaluation	**9/2/25**	**1/19/26**
Water Quality Evaluation	9/2/25	9/29/25
Desktop Analysis of BAT's	9/2/25	9/29/25
Ion Exchange Pilot Study	9/2/25	3/19/26
Corrosion Control and Water Stabilization Desktop Evaluation	9/2/25	10/13/25
Task 2 - Preliminary Design	**9/2/25**	**1/19/26**
Surveying and Subsurface Utility Investigations	9/2/25	10/13/25
Geotechnical Evaluation	9/2/25	10/13/25
Hydraulic Evaluation	9/2/25	9/29/25
Identify Long Lead Items and Early Procurement Items	9/30/25	10/27/25
Develop Preliminary Design Report (Draft and FInal)	9/2/25	1/19/26
Task 3 - Detailed Design	**10/1/25**	**9/1/26**
30% Design Package (Drawings, specifications and Cost Estimate)	10/1/25	1/6/26
60% Design Package (Drawings, specifications and Cost Estimate)	1/7/26	4/28/26
90% Design Package (Drawings, specifications and Cost Estimate)	4/29/26	8/4/26
100% Design Package (Drawings, specifications and Cost Estimate)	8/5/26	9/1/26
Task 4 - Permitting and Bidding	**9/2/26**	**1/12/27**
Permitting (Applications, Review meetings and Certifications)	9/2/26	12/1/26
Advertise, Bid and Award	12/2/26	1/12/27
Task 5 - Comprehensive Construction Oversight Services	**1/13/27**	**12/27/28**
Construction of WTP (24 months)	1/13/27	11/14/28
Startup and Operations Assistance	11/15/28	12/26/28
WTP in Service	12/27/28	12/27/28
PFAS Deadlines	**4/26/28**	**4/28/31**
Original PFAS Timeline	**4/26/28**	**4/26/29**
Beginning of one year running average	4/26/28	4/26/29
EPA Compliance deadline	4/26/29	4/26/29
Revised PFAS Timeline	**4/26/30**	**4/28/31**
Beginning of one year running average	4/26/30	4/28/31
EPA Compliance deadline	4/28/31	4/28/31



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Our Project Management Approach At-a-Glance



Our project management approach includes development of a work plan at the project onset. The work plan will identify all team members, contact information, and a date-specific timeline for milestones and deliverables. It will also clearly define each team member's responsibilities, budget assignments, and expectations. We will initiate our projects using work breakdown structure practices to clearly define tasks, schedules, and budgets. A set of project deliverables will be identified during scope development. Deliverables will be submitted to allow sufficient time for client review prior to meetings (workshops) to discuss concepts, finalize design criteria, and allow for client input.

Hazen encourages client involvement in the decision-making process on a regular basis throughout the design phase. In addition to typical information exchanged during progress meetings, critical criteria are developed and discussed together with all members of the design and construction team. All members are encouraged to participate and offer insight relative to the importance of each topic discussed during the meeting.

As part of our project management approach, we will schedule periodic deliverables for review by City staff so that staff has the opportunity to review and approve the initial concepts. This allows for constructive feedback throughout the project, which avoids unnecessary reworking of the project documents late in the project phase, saving time and money. This will be performed generally through the 10 percent, 30 percent, 90 percent, permitting, and final design submittals, with interim meetings held to review specific design concepts, if necessary.

1021-728

QA/QC

Every project is required to have a Quality Control Plan and execution and adherence to the plan is strictly enforced. Our firm has a Chief Quality Officer (a senior partner of the firm), regional quality coordinators (all partners in the firm), and local office liaisons. QA/QC implementation is a daily practice with formal milestone reviews and quarterly auditing and reporting to the firm's President and Board of Directors. This provides for the highest quality deliverables for your projects. **Ms. Durand and Mr. Page** will ensure the successful implementation of quality control reviews. They will develop a quality control plan as part of the project work plan.

Our Process

Assign the correct team.

Ensure the scope is correct.

Plan the work and work the plan.

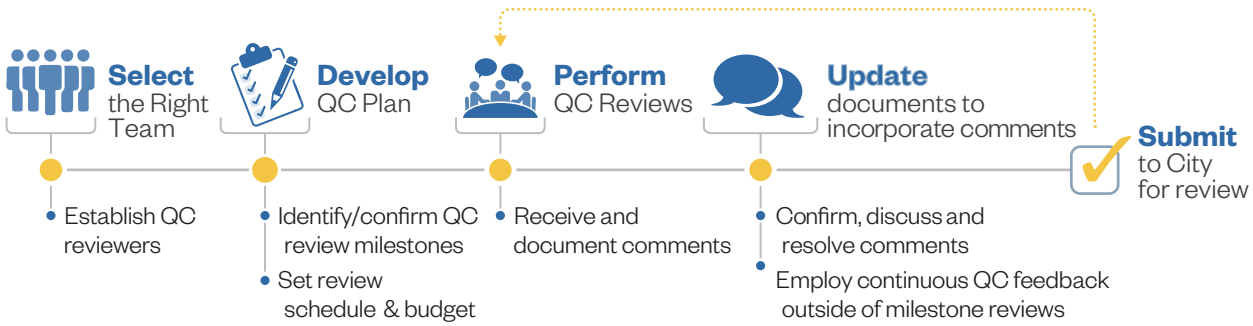
Perform frequent project monitoring.

Providing quality engineering services and deliverables is a core element of Hazen's business practice and is inherent to our culture. We have a company-wide Quality Assurance Policy Manual to provide guidance to staff during the execution of every project. This plan involves discipline and inter-discipline review by senior professionals at the conceptual, preliminary, draft, and final design stages, as further described below:

- The 10% preliminary review is done very early in the project and takes advantage of our senior staff's vast knowledge and experience to identify a "better way" to accomplish project goals. We encourage client participation in this stage of review.
- The 30% conceptual review checks for compliance with the project schedule and budget, and involves performing checks on calculations, discipline specific issues, inter-discipline coordination, preliminary cost estimates, and regulatory compliance.
- The draft review performs in-depth discipline and inter-discipline coordination reviews using extensive checklists, coordination of specifications and drawings, updates to cost estimate, construction phasing review, constructibility review, and legal review of front end documents. This is typically performed for interim deliverables such as 60% and 90% submittals.
- Final review verifies previous reviews have been completed with issues addressed, constructibility review has been completed, applicable permits obtained or otherwise addressed, construction cost estimates are complete, and that the project is ready for construction.

Every work product produced requires review by appropriate professionals prior to submission.
This practice applies to all work performed by Hazen and the work of our subconsultants.

Quality Control Approach



1021-728

PFAS Communications

As part of our holistic approach to water treatment, we recognize the importance of effective and transparent public communications, especially regarding emerging contaminants such as PFAS.

To address this challenge, we propose to provide the City with comprehensive and professional public communications support regarding PFAS, which will include the following tasks:

- Developing a clear and consistent message and strategy for communicating with the public and the media about PFAS, the City's actions and plans to protect the water quality and public health, and the benefits and challenges of membrane treatment and concentrate disposal technologies.
- Preparing and distributing various communication materials, such as press releases, fact sheets, brochures, newsletters, website content, social media posts, videos, and presentations, that inform and educate the public and the media about PFAS, the City's water system, and the project.
- Organizing and facilitating various outreach events, such as public meetings, workshops, webinars, open houses, and site tours, that engage and involve the public and the media in the project, and that solicit and address their questions, comments, and feedback.

Our team has extensive experience and expertise in public communications,

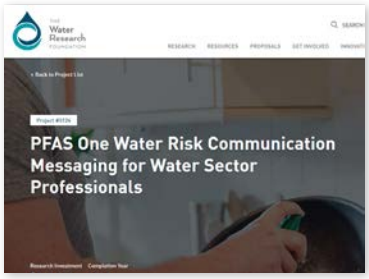
especially in the water sector and on sensitive and complex issues such as PFAS.

We are confident that we can provide the City with high-quality and reliable public communications support that will enhance the public's awareness and acceptance of the improvements to the City's water system.



City of Plantation PFAS Outreach Campaign

Hazen led the campaign planning, management, and materials development to assist with public communications support regarding PFAS. PowerPoint presentations, key messages, website content, videos, and social media posts were created to explain the various PFAS exposures to residents.



Water Research Foundation PFAS Toolkit

Hazen's proposed Communications Lead, Jeff Neale, was one of the main authors of the Water Research Foundation PFAS Toolkit, which provides communications materials water systems can use as they interact with customers, regulators, and other stakeholders.



City of Fort Lauderdale Stormwater Master Plan Community Workshops

The Hazen team provided public outreach throughout the planning and design process for Fort Lauderdale's Stormwater Master Plan. Sixteen meetings/ presentations with neighborhood associations and other civic groups were held with the seven neighborhoods.

1021-728

Cost Control

Hazen is committed to cost control during all phases of the project.

This commitment is supported by effective design management, construction cost management, and a Cost Estimating Group committed to highly accurate estimates.

We understand that designing projects to budget starts with detailed scope development and cost estimating during preliminary design and continues during detailed design development, while collaborating with the City.

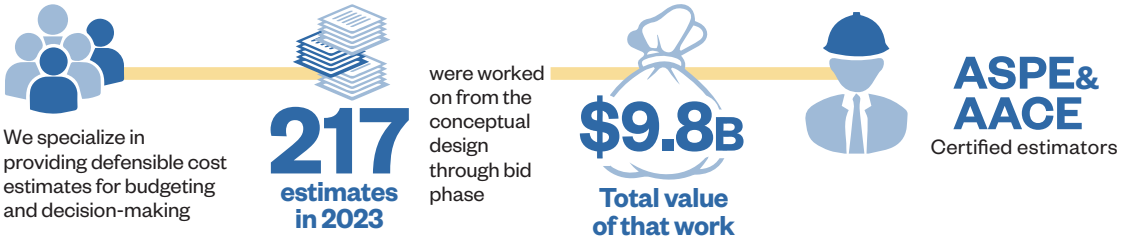
Cost Control of the Design Process

Our process begins with development of a work plan that defines deliverables and due dates, assigns staff and resources needed for the duration, details the effort and expertise required by each task, and overlays a defined project schedule.

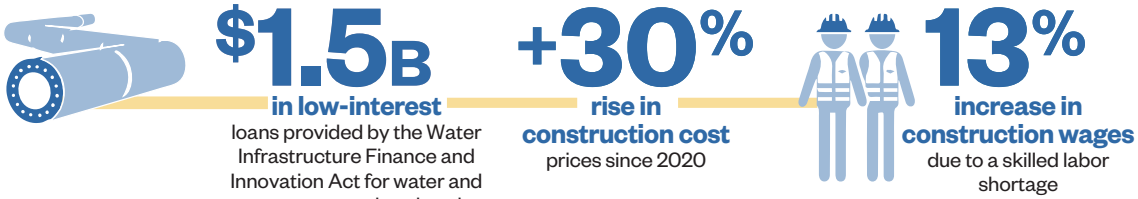
Our proposed Project Manager and Deputy Project Manager, Monique Durand, PE, and Jayson Page, PE,, will closely monitor the progress of each activity to identify any issues that could negatively impact the budget and/or schedule, as well as develop a corresponding corrective action plan if issues arise.

Hazen uses Deltek Vision to provide rapid and accurate accounting of project labor, subconsultants, and other expenditures. The project data facilitate keeping the project on schedule and on budget. By constantly monitoring progress, schedule, and budget, Ms Durand and Mr. Page will proactively make any necessary adjustments to keep the work moving forward effectively and efficiently. We also use reporting visualization tools such as PowerBI® to keep track of progress schedule and budget. These tools can be used to facilitate communication and reporting to Pembroke Pines.

We will leverage our AACE-certified Cost Estimators to provide an accurate budget for the City's membrane plant and Injection Well Facililty.



Our knowledge of construction market conditions will inform the cost estimate. We understand the changing dynamics of the industry.



1021-728

Why Hazen?

By partnering with the Hazen team, the City of Pembroke Pines will gain the right expertise for project success.



Our team has already conducted a desktop analysis of the City's water quality.

We are ready to hit the ground running

to help the City quickly select the optimal path forward that will provide the best overall water quality.

We are ready to begin design immediately.

1021-728

14.2 Financial Statements

As noted in OpenGov:

"The City is **NOT** requesting the vendor to submit any financial statements for this project and prefers if the vendor does not submit financial statements. In addition, if the City needs a copy of the vendor's financial statements, the City can contact the vendor after the bid due date to request those documents. However, if the vendor does submit the financial statements, they should be uploaded in this section."

Thus, a response is not required at this time.

Print

Licensee

Name:	**HAZEN AND SAWYER, P.C.**	License Number:	**2771**
Rank:	**Registry**	License Expiration Date:	
Primary Status:	**Current**	Original License Date:	**11/08/1978**

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
44165	Current, Active	TAYLOR, ROBERT B JR	Registry	04/27/2017	Professional Engineer	02/28/2027



Ron DeSantis, Governor

Melanie S. Griffin, Secretary

FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

BOARD OF PROFESSIONAL ENGINEERS

THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

TAYLOR, ROBERT B JR

13393 159TH ST N
JUPITER FL 334780000

LICENSE NUMBER: PE44165

EXPIRATION DATE: FEBRUARY 28, 2027

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Florida dbpr Department of Business & Professional Regulation

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- File a Complaint
- Continuing Education Course Search
- View Application Status
- Find Exam Information
- Unlicensed Activity Search
- AB&T Delinquent Invoice & Activity List Search

Licensee

Name:	HAZEN AND SAWYER, PC	License Number:	
Rank:	Geology Business Information	License Expiration Date:	
Primary Status:	Current	Original License Date:	06/16/2021

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
PG2697	Current, Active	BULMAN, GERRIT RIJK	Professional Geologist	05/20/2021	Professional Geologist	07/31/2026

Page 1 of 1

Printer Friendly

Return to License Details

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

Florida dbpr

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

BOARD OF PROFESSIONAL GEOLOGISTS

THE PROFESSIONAL GEOLOGIST HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 492, FLORIDA STATUTES

BULMAN, GERRIT RIJK

4000 HOLLYWOOD BOULEVARD
SUITE 750 NORTH TOWER
HOLLYWOOD FL 33021

LICENSE NUMBER: PG2697

EXPIRATION DATE: JULY 31, 2026

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ISSUED: 05/03/2024

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LOCAL VENDOR PREFERENCE CERTIFICATION

SECTION 1 GENERAL TERM

LOCAL PREFERENCE

The evaluation of competitive bids is subject to section 35.36 of the City's Procurement Procedures which, except where contrary to federal and state law, or any other funding source requirements, provides that preference be given to local businesses. To satisfy this requirement, the vendor shall affirm in writing its compliance with either of the following objective criteria as of the bid or proposal submission date stated in the solicitation. A local business shall be defined as:

1. "Local Pembroke Pines Vendor" shall mean a business entity which has maintained a permanent place of business with full-time employees within the City limits for a minimum of one (1) year prior to the date of issuance of a bid or proposal solicitation. The permanent place of business may not be a post office box. The business location must actually distribute goods or services from that location. In addition, the business must have a current business tax receipt from the City of Pembroke Pines.

OR;

2. "Local Broward County Vendor" shall mean or business entity which has maintained a permanent place of business with full-time employees within the Broward County limits for a minimum of one (1) year prior to the date of issuance of a bid or proposal solicitation. The permanent place of business may not be a post office box. The business location must actually distribute goods or services from that location. In addition, the business must have a current business tax receipt from the Broward County or the city within Broward County where the business resides.

A preference of five percent (5%) of the total evaluation point, or five percent (5%) of the total price, shall be given to the **Local Pembroke Pines Vendor(s);** A preference of two and a half percent (2.5%) of the total evaluation point for local, or two and a half percent (2.5%) of the total price, shall be given to the **Local Broward County Vendor(s)**.

COMPARISON OF QUALIFICATIONS

The preferences established in no way prohibit the right of the City to compare quality of supplies or services for purchase and to compare qualifications, character, responsibility and fitness of all persons, firms or corporations submitting bids or proposals. Further, the preference established in no way prohibit the right of the city from giving any other preference permitted by law instead of the preferences granted, nor prohibit the city to select the bid or proposal which is the most responsible and in the best interests of the city.

SECTION 2 AFFIRMATION

LOCAL PREFERENCE CERTIFICATION:

☐ Place a check mark here only if affirming bidder meets requirements above as a Local Pembroke Pines Vendor. In addition, the business must attach a current business tax receipt from the City of Pembroke Pines along with any previous business tax receipts to indicate that the business entity has maintained a permanent place of business for a minimum of one (1) year.

☑ Place a check mark here only if affirming bidder meets requirements above as a Local Broward County Vendor. In addition, the business must attach a current business tax receipt from the Broward County or the city within Broward County where the business resides along with any previous business tax receipts to indicate that the business entity has maintained a permanent place of business for a minimum of one (1) year.

☐ Place a check mark here only if affirming bidder does not meet the requirements above as a Local Vendor.

Failure to complete this certification at this time (by checking either of the boxes above) shall render the vendor ineligible for Local Preference. This form must be completed by/for the proposer; the proposer WILL NOT qualify for Local Vendor Preference based on their sub-contractors' qualifications.

COMPANY NAME: Hazen and Sawyer

PRINTED NAME / AUTHORIZED SIGNATURE: _____

Janeen Wietgrefe, PE, PMP, Vice President

Hazen and Sawyer Business Local Business Tax Receipts

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-357-4829

VALID OCTOBER 1, 2024 THROUGH SEPTEMBER 30, 2025

Receipt #: 315-58
Business Type: ENGINEER (PROF ENGINEER-GROUI

Business Name: HAZEN & SAWYER PC

Owner Name: HAZEN & SAWYER PC
Business Location: 4000 HOLLYWOOD BLVD 750N
HOLLYWOOD

Business Phone: 987-0066

Business Opened: 07/16/1993
State/County/Cert/Reg: F2771
Exemption Code:

Rooms	Seats	Employees	Machines	Professionals
		11		

For Vending Business Only

Number of Machines: Vending Type:

Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
45.00	0.00	0.00	4.50	0.00	0.00	49.50

Receipt Fee	45.00
Packing/Processing/Canning Employees	0.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

HAZEN & SAWYER PC
4000 HOLLYWOOD BLVD #750
HOLLYWOOD, FL 33021

Receipt #035-24-00000237
Paid 10/17/2024 49.50

2024 - 2025

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-357-4829

VALID OCTOBER 1, 2023 THROUGH SEPTEMBER 30, 2024

Business Name: HAZEN & SAWYER PC

Receipt #: 315-58
Business Type: ENGINEER (PROF ENGINEER-GROUP)

Owner Name: HAZEN & SAWYER PC
Business Location: 4000 HOLLYWOOD BLVD 750N HOLLYWOOD
Business Phone: 987-0066

Business Opened: 07/16/1993
State/County/Cert/Reg: F2771
Exemption Code:

Rooms	Seats	Employees	Machines	Professionals
		11		

For Vending Business Only — Number of Machines: — Vending Type:

Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
45.00	0.00	0.00	0.00	0.00	0.00	45.00

Receipt Fee	45.00
Packing/Processing/Canning Employees	0.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

HAZEN & SAWYER PC
4000 HOLLYWOOD BLVD #750
HOLLYWOOD, FL 33021

Receipt #04C-23-00000103
Paid 10/03/2023 45.00
09/30/2023 Effective Date

2023 - 2024

CITY OF Hollywood FLORIDA

2024/2025 LOCAL BUSINESS TAX RECEIPT

Business Name: **HAZEN AND SAWYER, PC**
DBA:
Business Location: **4000 HOLLYWOOD BLVD**
Business Category: **SERVICE/LICENSED BUSINESS**
Classification: **Engineer/Consulting**
Tax Basis: **OVER 50 WORKERS**

Account Registration #: **B9020195-2025**
Expiration Date: **9/30/2025**
Tax Rate: **$700.00**

CITY OF Hollywood FLORIDA

2023/2024 LOCAL BUSINESS TAX RECEIPT

Business Name: **HAZEN AND SAWYER, PC**
DBA:
Business Location: **4000 HOLLYWOOD BLVD**
Business Category: **SERVICE/LICENSED BUSINESS**
Classification: **Engineer/Consulting**
Tax Basis: **OVER 50 WORKERS**

Account Registration #: **B9020195-2024**
Expiration Date: **9/30/2024**
Tax Rate: **$700.00**

Hazen and Sawyer Response

Pricing unsealed at Jun 10, 2025 2:34 PM

CONTACT INFORMATION

Company
Hazen and Sawyer

Email
mdurand@hazenandsawyer.com

Contact
Monique Durand

Address
4000 Hollywood Blvd., Suite 750N
Suite 750 North
Hollywood, FL 33021

Phone
(954) 987-0066

Website
https://www.hazenandsawyer.com/

Submission Date
Jun 10, 2025 12:54 PM (Eastern Time)

ADDENDA CONFIRMATION

☑ Addendum #1
Confirmed Jun 9, 2025 12:59 PM by Julie Forgione

QUESTIONNAIRE

1. CONFIRMATION TO BIND

1.1. I certify that I have read, understood and agree to the terms in this solicitation, and that I am authorized to submit this response on behalf of my company.*

☑ Confirmed

☑ Pass ☐ Fail

2. PRIMARY LOCATION & SINGLE POINT OF CONTACT

2.1. Identify the firm's, single point of contact that is a professionally licensed Engineer for this project. *

Monique Durand, PE, Senior Associate and Proposed Project Manager ☑ Pass ☐ Fail

2.2. Identify the primary location of firm in which the work will be completed in.* ☑ Pass ☐ Fail

Southeast Regional Headquarters: Hazen and Sawyer, 4000 Hollywood Boulevard, Suite 750N, Hollywood, FL 33021

3. EXPERIENCE AND CAPABILITIES

The relative experience and qualifications of each applicant's proposed team, with respect to the project scope, will be judged and a relative rating assigned. This parameter expresses the general and specific project-related capability of the team and indicates the adequate depth and abilities of the organization which it can draw upon as needed. This will include management, technical, and support staff.

3.1. Explain your firm's interest in working on this project, a positive commitment to perform the required work and a description of the firm.*

Ready to Progress Together and Deliver Together with Pembroke Pines ☑ Pass ☐ Fail

Our proposed Project Director, Janeen Wietgrefe, PE, PMP, commits the necessary resources from Hazen and Sawyer (Hazen) to the City to complete all tasks under this contract on schedule and within budget. As a 24-year resident of Pembroke Pines, she is personally and professionally dedicated to helping the City remove PFAS from its water supply as efficiently and effectively as possible. We value our ongoing partnership with the City, which began in 1992, and look forward to the opportunity to support the City in implementing a cost-effective, flexible, and reliable ion exchange (IX) solution to address PFAS and protect public health. With deep PFAS expertise and the most lime softening retrofits in South Florida, Hazen offers unmatched insight into treatment challenges in the region. Our familiarity with regional permitting, construction practices, and utility operations ensures the City benefits from proven strategies, optimized performance, and reliable project delivery—by engineers who live and work in the community. We welcome the opportunity to join you—and progress with you in advancing this important initiative.

Hazen Stands at the Forefront of PFAS Management

With more than 120 PFAS projects nationwide, Hazen works with clients to develop customized and optimized solutions that provide near-term PFAS water quality improvement and long-term sustainability and certainty. We have worked in surface water and groundwater, developed solutions for meeting long-chain and short-chain PFAS targets, and successfully completed projects for facilities ranging in size from less than 60,000 gallons per day (gpd) to more than 200 million gallons per day (mgd). Our team is completing designs for both IX and membrane treatment to remove PFAS from contaminated groundwater, similar to Pembroke Pines. Over the past two years, we have actively researched, bench tested, piloted, and designed PFAS removal systems for water treatment plants in cities surrounding Pembroke Pines and nationwide—allowing us to deliver efficient, effective solutions.

All Things Water® Since 1951—100% of Work Devoted to the Water Environment

Hazen's roots go back over 100 years to the accomplishments of Allen Hazen, one of the pioneers of modern water supply engineering and co-developer of the Hazen-Williams formula for fluid flow in pipes in 1903. Hazen and Sawyer, a New York corporation, was established by Hazen's son Richard and Alfred W. Sawyer in 1951. Together, they created a company culture focused on the profession—not just the business—of engineering. Their legacy is a firm with a reputation for high-quality work and customer service.

Since 1951, Hazen has focused on two critical activities: Helping our clients provide safe drinking water to their customers and controlling water pollution and resultant effects on the environment. Hazen's exclusive focus is water resources engineering. We provide comprehensive capabilities in areas including, but not limited to, evaluation, planning, design, and permitting; hydraulic modeling; regulatory compliance; grant funding; construction management and administration; and startup, training, and operations assistance. Hazen has served utilities with complete in-house engineering services from our regional headquarters in Hollywood, Florida, since 1968. We also have the largest water and wastewater design center in South Florida.

National Leadership and Technical Expertise
Hazen is a nationally recognized leader in municipal drinking water treatment, with a proven record of delivering some of the most advanced treatment facilities worldwide.

Examples include:

- New York City Department of Environmental Protection's (NYCDEP) 290-mgd Croton Water Filtration Plant, New York City's first water filtration plant. Built entirely underground, it provides critical system redundancy, ensuring high-quality water for 9 million residents.
- NYCDEP's Catskill-Delaware Ultraviolet Disinfection Facility, featuring an innovative, large-scale (two billion gallons/day) UV disinfection process which provides increased public health protection while saving New York City more than $4 billion in construction costs and $25 million per year in operation costs.

Our capabilities span the full range of treatment technologies—from conventional lime softening process to advanced solutions such as IX, membrane filtration, and granular activated carbon (GAC) adsorption. These advanced approaches are essential for removing contaminants like PFAS and staying ahead of evolving regulatory requirements. With extensive experience implementing IX systems in Florida and beyond, Hazen is ready to help Pembroke Pines deliver an effective, timely treatment strategy that ensures long-term water quality and public health protection.

Some of the benefits of Hazen's water design expertise include:

- Direct knowledge of similar-sized IX plants that will be used to consider scale and leverage existing assets to control budget.
- Recent IX pilot testing provides valuable data to support the City's efforts in managing PFAS.
- Development of strategic public communications for local municipalities provides the City with effective tools to address concerns related to PFAS and other emerging contaminants.

For more information on the benefits of Hazen's water design expertise, please refer to Additional Information, Qualifications and History, Page 3.

Unmatched Local Experience and Practical Innovation
Hazen has refurbished and repurposed more lime softening facilities than any other engineering firm in South Florida. This includes one of the largest lime softening plants in the world—the John E. Preston Water Treatment Plant, where we supported start-up and optimization efforts for Miami-Dade Water and Sewer Department (WASD). Today, we continue to support many of those same clients through strategic "bolt-on" upgrades that improve resilience and meet evolving regulatory demands. These include our ongoing work for utilities such WASD, North Miami, Fort Lauderdale, and Margate.

How will our lime softening retrofit experience help the City? By applying proven retrofit strategies, Hazen will deliver a reliable, cost-effective IX system that works with your existing plant operations.
No other consultant offers Hazen's depth of experience with lime softening in the region. Our leadership in this space gives us unmatched insight into South Florida's unique water quality challenges, operational considerations, and regulatory drivers. We will apply lessons learned from our work across Florida—including operational IX systems —to deliver a reliable, cost-effective, and customized solution for Pembroke Pines.

Hazen's local water treatment experts have led PFAS piloting, design, and construction projects, and they understand challenges with hydraulics, IX resin selection, and breakthrough. Hazen is at the forefront of testing, design, and implementation of various treatment technologies for removing PFAS compounds for South Florida municipalities and utilities such as Margate, North Miami and North Lauderdale. We offer the City this value-added depth of expertise.

Our local team's expertise in full-scale pilot testing of various adsorptive media, including IX resin for PFAS removal, enables us to complete this project expeditiously and cost-effectively.

Our experience tells us that PFAS removal is not just about the IX resin—it's about delivering the right water quality to the resin in the first place. With our extensive background in lime softening retrofits and our understanding of IX system performance, Hazen is uniquely equipped to design a system that delivers long-term reliability, regulatory compliance, and ease of operation.

3.2. Describe the size of your firm.* ☑ Pass ☐ Fail

With over 2,100 professionals and 84 offices nationwide, Hazen is an employee-owned firm with an established presence throughout Florida. Our Southeast regional headquarters—located in Hollywood for 57 years—will lead the City of Pembroke Pines' Ion Exchange Addition to the WTP for PFAS Removal project, delivering comprehensive engineering and support services. We also maintain branch offices in Fort Lauderdale, Boca Raton, Coral Gables, Orlando, Tampa, Sarasota, Fort Myers, Pensacola, and Jacksonville. When needed, we seamlessly draw on our statewide and national expertise and resources to meet project demands and provide specialized technical support. Many of our team members have been with Hazen for decades, contributing to the continuity, depth, and reliability that define our service.

3.3. Describe your firm's financial history, strength and stability.* ☑ Pass ☐ Fail

Hazen is a professional corporation wholly owned by employees of the firm. During our 74 years of existence, we have consistently operated profitably. Management has always followed a conservative philosophy. In this way, the firm's growth has been sustained and supported by a strong financial base.
We are in a strong financial position in the industry and there are no unique risks which would affect our continued existence.

To aid in your evaluation of our financial stability, feel free to contact our bank reference:
Gordon L. Smith, Executive Director
Chase
Commercial Banking
270 Park Avenue
42nd Floor
New York, New York 10017
Fax: (212) 270-1810
Phone: (646) 534 2241
Email: gordon.l.smith@chase.com

3.4. Describe your firm's range of activities.* ☑ Pass ☐ Fail

Hazen's Full-Service Expertise in Water Infrastructure
Hazen specializes in all things water®. Since 1951, we have focused exclusively on water resources engineering—helping clients deliver safe drinking water. Our comprehensive capabilities span desktop evaluation, planning, pilot testing, corrosion study, hydraulic modeling, detailed design, permitting, regulatory compliance, bidding/award assistance, construction engineering and inspection services, funding assistance, and startup/operational support. From small-scale systems under one mgd to major facilities exceeding one billion gallons per day (bgd), Hazen has successfully delivered solutions for new infrastructure as well as the rehabilitation and expansion of existing assets. Our engineers are experts in maintaining plant operations during upgrades and maximizing the use of existing infrastructure—achieving efficiency and cost-savings without compromising service or compliance.



Hazen's Florida team has supported more than $8 billion in constructed infrastructure over the past decade, contributing expertise across water, wastewater, reclaimed water, and stormwater systems. These projects have included every project phase—from data collection and modeling to startup and training—ensuring seamless execution and long-term reliability.

Ion Exchange and Advanced Treatment Expertise

Hazen brings a deep bench of expertise in water quality treatment technologies, including IX, GAC, membrane, and other advanced processes—key to addressing contaminants like PFAS. We offer full-lifecycle support, from feasibility analysis and pilot testing to detailed design, permitting, construction oversight, and operational optimization.

Hazen offers experience on over 40 IX projects and support to more than 40 utilities using IX for PFAS removal. Dr. Conner Murray, our IX Technical Advisor, has contributed to more than 15 IX treatment investigations for utilities targeting PFAS removal, including a variety of pilot studies and pressure vessel designs optimizing IX treatment longevity.

We have successfully delivered IX solutions for PFAS and TOC removal here in Florida, including:

- Our team is supporting EPA efforts to model IX selectivity and optimize performance, and we are leading multiple adsorptive media pilot tests across the Biscayne Aquifer, including the Cities of Margate, Boca Raton, and North Miami; and WASD, giving us unmatched experience in understanding the nuances involved in PFAS treatment in South Florida.
- Eugene Hickson WTP in Arcadia, where Hazen designed and oversaw the construction of a 1.5-mgd IX facility. This design included a combination of both cation and anion exchange resin to simultaneously treat groundwater for radionuclides, hardness, sulfides, and organic carbon.
- We also assisted Tampa Bay Water in evaluating TOC treatment strategies for 120 mgd of supply over 13 wellfields using GAC and IX, developing a cost-effective framework to guide future decisions.

- At Toho Water Authority's WTP #4, Hazen led several efforts to address water quality challenges resulting from an existing MIEX system. These efforts included operational optimization of the MIEX, design of a replacement fixed-bed IX (FIX) system, pressure media filters, and degasifiers. Additionally, a temporary membrane filtration (MF/UF) system was designed and constructed to resolve water quality issues on an interim basis.
- We are also leading TOC-reduction upgrades at Toho's Buenaventura Lakes WTP, where we pilot-tested both GAC and FIX followed by post-stripping.
- As Owner's Representative for Fort Lauderdale's 50-mgd Prospect Lake project, Hazen is guiding the development of a major nanofiltration and IX facility to replace the aging Fiveash WTP.

Our strong track record in planning, design, and construction of IX systems across Florida and nationwide—combined with hands-on experience operating these systems—enables us to help the City implement a reliable, cost-effective PFAS solution. We are known for our ability to design around existing hydraulics and infrastructure, ensuring that new treatment components integrate seamlessly with current facilities. Our designs are informed by both bench- and pilot-scale studies, including IX media testing done in and around the Pembroke Pines area. With the largest water and wastewater resource design center in South Florida, proven IX retrofit experience, and unmatched PFAS expertise, we bring the local knowledge, national innovation, and regulatory insight needed to bring the City's vision to life.

3.5. Describe the specialized experience and technical competence of the firm or persons with respect to working on similar projects.*

Our commitment to excellence extends to its focus on addressing emerging water quality challenges, ☑ Pass ☐ Fail particularly those posed by contaminants like PFAS. Rather than simply pursuing the latest treatment technologies, Hazen emphasizes a comprehensive approach centered on identifying and implementing effective long-term solutions. With a track record of successful PFAS projects and a dedication to practical, real-world solutions, Hazen is positioned as a trusted partner for municipalities seeking sustainable management strategies within the complex landscape of PFAS contamination.

Hazen provides an industry-leading team with extensive experience in PFAS and drinking water, which spans not only the evaluation, detailed design, permitting, and construction of the best available PFAS treatment approaches, but also the assessment of novel PFAS adsorption approaches. This experience will enable our team to efficiently evaluate the City's water quality challenges and site hydraulic constraints to develop a comprehensive design. Our team has designed treatment solutions, including IX treatment, for both PFAS removal and other water quality issues. Additionally, Hazen's unmatched experience designing and operating lime softening facilities make us uniquely qualified to seamlessly integrate the proposed PFAS removal IX facility into the existing system without compromising performance of the WTP.

Our approach to delivering projects allows us to engage technical experts from around the country to provide the best service to the City of Pembroke Pines. Hazen's team combines deep roots in South Florida with national leadership in PFAS and advanced treatment. We have assembled seasoned professionals who have successfully delivered similar projects together—and who know your water system, your regulatory environment, and your priorities. Our approach is grounded in strong relationships, proven collaboration, and unmatched technical depth.

Key team member bios are provided below, with full-page bios for our Project Director (Janeen Wietgrefe, PE, PMP), Project Manager (Monique Durand, PE), Deputy Project Manager (Jayson Page, PE), IX Technical Advisor (Conner Murray, PhD, PE), and PFAS Technical Advisor (Erik Rosenfeldt, PhD, PE) included in Additional Information, Experience of the Project Team, Pages 30-34.

Janeen Wietgrefe, PE, PMP – Project Director
Ms. Wietgrefe has more than 29 years of experience designing, piloting, and overseeing construction of South Florida water treatment plants, including those involving or replacing lime softening. She has served as Lead Process Mechanical Engineer, Project Manager, Project Director, and Design Manager on such projects. Ms. Wietgrefe's PFAS experience in South Florida—leading evaluations, pilot testing, and alternative analyses for multiple utilities—equips

her to implement the cost-effective, site-specific treatment solutions that address regulatory compliance and operational challenges. Ms. Wietgrefe currently serves as Project Manager for the City of Fort Lauderdale's Prospect Lake Clean Water Center.

Monique Durand, PE – Project Manager
Ms. Durand has 19 years of experience and currently leads PFAS evaluations, pilot testing and alternatives analyses treatment projects for the Cities of North Lauderdale, Plantation, Margate, and Hollywood. She has managed multi-disciplinary teams in the planning, design, permitting, bidding, and construction of water treatment facilities, including projects addressing Lead and Copper Rule compliance, simultaneous groundwater rule and DBPs compliance, master planning, and water supply evaluation. She has also served as Lead Process Mechanical Engineer on chemical system upgrades for water treatment plants in Florida, including City of Plantation and Deerfield Beach. In addition to her engineering expertise, Ms. Durand excels in client communications and project leadership, which will ensure that the City's IX addition for PFAS compliance is completed successfully on time and within budget.

Jayson Page, PE – Deputy Project Manager
With 27 years of engineering experience, Mr. Page has led major plant upgrades and optimizations—including bench-, pilot-, and full-scale lime softening systems—for some of the largest and most complex facilities in South Florida. Mr. Page performed several pilot and full-scale studies for process improvements to remove total organic carbon at WASD's 165-mgd John E. Preston Lime Softening WTP. He performed the bench-scale jar testing to establish the chemical treatment strategy for compliance and managed and operated a full-scale test of the facility, with County staff, to prove the efficacy of the process at 25 mgd, before its implementation on the total flow. The chemical treatment option saved the client almost $500 million when compared to the membrane nanofiltration option that was proposed prior to the testing. His technical expertise includes water process design, PFAS management, advanced water/wastewater technologies, operations assistance, and pilot testing for clients throughout South Florida. Mr. Page currently serves as Project Director for WASD's PFAS Treatment Pilot, which includes pilot testing of ion exchange media.

Conner Murray, PhD, PE – QA/QC; Technical Advisory Committee
Dr. Murray is a PFAS treatment expert with national project experience and a focus on adsorption, residuals management, and treatment optimization. In South Florida, he has led PFAS piloting and planning for WASD's major groundwater facilities, including evaluation of GAC, IX, and membrane technologies. At North Miami's Winson WTP, for the City's PFAS Management Plan, he is supporting a yearlong PFAS adsorbent pilot program, which includes IX with design and costing of full-scale pressure vessel systems. Dr. Murray has designed and piloted ion exchange systems for PFAS
removal at more than a dozen utilities, ensuring proven, effective treatment for Pembroke Pines.

Erik Rosenfeldt, PhD, PE – QA/QC; Technical Advisory Committee
Dr. Rosenfeldt serves as Hazen's Director of Drinking Water Process Technology and is a senior member of the firm's drinking water process and applied research groups. He has over 25 years of experience focused on evaluating, implementing, and optimizing conventional and advanced treatment processes for a variety of water quality concerns, including PFAS and other emerging concerns. As a nationally recognized PFAS treatment expert, he will leverage industry-leading PFAS research and lessons learned on past projects for the City of Pembroke Pines. Dr. Rosenfeldt is involved in many Florida PFAS projects including the Cities of North Miami, Margate, Hollywood, and North Lauderdale; and WASD.

Paul Biscardi, PhD, PE – QA/QC; Technical Advisory Committee
Dr. Biscardi serves as Hazen's National Membrane Lead and has more than 14 years of experience in drinking water quality and advanced treatment. He has significant experience with IX, GAC, and membrane processes. He brings extensive piloting and process evaluation, optimization, and design experience. He has served in key roles including Lead Water Process Expert for pilot testing of treatment technologies for the Toho Buenaventura Lakes WTP Upgrade and Improvement Project, which resulted in the selection of a hybrid configuration; and the Toho Harmony WTP, which

included both permanent full-scale NF design and an emergency interim RO treatment system to reduce the concentrations of TOC and TDS in the finished water; and led pilot testing and process selection of fixed-bed IX at the St. Cloud WTP No. 4 Improvements project. The pilot program included testing modifications to the existing MIEX treatment plant and pilot activities including long-term treatment upgrade pilot of ozone, GAC, and IX.

Nicole Blute, PhD, PE – QA/QC; Technical Advisory Committee
Dr. Blute serves as Hazen's Director of Drinking Water Process Technologies. She has over 28 years of experience in treatment and system planning for water agencies, including some of the largest in the U.S. Her in-depth expertise in water process technologies includes IX and GAC, coagulation/filtration, and corrosion control. She has designed and managed more than a dozen pilot and bench-scale projects to assess technology performance, corrosion control, and chloramine stability. Her relevant experience includes serving as a Technical Advisor for the Santa Clarita Valley Agency's PFAS Groundwater Treatment Improvements project, where Hazen provided engineering services for sizing and layout of PFAS treatment systems, including the pre-filtration system, IX system, and chemical feed and storage system for 53 groundwater wells, as well as the design of several IX treatment systems for the removal of PFAS and other emerging contaminants. Dr. Blute also served as the water quality and permitting lead for the treatment evaluation and detailed design of a 7-mgd IX treatment facility for the Rubidoux Community Services District (Riverside, CA) and other facilities.

Darren Lytle, PhD, PE – QA/QC; Technical Advisory Committee
Dr. Lytle has more than 35 years of experience in drinking water treatment and distribution research and serves as Hazen's National Water Applications Specialist. For the last 34 years, he worked as an Environmental Engineer with the U.S. EPA's Office of Research and Development. He brings expertise in water treatment processes and their impact on distribution system quality and material corrosion. He is heavily involved in the corrosion control study for the North Lauderdale PFAS project and is also leading the efforts to evaluate the finished water stability due to the change in treatment technology. Additionally, Dr. Lytle is providing technical advisory services on the City of Hollywood PFAS project.

Alex Rahimian-Pour, PE – Ion Exchange Process/Mechanical
Mr. Rahimian-Pour has more than 28 years of experience in water quality evaluation and planning, design, and implementation of advanced water treatment systems for various municipal and industrial water works. His project experience has focused on the use of IX treatment systems and removal of constituents of concern such as PFAS and other emerging contaminants of concern. His extensive IX experience includes serving as Project Manager for the design of multiple IX treatment systems (3.5 and 7.0 mgd) for removal of PFOS/PFOA from multiple wells under the PFAS Groundwater Treatment Improvements project for the Santa Clarita Valley Agency, and serving as Project Manager for the Elsinore Valley Municipal Water District for the management of PFAS in 9 groundwater wells, which involves assessment of management alternatives, including cost estimates and treatment testing for GAC, IX, and membrane treatment alternatives.

George Brown, PE – Lime Softening Process/Mechanical; Filter Process/Mechanical; Storage/Pumping Systems and Pipelines; Sequence of Construction/Maintenance of Plant Operations
Mr. Brown has more than 30 years of experience in the study, planning, design, permitting, and services during construction of water treatment plants, pump stations, pipelines, and water supply projects primarily in Florida. He has a successful track record in the development of complex and comprehensive construction sequencing at water treatment plants, including detailed Maintenance of Plant Operations (MOPO) plans, to ensure uninterrupted water production. He served as Project Manager and Civil and Mechanical Engineer-of-Record for the design and permitting of upgrades to North Miami's 9.3-mgd Winson lime softening WTP, which included rehabilitation of four filters and a detailed MOPO plan. He also assisted with full-scale testing at WASD's 165-mgd John E. Preston Water Treatment Plant, one of the largest lime softening facilities in the world.
Jennifer McMahon, PE – Filter Process/Mechanical; Storage/Pumping Systems and Pipelines
Ms. McMahon has over 27 years of experience in the water and wastewater industry with work focused on civil, mechanical, and process design. Her expertise in the design of water treatment and distribution systems and as a

process/mechanical expert is of great value to this team, in addition to her knowledge of the City's infrastructure and procedures through her leadership on Hazen's Continuing Services contract with the Pembroke Pines. She served as Project Engineer for the design and permitting of upgrades to North Miami's Winson lime softening WTP project, including the plant filter system rehabilitation. She also served as Project Manager, Lead Design Engineer, and Construction Administrator for the Broward County's Districts 1A and 2A WTPs Projects, which included replacement of an existing gas chlorine disinfection system with a bulk purchased sodium hypochlorite system sized for the WTPs.

Guillermo Regalado, PE – Hydraulics
Mr. Regalado has more than 36 years of experience in developing and updating hydraulic, hydrologic, and water quality engineering models for both large and small-scale projects. His experience spans analysis, planning, engineering design, and project management, including hydraulic and hydrologic analysis and modeling of water distribution networks, wastewater collection and transmission systems, and wastewater pump stations. Recently, he led the technical team in the update and verification of WASD's Water Distribution System model (InfoWater). For the Plantation Water Master Plan, Mr. Regalado led the modeling team in the development and calibration of a new water distribution system hydraulic model using InfoWater to identify capacity issues within the distribution network to evaluate recommended improvements and address possible water quality concerns.

John Burke, PE – Electrical
Mr. Burke has 59 years of experience in the planning, design, and project management of power, control and instrumentation systems associated with new and upgraded water and wastewater facilities. He led design of the electrical systems at the City's 12-mgd WTP expansion over 20 years ago as a subconsultant. He served as Project Manager/Engineer, where he managed planning and design of power, control, and instrumentation associated with the treatment process. His involvement in the WTP expansion project provides him with detailed knowledge of the City's electrical systems.

Evan Curtis, PE – Instrumentation and Automation
Mr. Curtis has more than 30 years of experience in the design and commissioning of various water and wastewater utility projects, most significantly in instrumentation and controls (I&C). These projects involve existing system evaluations, design of improvements, and construction phase services, as well as equipment procurement, programming, training, and startup. He provided I&C quality control and technical review services for the Toho St. Cloud WTP 4 project, which included IX. He also served as an instrumentation Subject Matter Expert for the I&C team. He also serves as I&C Subject Matter Expert for the Fort Lauderdale Prospect Lake Clean Water Center project (combination of nanofiltration membrane and ion exchange technologies), where he is responsible for reviewing design documents and providing specialty inspections of construction work. Additionally, he has served as Lead I&C Engineer for the design of I&C, SCADA, and telemetry systems improvements for multiple clients including the Cities of Fort Lauderdale, Plantation, Cooper City, and Boca Raton; and Broward County.

Jean Paul Silva, PE, FRSE – Structural/Architecture
Mr. Silva serves as Hazen's Regional Manager for structural engineering in Florida, in charge of coordinating all structural assignments in the region. He has over 30 years of experience in structural design and construction administration of water and wastewater facilities, stormwater collection, storage tanks, and pump stations. Mr. Silva's experience includes design of new facilities, structural condition assessments, design of rehabilitation/upgrade of existing facilities, and structural/special inspections. He served as Structural Engineer for the design of upgrades and rehabilitation of North Miami's 9.3-mgd Winson lime softening WTP and as Structural Engineer for the Arcadia 1.5-mgd IX water treatment plant, which included treatment process selection followed by pilot testing.

Tyler Davis, PE – Ion Exchange Process/Mechanical; Operations and Start-up Assistance; Bidding Services
With 35 years in engineering, Mr. Davis has specialized in the planning, design, construction, and management of water, wastewater, and reuse projects for 24 years and 11 years of experience in the chemical industry. His broad

experience covers water treatment, distribution, and collection systems; chemical process operations; stormwater management; construction management; regulatory compliance; and general civil engineering. Mr. Davis currently serves as Project Engineer for the IX system for Toho Water Authority's Buenaventura Lakes WTP.

Nathan Rothe, PE – PFAS Management; Process Optimization and Pilot Testing; Treatment Plant Operations Manual/Dashboard
Mr. Rothe has 13 years of experience focused on water and wastewater treatment processes, beneficial reuse of alternative waste streams, and water-related analytical applications. His previous experience as Laboratory Director at the Colorado School of Mines, one of the premier universities conducting water-related research projects, provided an in-depth look at cutting-edge technologies focused on PFAS treatment and destruction, novel membrane applications, and state of the art piloting systems. At Hazen, he has served as Lead Engineer and/or Project Manager on multiple projects focused on evaluation of PFAS treatment technologies, including GAC, IX, and membrane alternatives. He is presently overseeing ion exchange pilots at Margate, North Miami and MDWASD.

Elie Andary, PhD, PE – Construction Management/Inspections; Sequence of Construction/Maintenance of Plant Operations
Dr. Andary has over 22 years of experience in construction management and inspections. He has a proven track record managing complex projects and resolving conflicts/issues. Dr. Andary has been involved in developing contingency plans and monitoring construction schedules to ensure progress while maintaining existing plant operations. He currently oversees Hazen's field representatives for the 50-mgd Prospect Lake Clean Water Center project, for which Hazen serves as owner's representative. He also served as Construction Manager for WASD's South District WWTP High-Level Disinfection Upgrade program that involved comprehensive and integrated scheduling of 14 construction contracts, with 12 contracts executed concurrently. The existing WWTP was continuously in operation during construction. He also served as Construction Manager for the Seminole Tribe of Florida's new Hollywood wastewater treatment plant, 24-inch effluent force main, and injection well pump station.

3.6. How many years of experience do you have? Please provide proof of such experience.* ☑ Pass ☐ Fail

74 Years of Nationwide Water Solutions, with 57 Years of Service in Florida
Since 1951, Hazen has focused on two critical activities: helping our clients provide safe drinking water to their customers and controlling water pollution and resultant effects on the environment. Hazen's exclusive focus is water resources engineering. Hazen has served utilities with complete in-house engineering services from our regional headquarters/design center in Hollywood, Florida, since 1968.

The Hazen team offers unmatched local expertise in lime softening retrofits, emerging contaminants, and the unique challenges of the Floridan and Biscayne Aquifers. We will incorporate our 57 years of local design, permitting, and construction experience, as well as 20+ years of specific local lime softening treatment experience, into the IX bolt-on addition to the City's facility.

We will leverage our expertise in delivering similar IX projects as well as lime softening projects to ensure that Pembroke Pines' drinking water customers are protected to the maximum extent and in the most immediate time frame possible.

Hazen is also a national leader in PFAS treatment. We have been at the forefront of PFAS management, leading applied research and innovation efforts to address data gaps and advance new and existing technologies. Our multidisciplinary team delivers cutting-edge, science-backed solutions tailored to real-world operational needs. Across the country, we have supported drinking water and wastewater utilities with PFAS treatment, communication strategies, cost modeling, and residuals management.

Below are examples of our relevant project experience. For more information, please refer to Additional Information, Relevant Experience, Pages 28-45, which includes detailed project sheets.

PFAS Study and Pilot Testing at WTP, Margate, FL (2024–present)
The City of Margate's Water Treatment Plant is a 10.1-mgd lime softening facility that has been experiencing elevated levels of per- and polyfluoroalkyl substances (PFAS), particularly PFOA and PFOS, in both the City's wells and finished water. The existing lime softening processes are insufficient to achieve compliance with the recently promulgated EPA maximum contaminant levels (MCLs). The City contracted Hazen to develop a PFAS Management Plan that includes a desktop evaluation of three adsorptive media options: GAC; two IX resins; and FLUORO-SORB®. Hazen is presently conducting the pilot testing of the IX, GAC and FLUORO-SORB® media.

Project Relevance:

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, GAC, and FLUORO-SORB® for PFAS removal
- Utilized Hazen PFAS prediction tool to evaluate IX resin selection

John E. Preston Water Treatment Plant Optimization, Miami-Dade County, FL (1998–2005, 2024-2025)
The 165-mgd John E. Preston Water Treatment Plant is a conventional lime softening facility with three 30-mgd Accelator units and three 25-mgd Hydrotreator softening units. Hazen provided process evaluation, pilot/full scale testing, design oversight, bidding, and construction management services to optimize the water treatment plant. Hazen's role was also to prevent any construction, operational, and maintenance problems in the future. Hazen developed the design criteria and performance specification standards through extensive pilot- and full-scale testing. Hazen continues to work at the Preston Plant as part of WASD's PFAS Management Plan.

Project Relevance:

- We understand lime softening and filtration plants. Hazen's Florida staff have designed, upgraded and evaluated 875 mgd of lime softening and filtration treatment plants. Nationwide we have designed billions of gallons per day of new and upgraded treatment capacity.
- Additionally, the Hazen team has extensive expertise in optimizing the performance of lime softening and filtration plants throughout Florida.

Winson WTP Pilot and PFAS Management Plan, North Miami, FL (2023–present)
The City of North Miami's Winson Water Treatment Plant is a 9.3-mgd lime softening facility that is experiencing elevated PFOA and PFOS concentrations in the City's groundwater and cannot achieve the recently promulgated EPA MCLs through existing lime softening processes. The City contracted Hazen to develop a PFAS Management Plan to test multiple adsorbent media and determine PFAS removal efficiencies along with associated life cycle costs. The technical memorandum is being finalized, marking the final step toward project completion.

Project Relevance:

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, GAC, and FLUORO-SORB® for PFAS removal
- Utilize Hazen PFAS prediction tool to evaluate IX resin selection
- Gather water quality data to understand the impact of TOC on IX resin performance

Eugene Hickson Ion Exchange WTP and Well Improvements, Arcadia, FL (2012–2015)
Hazen provided engineering services for the study, design, permitting, construction administration, and start-up for a new 1.5-mgd ion exchange WTP and well improvements. The project included a maintenance of operations and sequence of construction plan that served as a guideline for the Contractor to schedule construction and demolition activities so that the existing lime softening plant remained in service while the new IX plant was constructed, started up, and tested.

Project Relevance:

- Preparation of a facility plan that evaluated treatment alternatives to determine the most cost-effective treatment option for replacement of the WTP

- Pilot testing, preliminary and final design services, permitting, funding assistance, and construction-phase services for the new 1.5-mgd WTP

Buenaventura Lakes WTP Process Upgrades Kissimmee, FL (2022–present)

Toho Water Authority (Toho) owns and operates the 5-mgd Buenaventura Lakes WTP. Hazen is responsible for pilot testing and design of process upgrades to eliminate the routine flushing and control disinfection byproducts (DBP) through additional removal of TOC.

The following configurations were proposed:

- Modified GAC (decreased hydraulic loading rate with different GAC media) followed by Post-Stripping
- Pre-Chlorination and Spray Aeration (Pre-Stripping) ahead of Existing GAC followed by Post-Stripping
- Fixed Bed Ion Exchange (IX) followed by Post-Stripping
- Hybrid Configuration of IX and GAC followed by Post-Stripping

Based on the pilot results, a hybrid configuration was selected and is currently in design.

Project Relevance:

- Process change requiring analysis and caution to ensure public is protected
- Desktop analysis and full-scale pilot testing of various advanced treatment options, including FIX for TOC removal

PFAS Groundwater Treatment Improvements, Santa Clarita, CA (2020–present)

Hazen provided engineering services to Santa Clarita Valley Water Agency for the preliminary design and final design of PFAS treatment for a series of PFAS wellhead treatment projects involving pretreatment and IX. Projects have included equipment sizing for 53 wells to support equipment pre-procurement and preliminary design of wells.

Project Relevance:

- Preliminary design, detailed design, permitting, bidding, and construction of non-regenerable IX for PFAS removal
- Evaluation of waste disposal options for PFAS IX Facilities

Prospect Lake Clean Water Center, Fort Lauderdale, FL (2023–present)

Hazen serves as Owner’s Representative Services for design and construction of the new 50-mgd (finished water capacity) water treatment plant (combination of nanofiltration membrane and IX technologies). The City of Fort Lauderdale is procuring this project through a Public-Private-Partnership (P3) agreement. Hazen’s responsibilities include reviews of the design; coordination with City departments; and construction oversight of the WTP. Hazen also provides technical review of process design including the team’s approach to optimization of corrosion control.

Project Relevance:

- Risk management during treatment process conversion to protect public health
- Owner’s Representative for design review and construction oversight of a new WTP (combination of nanofiltration and IX treatment technology)

PFAS Removal and Regulatory Compliance Evaluation, Hollywood, FL (2024–present)

The City of Hollywood owns and operates a series of potable water supply wells and treats the Biscayne Aquifer with well water through lime softening and nanofiltration treatment and also treats the Floridan Aquifer well water through reverse osmosis treatment. The City also treats Biscayne Aquifer well water from the Broward County South Regional Wellfield (SRW) at Brian Piccolo Park) through the nanofiltration plant. This multi-phase project includes planning, design, permitting, construction, and startup services for improvements to the existing water treatment plant to remove PFAS to below the regulatory limits.

Project Relevance:

- Improvements to an existing operating lime softening treatment plant
- Evaluate options for PFAS removal, including the addition of a bolt-on ion exchange system

PFAS Treatment Pilot, Miami-Dade County, FL (2024–present)
Since 2019, water quality sampling at the WASD wellfields has confirmed the presence of PFAS in the water supply. Because conventional treatment processes such as lime softening and filtration are not effective for PFAS removal, this project aims to evaluate both conventional and emerging treatment technologies at WASD's three regional water treatment plants: Alexander Orr, Jr. Water; John E. Preston; and Hialeah.

Project Relevance:

- Evaluation and recommendation of PFAS removal treatment technologies
- Pilot testing of adsorbent media options, including IX, GAC, and FLUORO-SORB® for PFAS removal
- Utilize Hazen PFAS prediction tool to evaluate IX resin selection
- Gather water quality data to understand the impact of TOC on IX resin performance

Building 11 Rehabilitation and Improvements at the Water Treatment Plant, Boca Raton, FL (2022–present)
The City of Boca Raton Glades Road Water Treatment Plant utilizes a 30-mgd capacity conventional lime softening process in parallel with a 40-mgd nanofiltration process. This project includes a complex rehabilitation and hardening of the building as well as replacement of the process mechanical equipment, electrical, and instrumentation and controls. The implementation of rehabilitation and improvement elements required extensive coordination with City for all design disciplines to maintain the system in operation at all times during construction.

Project Relevance:

- Proven experience with chemical systems and lime softening process
- Experience with designing intricate infrastructure rehabilitation projects, coordinating seamlessly with multidisciplinary teams and the owner to ensure uninterrupted operations during construction

East WTP Chemical Storage Facility, Plantation, FL (2017–2024)
Hazen provided design, permitting, and construction management services for the replacement of six chemical storage and feed facilities at the East WTP. The chemical systems were designed as part of the original membrane plant design under prior building code requirements and as such required improvement and/or relocation to meet current code. Additionally, outdoor located sodium hypochlorite and sodium hydroxide chemical systems were relocated indoors to improve utilities infrastructure and harden against adverse conditions. Maintenance of plant operations during construction was developed to allow demolition activities and new construction to take place without interfering with the water production activities.

Project Relevance:

- Improved safety for operators by separating chemicals and installing safeguards
- Maintenance of plant operations during construction (MOPO) was developed to allow demolition activities and new construction to take place without interfering with the water production activities

Fiveash Water Treatment Plant Upgrades, Fort Lauderdale, FL (2001–2019)
Hazen was retained to design, permit, assist with bidding, and provide services during construction for upgrades at the City's 70-mgd Fiveash WTP. The WTP is a conventional lime softening plant treating groundwater. Hazen evaluated the condition of the WTP, which included raw water supply, wellfield and transmission system improvements, concentrate disposal alternatives, lime solids disposal alternatives for existing lime softening facilities, and additional improvements to maintain the reliability of existing lime softening facilities.

Project Relevance:

- Rehabilitation of existing filter infrastructure
- Development of a highly complex and detailed MOPO

14.5-mgd Nanofiltration Facility (Expandable to 17 mgd), Jupiter, FL (2005–2010)
Hazen provided permitting, bid/award assistance, startup, and detailed MOPO for this project. Hazen designed the nanofiltration facility to replace the lime softening facility and blend with the Town of Jupiter's reverse osmosis plant.

Hazen developed detailed technical memoranda to serve as the basis for design and assist in decision-making through the design process. The design included preparation of contract documents for construction of the new NF facility's ancillary facilities.

Project Relevance:

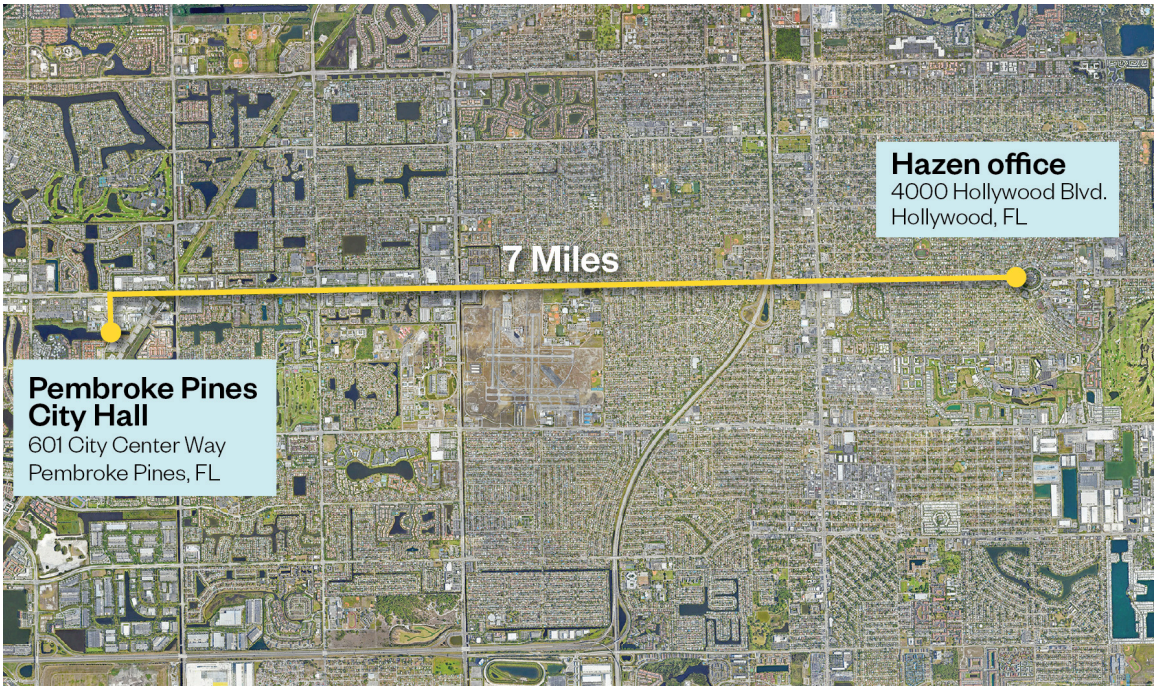
- Experience with operation of lime softening facility
- Ability to remove PFAS
- Developed sequence of construction to ensure maintenance of plant operations

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3.7. The firm must provide information on their proximity to and familiarity with the area in which the project is located.*

☑ Pass ☐ Fail

Hazen's Southeast Regional Headquarters, located in Hollywood, Florida, is just 7 miles from the Pembroke Pines City Hall and Water Treatment Facility, ensuring quick access to the team and a deep understanding of the local conditions. Our firm has provided services to Pembroke Pines since 1992 from our Hollywood office.



Hazen brings an unparalleled understanding of the Biscayne and Floridan aquifers water quality, specifically PFAS, which ensures that a sustainable IX water treatment solution, tailored to meet the City's goals of continuously providing safe drinking water to its customers, is implemented.

Hazen also has extensive experience navigating the local design, permitting, bidding, and construction landscape in the area. This includes working collaboratively with regulatory agencies, such as Pembroke Pines Building Department and Florida Department of Environmental Protection, and contractors to mitigate potential delays during the design and construction of projects in South Florida. Our proximity to the City and local experience allow for seamless project execution, informed decision-making, and close collaboration with the City.

Several members of the Hazen team live in the City of Pembroke Pines, including our proposed Project Director and Vice President, Janeen Wietgrefe, PE, PMP, a 24-year resident of the City. Our deep roots in the City provide us with valuable insight into the City's values and its commitment to serving its residents.

Additionally, many of the projects listed in the previous question correspond to membrane and IX projects for Broward and Miami-Dade County municipalities. This demonstrates our familiarity with the challenges and requirements of water treatment plant and PFAS projects in the area.

3.8. Explain the availability and access to the firm's top level management personnel.* ☑ Pass ☐ Fail

Our Southeast regional headquarters is located in the neighboring City of Hollywood. Hazen's Senior Vice President, Chair of the Board of Directors, and Southeast Regional Manager, Robert Taylor, Jr., PE, sits in our Hollywood office and is accessible to City staff. He is available any time to address any request or concerns of the City, or to attend in-person meetings with local or elected officials and public outreach meetings, if required. Patricia Carney, PE, DBIA, BCEE, a Vice President and a Member of Hazen's Board of Directors, is also located in the Hollywood office and available to the City. Janeen Wietgrefe, PE, PMP, and Jennifer McMahon, PE, both Vice Presidents, are also located in Hazen's Hollywood office and are both Pembroke Pines residents. Our top-level management personnel are easily accessible and available via phone (office/mobile), text, and email on a daily basis.

3.9. List any applicable qualifications, including education, experience, honors and awards received, and professional associations of which the firm and/or its personnel are members, which are not already listed on Standard Form 330.*

Hazen has received numerous awards for completed projects, which is an indication of the quality of our work. To provide the City with an indication of the quality of our work, select awards are highlighted below. ☑ Pass ☐ Fail

2024 – American Society of Civil Engineers (ASCE)-FL, Broward Branch, ASCE Broward Sustainable Project of the Year, Osceola Creek Restoration Project, City of Fort Lauderdale, FL
2022 - Institute of Sustainable Infrastructure Bronze Envision® Award, Cocoplum 1 Pump Station and Force Main Improvements, City of Coral Gables, FL
2022 - ASCE-FL Section Large Project of the Year - Emergency Pipeline Project, City of Fort Lauderdale, FL
2021 - ACEC-FL Grand Award; Trenchless Technology Honorable Mention, ASCE-FL Broward Branch Project of the Year Emergency Pipeline Project, City of Fort Lauderdale, FL
2021 - Design-Build Institute of America (DBIA) Design-Build Honor Award – Water/Wastewater, San Carlos Pumping Station Rehabilitation Project, Tampa, FL
2018 - Resilient Utility Coalition Resilient Project of the Year, Cocoplum 1 Pump Station and Force Main Improvements, City of Coral Gables, FL
2017 – DBIA Best Overall in the Water/Wastewater Category – Florida Region Design-Build Awards, Intercoastal Waterway Crossings at Las Olas Boulevard, City of Fort Lauderdale, FL
2016 – Florida Water Environment Association (FWEA) Reuse System of the Year, Loxahatchee River Environmental Control District
2014 – Florida Institute of Consulting Engineers (FICE) Florida Grand Conceptor Award, South District Wastewater Treatment Plant Upgrade, Miami-Dade Water and Sewer Dept., FL

Hazen routinely participates in research efforts through our clients but also through agencies such as Water Research Foundation. Certain research was conducted by our employees in university prior to joining our firm. The research is documented in peer reviewed publications. Four of those publications are listed below:

Peer Reviewed Publications:

C.C. Murray; A. Safulko.; H Vatankhah; C.J. Liu.;B, Tajdini; R.E. Marshall.; C. L. Bellona. PFAS Adsorbent Selection; The Role of Adsorbent Use Rate, Water Quality, and Cost. J. Hazard. Mater. 2023, 131481. https://doi.org/10.1016/j.jhazmat.2023.131481.
C.C. Murray, R.E. Marshall, C.J. Liu, H. Vatankhah, C.L. Bellona, PFAS treatment with granular activated carbon and ion exchange resin: Comparing chain length, empty bed contact time, and cost, J. Water Process Eng. 44 (2021)

102342. doi:10.1016/j.jwpe.2021.102342.
C.C. Murray, A. Gorzalski, E. Rosenfeldt, C. Owen, C. Moody, Characterizing PFAS Concentrations in Drinking Water Treatment Residuals, AWWA Water Science. e1367. doi:10.1002/aws2.1367.
Tajdini, B., Vatankhah, H., Pezoulas, E. R., Zhang, C., Higgins, C. P., & Bellona, C. (2024). Adsorbability of a wide range of per- and polyfluoroalkyl substances on granular activated carbon, ion exchange resin, and surface modified clay. Water Research, 254, 122774.
https://doi.org/10.1016/j.watres.2024.122774https://doi.org/10.1039/d2ew00080fhttps://doi.org/10.1016/j.watres.2023.120105https://doi.org/10.1021/acsestwater.2c00572

Hazen understands the importance of and supports professional organizations at national and local levels. In addition to membership and sponsorship at a corporate level, Hazen also encourages individual participation and engagement of its employees. Our local team members actively participate in regulatory committees to help shape the outcome of pressing regulatory issues. A representative listing of organizations our firm and/or team members are involved with appears below.

For a list of awards, refer to Additional Information, Qualifications and History, Page 9
For an example of regulatory workgroups Hazen participates in, see Additional Information, Relevant Experience, Page 20

- American Council of Engineering Companies
- American Membrane Technology Association
- American Society of Adaptation Professionals
- American Society of Civil Engineers
- American Chemical Society
- American Water Resources Association
- American Water Works Association
- Caribbean Water and Wastewater Association
- Construction Management Association of America
- Cuban American Association of Civil Engineers
- Design-Build Institute of America Environmental Business Council
- Florida Engineering Society
- Florida Section American Water Works Association
- Florida Stormwater Association
- Florida Water Environment Association
- Florida Water Utility Council
- Institute for Sustainable Infrastructure
- Instrumentation, Systems and Automation Society
- International Society of Automation
- International Water Association
- National Association of Clean Water Agencies
- National Forum for Black Public Administrators
- National Ground Water Association
- National Society of Professional Engineers
- Project Management Institute
- Southeast Desalting Association
- South Florida Hydrologic Society
- Southeast Florida Utility Council
- The Institute of Asset Management Ltd
- The Water Research Foundation
- U.S. Green Building Council

- Water Collaborative Delivery Association
- Water Environment Federation
- Water for People
- Water Resources Association
- WateReuse Association

3.10. What similar or related projects have you worked on within the past three years and what challenges did you face and how did you overcome them?*

1. St. Cloud Water Treatment Plant No. 4 Upgrades, Toho Water Authority, Osceola County, Florida (Ongoing project) ☑ Pass ☐ Fail

Hazen is responsible for the preliminary design, detailed design, permitting, and construction services of an IX system for St. Cloud WTP #4. The project includes the design of a 9-mgd, 8-vessel fixed bed ion exchange system (FIX), waste and brine storage for the new FIX system, two 4.5-mgd dual media filter vessels for iron sulfide removal, new high-service pumps, a new CO2 storage and feed system, modifications to the existing well pumps, a new offsite well drill and pump, raw water main piping, a booster pump station, upgraded chemical facilities, degasification and odor control system for H2S removal and a transfer pump station. The project includes provisions for future plant expansion to 12 mgd. The design of the project has been completed and is a CMAR-delivered project.

Challenge/Solution

The primary challenge for this project was the aggressive timeline required for the design and construction of the IX system. Toho is currently renting temporary microfiltration membrane systems to address water quality aesthetics in the finished water. To limit the rental costs, it was imperative to design and construct the IX system as quickly as possible. Hazen and Toho worked collaboratively to pilot and design a pre-purchase package of the IX prior to the design of the other treatment processes. The CMAR will be installing and starting up the IX system prior to the construction of the rest of the plant.

2. Buenaventura Lakes WTP Process Upgrades, Toho Water Authority, Osceola County, Florida (Ongoing project)

Toho Water Authority (Toho) owns and operates the 5-mgd Buenaventura Lakes WTP (BVLWTP). Hazen is responsible for the pilot testing, preliminary and detail design, permitting, and construction services of the process upgrades to eliminate the routine flushing and control disinfection byproducts (DBPs) through additional removal of TOC.

Challenge/Solution

Growing water demand coupled with frequent media changeouts of the existing GAC system and the need for routine flushing represent the main driver for this project. In 2020, Toho installed a 4-vessel GAC system at the BVL WTP to lower effluent TOC and control formation of DBPs in the distribution system. However, Toho observed that the GAC media exhausted rapidly and required change-outs at a higher frequency than originally anticipated, resulting in elevated O&M costs and reliance on GAC media supplier availability. In addition, the system relies on routine flushing to maintain the DBP concentration below the regulated levels. Hazen and Toho worked collaboratively to pilot test multiple treatment alternatives including a modified GAC system and a standalone IX system and a cost analysis of the systems was presented to Toho. The life cycle analysis demonstrated that the IX system would result in the most cost-effective alternative. The IX system was designed and permitted, and the CMAR will finish construction by 2026.

3. PFAS Groundwater Treatment Improvements, Santa Clarita, CA (Ongoing project)

Hazen provided engineering services to Santa Clarita Valley Water Agency for the preliminary design and final design of PFAS treatment for a series of PFAS wellhead treatment projects involving pretreatment and IX.

Challenge/Solution

T&U IX PFAS (currently under construction)

This project involves installing two 12-foot-diameter IX treatment systems at an existing large pump station facility with

limited site space and heavily congested underground piping. The IX vessels are located adjacent to a large flow meter vault for 100" and 84" pipes, near a site corner that restricted available space for pipe routing.
To address these constraints, we modified the standard IX valve tree design to minimize yard piping and improve accessibility. Typically, all valve tree piping connections occur at the back and between the IX vessels. For this project, we relocated the influent and flush-to-waste piping connections to the front of the valve tree and kept only the effluent piping at the back. This improved access to valves and instrumentation, especially since space behind the vessels was extremely limited and the client did not want any process piping beneath the concrete slab.
We also added additional valves to the system, allowing the IX trains to perform a full lead-lag flush-to-waste sequence using the flush-to-waste piping—eliminating the need for an extra connection to the effluent line. In standard configurations, only one IX vessel can be flushed at a time (sufficient for resin changeouts), but this modified setup offers more operational flexibility.

S-Wells IX PFAS (recently bid)
This IX facility is planned near a residential community, making aesthetics a key design consideration. At the client's request, we designed the facility to minimize the visual impact of the IX trains. This was achieved by recessing the IX trains into a floor area that is 4 feet below the facility's finished grade and constructing a tall screening wall around the site for additional concealment.

4. Winson WTP Pilot and PFAS Management Plan, North Miami, Florida (Ongoing project)
The City of North Miami's Winson Water Treatment Plant is a 9.3-mgd lime softening facility that is experiencing elevated PFOA and PFOS concentrations in the City's groundwater and cannot achieve the recently promulgated EPA MCLs through existing lime softening processes. The City contracted Hazen to develop a PFAS Management Plan to test multiple adsorbent media and determine PFAS removal efficiencies along with associated life cycle costs.

Challenge/Solution
A unique challenge that arose during this project is the budgetary constraints faced by the City. North Miami is an economically disadvantaged community with a limited budget to address PFAS problem. The initial scope for this project was limited to just two media alternatives, with reduced sampling and water quality analysis. Working with the EPA, Hazen was able to bring the City into the EPA's Technical Assistance Program, which provided all analytical support for the project. The cost savings allowed Hazen to expand the number of media alternatives tested to four, additional sampling ports through each column bed, and increased sampling frequency. The additional media tested and water quality data allowed Hazen to provide a more robust treatment recommendation for the City.

5. Building 11 Rehabilitation and Improvements at the Water Treatment Plant, Boca Raton, FL (Ongoing project)
The City of Boca Raton Glades Road Water Treatment Plant utilizes a 30-mgd capacity conventional lime softening process in parallel with a 40-mgd nanofiltration process. This project includes a complex rehabilitation and hardening of the building as well as replacement of the process mechanical equipment, electrical, and instrumentation and controls. The implementation of rehabilitation and improvement elements required extensive coordination with the City staff and multidisciplinary system to maintain systems in operation at all times during construction.

Challenge/Solution
Building 11 is a chemical facility housing critical electrical and process mechanical equipment required for water treatment. This building was constructed in the 1970s and later expanded in the 1980s and required extensive rehabilitation and improvements. The most critical challenge on this project was equipment layout, development of detailed sequenced construction to ensure the existing equipment was accessible for maintenance and operations followed by transition to new equipment operation. Each sequence of work was also coordinated to allow for structural rehabilitation, including complete replacement of existing slab and roof deck and roofing system. Hazen worked very closely with City staff to develop a detailed sequence of construction and performed multiple constructability reviews to

validate the proposed sequence of construction. Hazen also created a detailed 3D model of the existing building based on existing as-built information and 3D scans to minimize the possibility of conflicts between existing and new infrastructure.

6. PFAS Treatment Pilot, Miami-Dade County, FL (Ongoing project)
Since 2019, water quality sampling at the Miami-Dade Water and Sewer Department wellfields has confirmed the presence of PFAS in the water supply. Because conventional treatment processes such as lime softening and filtration are not effective for PFAS removal, this project aims to evaluate both conventional and emerging treatment technologies at WASD's three regional water treatment plants: Alexander Orr, Jr. Water; John E. Preston; and Hialeah.

Challenge/Solution
The large size of WASD coupled with a challenging water quality matrix and pervasive PFAS occurrence makes it one of the most challenging PFAS problems in the country. Three large lime softening plants spanning a large swath of Southeast Florida with over 90 supply wells, means that a single PFAS treatment solution would most likely not be the most cost-effective approach. Hazen worked closely with WASD to develop a holistic project approach that is evaluating a wide range of treatment options at the three large WTPs. This includes multiple adsorptive media tested in various applications, including the addition of a TOC removal pretreatment step, along with nanofiltration and reverse osmosis membrane types. This broad approach will allow Hazen to evaluate traditional and outside the box technologies and will lead to a tailored PFAS management strategy for each treatment facility.

7. Plantation East Water Treatment Plant Chemical Upgrades, Plantation, FL (Project completed in 2024)
Hazen provided engineering consulting services and construction management services for the design and construction of replacement of chemical storage and feed facilities at the East WTP. The chemical systems were designed as part of the original membrane plant design under prior building code requirements and as such required improvement and/or relocation to achieve current code requirements.
Challenge/Solution
The challenge for this project was how to maintain existing chemicals in service while constructing the new facilities such that service was not interrupted. Hazen detailed a sequencing plan but worked with the contractor to expedite construction by allowing the contractor to utilize temporary chemical facilities.

8. Harmony WTP Upgrade and Expansion, Osceola County, FL (Ongoing Project)
Hazen was responsible for the upgrade and expansion of the Harmony WTP which added a new Upper Floridan supply well and well pump, new media filters for iron removal, a new nanofiltration system for TOC removal, hydrogen sulfide removal, chemical storage and feed facilities for sodium hypochlorite and corrosion inhibitor, a ground storage tank, a concentrate tank and pump station, and a dual purpose membrane and operations building. The project will be constructed using the CMAR delivery model.
Challenge/Solution
The primary challenge for this project was the need for a rapid temporary solution to improve the effluent water quality at the Harmony WTP while the permanent full-scale system was designed, constructed, and placed in operation. The increasing water demand coupled with the limited capacity and unreliability of the existing TOC removal system prompted Toho to pursue an interim treatment system that could supplement the existing system. Hazen and Toho worked collaboratively against an aggressive timeline in the design, procurement, and construction of a low-pressure RO system, which was more readily available than nanofiltration at the time of selection. Hazen performed additional water quality membrane projections and pilot testing to further evaluate the treatment selection for the permanent system. The pilot test resulted in the recommendation of an nanofiltration membrane treatment system. The systems for the upgrade and expansion of the plant were designed and permitted, and the CMAR will finish construction by 2027.

9. PFAS Study and Pilot Testing at WTP, Margate, Florida (Ongoing project)
The City of Margate's Water Treatment Plant is a 10.1-mgd lime softening facility that has been experiencing elevated levels of PFAS, particularly PFOA and PFOS, in both the City's wells and finished water. The existing lime softening

processes are insufficient to achieve compliance with the recently promulgated EPA maximum contaminant levels (MCLs). The City contracted Hazen to develop a PFAS Management Plan that includes a desktop evaluation of three adsorptive media options: GAC; two IX resins; and FLUORO-SORB®.

Challenge/Solution
The elevated TOC found in the Biscayne Aquifer is known to impact the performance of the available adsorptive media options. Unfortunately, the organic material composition found in the aquifer is not consistent across the region, and therefore, the adsorptive media PFAS treatment performance can vary as well. Hazen has established itself as a leading expert in understanding the complex nature of the organic material in the aquifer through the multiple IX piloting projects. The collection of data from the piloting projects has provided Hazen an insight into how the organic material composition varies, its impact on media performance, and how that relates to recommended treatment options.

3.11. Provide evidence of knowledge and experience with similar projects in a water and/or wastewater utility environment.*

☑ Pass ☐ Fail

Detailed project sheets demonstrating our knowledge and experience with similar projects in water utility environments are included in Additional Information, Relevant Experience, Pages 28-45. As a summary of the information provided in other sections, we would like to present some key attributes of our team and their knowledge and experience, specifically with water projects here in South Florida that will make a difference for the City of Pembroke Pines. Local Professionals – The majority of the people on our organizational chart are from South Florida, some are even from Pembroke Pines. They have worked on or are working on PFAS projects for Hollywood, Coral Springs, Margate and Miami-Dade, just to name a few. Local Conditions – We have found that the impacts of PFAS in South Florida are much greater and tougher to address than other regions of the country and the state, given the fact that we live on an unconfined surficial aquifer that is densely populated and has significant organic influence from the Everglades. The former has resulted in the region seeing some of the highest concentrations of PFAS in the United States. The latter makes our groundwater some of the most complicated to treat anywhere. We have learned how to deal with both in all of the cities we mentioned in the information provided, including the Cities of Fort Lauderdale, North Miami, and Hallandale Beach. Local Relationships – On similar projects in the region, Hazen team members are working with the FDOH, FDEP, SFWMD and other agencies to obtain permits, get approvals for testing, and prepare for one of the largest water treatment efforts to impact South Florida since the DBPs rule changes at the turn of the 21st Century. Back then, many of the people on the team redesigned Pompano Beach, Hallandale Beach and WASD lime softening plants to help them comply with the new regulations. On those projects, and more recent ones, we worked with many of the contractors that will be bidding on the City of Pembroke Pines job. Our engineers and construction managers know these folks as well. These relationships ensure high-quality, professional execution to get the project completed on time. We believe that knowledge and experience with a similar project is acceptable, but several examples of practically the same local project is extraordinary

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3.12. What is your reputation compared to your peers in the market?*

☑ Pass ☐ Fail

Hazen's reputation is well-established in the field of environmental engineering. We are one of Engineering News-Record's (ENR) top firms in water engineering and are committed to maintaining our position as one of the leaders of advanced water and wastewater technologies.

Hazen is also a trusted partner among industry peers, who often partner with us on projects, including repeat assignments, due to our responsiveness, strong teamwork, and commitment to delivering the best for the benefit of our clients.

Many of Hazen's employees have long tenures, with many having been with the firm for over 20 years. In our Hollywood office, we have staff who have been employed for over 50 years and continue to work for Hazen today. We believe this is a direct reflection of our business model, which is to provide all things water® exclusively to our clients.

This focus allows our engineers to maximize their water engineering skills and deliver the highest quality service to our clients.

3.13. What is your reputation like among customers and how have you developed it?* ☑ Pass ☐ Fail

The Hazen team takes pride in building partnerships with the utilities we serve, including the City of Pembroke Pines. We are frequently retained by utilities for continuous, multiple years because we tailor our approach to meet each utility's specific needs. Our team members are easily accessible to staff at all levels, fostering open communication. We have earned the trust and respect of our clients by consistently delivering on our commitments and addressing issues as soon as they arise.

Through our extensive institutional knowledge, attention to detail, focus on client needs, and technical excellence and commitment, we have become the go-to subject matter experts and trusted advisors for many utilities in Broward and Miami-Dade Counties. We value our reputation and remain dedicated to maintaining our high standards and commitment to our clients—specifically in our ongoing commitment to the City of Pembroke Pines. Select quotes from our clients are provided below:

"Hazen has been associated with Plantation and a part of our team for over 20 years. We feel their team's expertise and attention to detail places them at the top of their field." / Daniel Pollio, Utilities Director, City of Plantation

"Vendor is very knowledgeable and shows great professionalism in both design and construction matters." / Rares Petricia, Senior Project Manager, City of Fort Lauderdale

"For nearly 20 years, through dedicated service, the firm has performed admirably on both a continuing services and special project basis providing high quality designs and professional studies in support of the capital expansion, asset renewal and replacement and general operations of both the Town's water and stormwater systems. Hazen's assistance has also been instrumental in the Town's success in securing numerous grant opportunities to the benefit of our entire community." / David Brown, Director of Utilities (retired), Town of Jupiter

"Hazen and Sawyer has performed very well and was able to keep the project on track and on budget. It should be noted that Hazen and Sawyer demonstrated an excellent working relationship with regulators, (including the Florida Department of Environmental Protection and the local health department), which enabled this project to proceed expeditiously." / Michael F. Bailey, PE, Former Director of Utilities/City Engineer, Cooper City Utilities

3.14. How does your service differ from similar competitors? How do you win and retain business?*

Hazen differentiates itself from competitors by offering a specialized focus on water resources, an unwavering commitment to sustainability, and a client-centric approach that prioritizes collaboration and innovation. Our long history, combined with a forward-thinking mindset, makes us a trusted partner for delivering tailored solutions to complex environmental challenges. Clients who choose Hazen can be confident in receiving customized, cutting-edge, and sustainable results that address both present and future needs. ☑ Pass ☐ Fail

Hazen wins contracts by tailoring each project to meet each client's unique needs – We are Client Focused! We also honor our commitments on projects, even when challenges/issues arise that go beyond the original scope. Hazen is dedicated to high-quality, on-time, within-budget delivery for every assignment. We understand that our reputation precedes us, and successful project execution is key to securing future work. To ensure success, we assign projects to engineers with the specific qualifications and expertise required and provide additional staff engineers support, as needed, for successful project completion.

3.15. A brief statement must be included which explains why your proposal would be the most effective and beneficial to the City of Pembroke Pines.*

☑ Pass ☐ Fail

Selecting the Hazen team for this Contract will provide the City with a trusted partner known for delivering successful projects for the City, access to local “one-stop-shop” design center, unparalleled expertise in lime softening and advanced water treatment technologies like IX, a deep bench of national technical experts, and a proven commitment to data-driven PFAS solutions. Our team brings extensive experience in planning, detailed designing, permitting, bidding and implementing IX systems for PFAS and color removal as well as retrofit of existing lime softening facilities. This allows us to optimize the City’s IX design and integration process by leveraging existing water quality data and treatment infrastructure. By employing specialized Hazen machine learning tools and methodologies developed for PFAS removal, we will ensure optimized system design and efficient implementation, resulting in a reliable and cost-effective solution for the City of Pembroke Pines.

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4. FIRM'S UNDERSTANDING AND APPROACH TO THE WORK

The understanding that the applicant and consultants demonstrate as to the requirements and needs of the project, including an evaluation of the thoroughness demonstrated in analyzing and investigating the scope of the project.

4.1. Provide a narrative statement demonstrating an understanding of the overall intent of this solicitation, as well as the methods used to complete assigned tasks.*

☑ Pass ☐ Fail

The City of Pembroke Pines has successfully maintained and operated its Water Treatment Plant for over 60 years. The City’s water treatment plant has historically operated as a low-cost lime softening facility with regenerable fixed-bed ion exchange (FIX), capable of reducing regulated contaminants to below US EPA regulatory limits. The recent PFAS results show that – like many other utilities reliant on the Biscayne Aquifer in southeast Florida – the City’s water supply is contaminated with PFAS (specifically PFOA and PFOS), known in the media as “forever chemicals.” Public water systems were initially required to achieve compliance by 2029. However, on May 14, 2025, the EPA announced its intent to extend the compliance deadline to 2031 for PFOA and PFOS, in response to widespread feedback from utilities and stakeholders about the challenges of meeting the original timeline. This extension aims to give utilities additional time to plan, pilot, and implement treatment systems while minimizing financial burden.

The City’s existing lime softening water treatment infrastructure cannot remove these contaminants. Hence, the City is faced with a major investment decision to upgrade its water treatment infrastructure to achieve PFAS compliance by the second quarter of 2029. Hazen supports the City’s decision to:

- Expansion of FIX System: To enhance TOC removal.
- Implementation of Selective IX System: A single-use system with a capacity of 18 mgd maximum day flow for effective PFAS removal, ensuring compliance with the EPA’s stringent PFAS standards.
- Minimization of Disruption: The design ensures the continuity of the water treatment plant’s operations during the upgrade.

To achieve its overarching goal of safeguarding public health by reducing PFAS concentrations, specifically PFOA and PFOS, to enforceable MCLs of 4 ppt, the City is soliciting the services of a qualified full- service engineering firm to provide engineering services to complete the project. If selected, Hazen will successfully pilot test, detail design, permit, bid/award and implement IX facilities that ensure PFAS compliance, while minimizing operational disruption and financial strain on the City.

Further, we strongly believe that to successfully implement the proposed PFAS Ion Exchange (IX) system at the City’s existing lime softening WTP, the selected consultant should demonstrate expertise not only in IX systems but also in refurbishing lime softening facilities. Hazen brings extensive experience in water treatment design, construction, and rehabilitation—both in Florida and nationwide. Our team has worked on over 875 mgd of lime softening and filtration capacity in Florida alone, and has delivered billions of gallons per day in new and upgraded treatment capacity across the U.S. A well-operated lime softening system is essential for the long-term performance of bolt-on IX systems, as it reduces fouling and head loss—common challenges in PFAS removal.

Completing the project expeditiously and cost-effectively is of utmost importance. This entails addressing every aspect of the project in an efficient and thoughtful manner, from initial planning through construction and startup of the new WTP IX facilities.

Hazen's strategy commences with collaborative planning and evaluation (Task 1), including:

- Evaluating the effectiveness of existing lime softening pretreatment to ensure optimal water quality for IX.
  Applying lessons learned from similar projects to proactively address risks like scaling, fouling, and pressure loss of the IX resins
  Pilot testing to determine full scale IX system than can be seamlessly integrated into the WTP existing operations to maintain treatment continuity and operational flexibility
  Closely coordinating with the City to avoid construction conflicts and ensure alignment throughout the project.

Hazen will employ a structured methodology – project management and quality control – to deliver high-quality preliminary and detailed design, permitting, bid preparation, award, and construction management services on this project (Task 1 through 5).

Project Management Approach

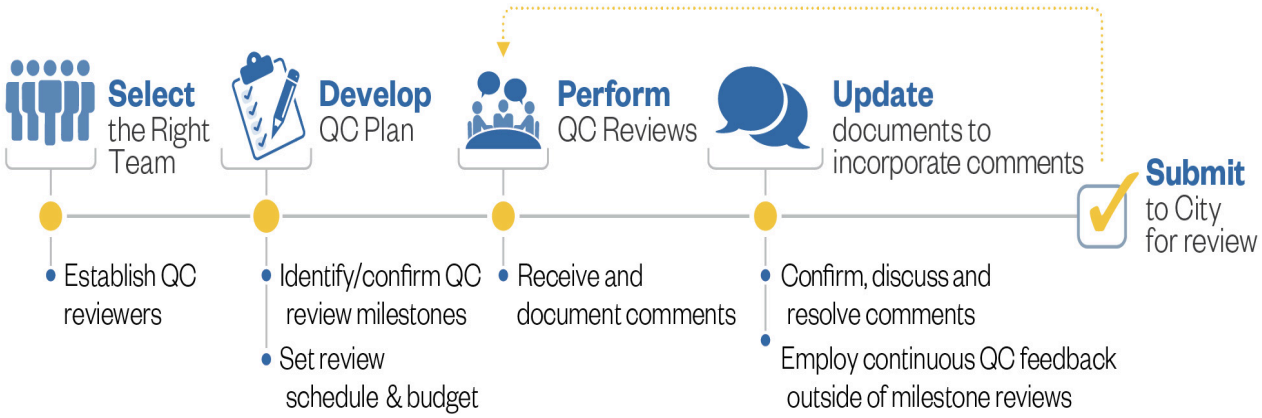
Our project management approach includes development of a work plan at the project onset. The work plan will identify all team members, contact information, and a date-specific timeline for milestones and deliverables. It will also clearly define each team member's responsibilities, budget assignments, and expectations. We will initiate our projects using work breakdown structure practices to clearly define tasks, schedules, and budgets. A set of project deliverables will be identified during scope development. Deliverables will be submitted to allow sufficient time for client review prior to meetings (workshops) to discuss concepts, finalize design criteria, and allow for client input.

Hazen encourages client involvement in the decision-making process on a regular basis throughout the design phase. In addition to typical information exchanged during progress meetings, critical criteria are developed and discussed together with all members of the design and construction team. All members are encouraged to participate and offer insight relative to the importance of each topic discussed during the meeting.

As part of our project management approach, we will schedule periodic deliverables for review by City staff so that staff has the opportunity to review and approve the initial concepts. This allows for constructive feedback throughout the project, which avoids unnecessary reworking of the project documents late in the project phase, saving time and money. This will be performed generally through the 10 percent, 30 percent, 90 percent, permitting, and final design submittals, with interim meetings held to review specific design concepts, if necessary.

Quality Control Approach

Every project is required to have a Quality Control Plan and execution and adherence to the plan is strictly enforced. Ms. Durand and Mr. Page will ensure the successful implementation of quality control reviews. They will develop a quality control plan as part of the project work plan.



Hazen's deep understanding of both lime softening and IX technologies positions us to deliver a reliable, compliant, and cost-effective IX solution tailored to ensure Pembroke Pines' achieve compliance by the 2029 compliance deadline.

For more information, please refer to Additional Information, Firm's Understanding and Approach to the Work, Pages 54-98.

4.2. Please address your familiarity and understanding of the needs of the current compliance with City Standards, Codes and Engineering Standards.*

Hazen's local and national team possess a strong understanding of the regulatory challenges posed by PFAS contamination in the City of Pembroke Pines' water supply and offers a targeted approach to address City's compliance with the U.S. EPA's PFAS regulations that meets the City's water quality level of service standards, state and federal codes and engineering design standards. The U.S. EPA issued the National Primary Drinking Water Regulation (NPDWR) for six PFAS compounds on April 10, 2024, specifying MCLs of 4 ppt for PFOA and PFOS and proposing a Hazard Index approach for other PFAS compounds such as PFHxS, PFNA, HFPO-DA (GenX), and PFBS. Initially required by 2029, the compliance deadline was later extended to 2031 (as announced on May 14, 2025). This extension responds to utilities' concerns regarding financial and operational challenges while signaling a phased regulatory approach. Pembroke Pines relies on the Biscayne Aquifer, which has demonstrated contamination by PFAS, including PFOA and PFOS, commonly referred to as "forever chemicals." As previously noted, the current lime softening infrastructure, which has been operational for over 60 years producing safe drinking water, is incapable of effectively removing these contaminants, necessitating substantial upgrades. Hazen's comprehensive planning and detailed design approach aligns with the City's long-standing commitment to providing safe and clean drinking water. Our IX system design will achieve the City's finished water quality goals that comply with the primary and secondary National Drinking Water regulations, including PFAS, lead and copper rule, groundwater rule and disinfection byproducts rule. Our design will address system reliability and redundancy and comply with the City's Building Code and standards.

☑ Pass ☐ Fail

4.3. Please address your familiarity with Engineering Permitting and Preparing Studies and Miscellaneous Designs in regard to similar projects.*

Hazen offers deep experience navigating permitting and regulatory compliance in Florida, with a strong understanding of the unique challenges posed by the Biscayne Aquifer. We have helped multiple utilities prepare for evolving PFAS regulations, giving them the time and insight needed to plan and invest

☑ Pass ☐ Fail

strategically. Our close coordination with FDEP, EPA, and local agencies enables us to anticipate issues early and keep projects moving. Hazen's recent South Florida IX experience involving piloting/studies includes: Miami-Dade Water and Sewer Department PFAS Treatment Pilot, City of Margate PFAS Study and Pilot Testing at WTP, and City of North Miami Winson WTP Pilot and PFAS Management Plan Hazen's recent Florida IX experience involving design and permitting includes: Toho Water Authority Buenaventura Lakes WTP Process Upgrades Detailed project sheets are provided in Additional Information, Relevant Experience, Pages 28-45.

4.4. Please clearly describe all aspects of the project proposed.* ☑ Pass ☐ Fail

The task assignments detailed in the RFQ will be executed under into five major tasks as follows:

Task 1: Planning and Evaluation: To ensure that we meet the City's goals and objectives, our approach will begin with detailed planning and evaluation, based on our recent experience, to immediately formulate a road map that provides clear direction for execution of all elements of the project. Based on the City's timeline, Hazen has completed a desktop analysis using Hazen's PFAS machine learning models and IX tools. Preliminary results are presented under Task 1 of the approach section in the additional information. A key aspect of our planning will be the pilot study. Unlike RSSCTs, which cannot be directly used to predict full-scale IX performance, pilot studies provide reliable data to accurately estimate bed life, media changeout intervals, and associated O&M costs under real-world conditions.

- Site Visits
- Data Collection / Desk Top Evaluations
- Pilot Testing for resin selection

Task 2: Preliminary Design: Preliminary Design activities for the City of Pembroke Pines will begin in parallel to Task 1, which will incorporate several conventional pre-design activities, such as, site visits, data review and site layout alternatives evaluations. In this case Preliminary Design Activities will focus on moving more quickly to a final design criteria document, drawings and specifications.

- Water Treatment Process Design
- Sub-surface Utility Locations
- Geotechnical Engineering Design Services

Task 3: Detailed Design: Hazen and Sawyer has developed standard drawings of the proposed PFAS IX systems to allow our Team to more effectively and efficiently execute this type of project. With this level of previously developed and reviewed material, we can focus on the bespoke portions of the design that are critical to maintenance of plant operations and ease of future functionality.
Fundamental to meeting the City's site and time constraints, while ensuring continuous WTP operation, is breaking the project down into logical bid packages. This approach will provide flexibility with construction phasing to facilitate accelerated project completion. We have analyzed the project requirements and as previously noted, have determined that one bid package would be most advantageous to the implement the new IX facilities and other required WTP plant modifications from a cost and schedule perspective

- Mechanical Engineering Design
- Electrical Engineering Design Services
- Instrumentation and Control Engineering Design Services
- Structural Engineering Design Services
- Cost Estimating

Task 4 Permitting and Bidding: Obtaining all pertinent permits is crucial since any delays in the permitting process can ultimately delay construction of the improvements. The Hazen team has in-depth familiarity and excellent relationships with the regulatory and permitting agencies (and their procedures) that regulate water supply and water treatment in Florida. We have prepared permit applications for new facilities in addition to renewals and modifications.

Following completion of the detailed design, Hazen will assist the City with bidding of the project, including finalizing the City's front end/contractual documents and ensuring that unit price bid items manage the City's cost escalation risk.

- Permitting
- Bidding Support

Task 5: Comprehensive Construction Oversight Services: The Hazen Construction Team is entirely local. They know the local conditions, local contractors and are very familiar with building techniques that have been used in the past in South Florida and the best way to upgrade facilities here in the region. This experience and knowledge will translate into a well executed construction project that will stay on schedule and control costs. Our construction administration services will begin at issuance of the construction notice to proceed. Throughout the duration of the project, we will provide oversight and address change management items, including requests for information, contract document clarifications, field orders, and change orders.
We take pride in the fact that our engineers will see this project through from conceptual design phase to the start-up and testing period.

- Engineering Services during Construction
- Final Certification

For more information, please refer to Additional Information, Firm's Understanding and Approach to the Work, Pages 62-98

4.5. Include details of your approach and work plans.* ☑ Pass ☐ Fail

We understand that reliability and long-term cost-effectiveness are critical to your decision-making process. Our approach integrates process modeling, operations insight, and advanced tools to deliver solutions that work today and optimize treatment for tomorrow. Hazen's in-house IX machine learning model uses water quality and operational data to predict resin longevity, providing you with confidence in performance and cost planning. We are known for our ability to design around existing hydraulics and infrastructure, ensuring that new treatment components integrate seamlessly with current facilities. Our designs are informed by both bench- and pilot-scale studies, including IX media testing done in and around the Pembroke Pines area.

The Hazen team's comprehensive and proven project approach shown on Additional Information, Firm's Understanding and Approach to the Work, Page 61 provides a roadmap that Hazen will take for success on this project. The key elements of our approach are detailed under question 4.4.

The following Work Plans will be developed for the Project (Refer to question 4.1):

- Project Management Work Plan
- Quality Control Work Plan

4.6. How would you organize this project in terms of milestones?* ☑ Pass ☐ Fail

The project will be organized around key milestones that align with technical, regulatory, and operational priorities to ensure timely and efficient delivery. The major milestones are as follows:

- Design Phase (12 months): This phase includes Tasks 1 through 3: Planning and Evaluation, Preliminary Design, and Detailed Design. Critical activities such as the ion exchange pilot study, water quality evaluation, site survey, development of the Preliminary Design Report, and preparation of detailed design packages, including budgetary opinion of construction cost estimate (30%, 60%, 90%, and 100%) will be executed concurrently where feasible to streamline progress and maintain schedule efficiency.
- Permitting and Bidding (10 months): Recognizing recent variability in permitting and procurement timelines, this phase will be proactively managed. Hazen will engage permitting agencies at the 90% design stage to introduce

the project early and address major comments upfront, expediting the review process. Simultaneously, outreach to qualified contractors will begin early to generate interest and accelerate the bidding process.

- Construction and Startup (24 months + 30 days): Task 5 includes comprehensive construction oversight services. Construction is expected to take 24 months, followed by a 30-day startup and operational assistance period. This phase will be closely managed to ensure quality, safety, and alignment with design intent. A successful startup will ensure the system is fully functional and optimized for long-term performance.
- EPA Compliance Deadline (2029): A critical milestone is achieving compliance with the EPA's PFAS regulations by 2029. Hazen is committed to delivering a solution that ensures the City of Pembroke Pines meets regulatory requirements well in advance of this deadline, providing peace of mind and long-term environmental protection.

This milestone-driven approach ensures that each phase of the project is strategically aligned to meet technical goals, regulatory timelines, and community expectations.

For more information, please refer to Additional Information, Firm's Understanding and Approach to the Work, Page 93.

4.7. Identify any issues or concerns of significance that may be appropriate.* ☑ Pass ☐ Fail

Our team identified key issues that may impact the successful implementation of the proposed IX PFAS removal facilities at the WTP if not carefully addressed during design:

- Public Acceptance/Affordability: The addition of IX facilities to the existing lime softening treatment plant will increase the capital construction costs as well as the operational and maintenance costs. However the City decides to pay for the improvements, the residents' rates will be impacted. Transparent communications with the City throughout the entire design through construction and startup process are required to ensure the public accepts and can pay for the improvements.
- Minimizing disruption to existing operations is essential. The new facilities must integrate with current piping, electrical, and control systems without affecting ongoing performance. Construction will be coordinated with WTP staff, and temporary water purchases from neighboring utilities may be considered during critical phases.
- The site has limited available space. The design must fit within existing constraints while meeting zoning and setback requirements.
- The WTP's proximity to residential and commercial properties requires careful planning to reduce noise, dust, traffic, and visual impacts during construction and operation
- .To address these challenges, the Hazen team has developed two cost-effective, schedule-sensitive layout options, referenced on Additional Information, Firm's Understanding and Approach to the Work, Pages 81-82. These will be refined in collaboration with City staff during preliminary design to align with operational priorities.
- Reuse of existing infrastructure will be prioritized where feasible to reduce costs and streamline implementation.

These considerations will guide the planning and design process to ensure a practical, efficient, and community-conscious solution.

4.8. Please provide details of your Proposed Design Concept.* ☑ Pass ☐ Fail

The Hazen team developed two proposed design concepts for this project, referenced on Additional Information, Firm's Understanding and Approach to the Work, Pages 81-82 The proposed facility layouts focus on an efficient, low-impact layout for the new IX PFAS removal facilities, located in the northeast corner of the WTP near the front gate. This site offers minimal challenges and allows for integration with existing infrastructure. Key aspects of the design may or may not include: • Perform IX resin piloting for both the existing FIX and new PFAS system to determine whether expansion of the existing FIX system is necessary, with the goal of reducing overall project costs. • Conduct further plant hydraulic evaluations to confirm design criteria for the filter effluent piping hydraulic constraints and to properly size the transfer pumps needed to support flow through both the existing FIX and new PFAS systems • Construct a new 18 mgd IX system for PFAS removal in the location at the northeast corner of the WTP. • Relocation of existing brine storage / regeneration tanks and piping for the existing FIX system. • Install a new blend tank that

collects flow from Filters 1, 2, 3, and 4 to address existing hydraulic limitations that currently prevent flow from Filters 1, 2, and 4 from reaching the FIX vessels used for TOC and color removal. • Modify the existing transfer pumps and piping for the FIX system and/or install new transfer pumps and piping near the PFAS IX vessels to ensure adequate flow through the new treatment system. • Modifications to existing yard piping, including addition of isolation valves, to streamline flow, improve operational efficiency, and accommodate future system modifications. • Install a dechlorination storage and feed facility with new chemical injection point to protect the new PFAS IX resins and extend the useful life of the system. • Design electrical and I&C upgrades required for operation flexibility and reliability of the optimized existing FIX facility and proposed PFAS IX facility. The Hazen team is committed to delivering a practical, flexible design that aligns with the City's operational needs and long-term goals.

4.9. How do you ensure the quality of your services?* ☑ Pass ☐ Fail

Every project is required to have a Quality Control Plan and execution and adherence to the plan is strictly enforced. Our firm has a Chief Quality Officer (a senior partner of the firm), regional quality coordinators (all partners in the firm), and local office liaisons. QA/QC implementation is a daily practice with formal milestone reviews and quarterly auditing and reporting to the firm's President and Board of Directors. This provides for the highest quality deliverables for your projects. Ms. Durand and Mr. Page will ensure the successful implementation of quality control reviews. They will develop a quality control plan as part of the project work plan.

Providing quality engineering services and deliverables is a core element of Hazen's business practice and is inherent to our culture. We have a company-wide Quality Assurance Policy Manual to provide guidance to staff during the execution of every project. This plan involves discipline and inter-discipline review by senior professionals at the conceptual, preliminary, draft, and final design stages.

For more information, please refer to Additional Information, Firm's Understanding and Approach to the Work, Page 95.

4.10. What criteria do you use to measure your quality?* ☑ Pass ☐ Fail

Commitment to protecting the public health and safety is paramount in every design project of Hazen. Further, Hazen's commitment to quality is inherent to Hazen's culture and is evident in the services we deliver.

- Client satisfaction is one of our core values at Hazen. We provide opportunities for feedback at every project milestones to ensure that our clients' needs and expectations are consistently met or exceeded.
- Hazen maintains a high standard for technical excellence by engaging subject matter experts throughout all phases of the project.
- Delivering projects on time and within budget defines Hazen's commitment to quality. We employ robust project management protocols to track progress, allocate resources effectively, and identify risks early in the process.
- Ensuring compliance with all applicable local, state, and federal regulations is a non-negotiable aspect of quality at Hazen and Sawyer. Hazen local team members actively participate in the SEFLUC and joint FSAWWA Water Utility Council (WUC) and FWEA Utility Council regulatory committee to help shape the outcome of pressing regulatory issues.
- Through the use of multidisciplinary teams, Hazen fosters a collaborative environment where discipline experts contribute to sustainable solutions.

For more information, please refer to Additional Information, Firm's Understanding and Approach to the Work, Page 95.

4.11. How often do you find mistakes or errors in your work and what is done to correct these errors, and what is the average correction time?*

☑ Pass ☐ Fail

As engineers, we hold ourselves to the highest standards of accuracy, reliability, and professionalism. However, while our robust QA/QC processes are designed to minimize the likelihood of errors, we understand that occasional mistakes can occur on any project. At Hazen, the frequency of mistakes or errors is low; we complete most of our construction projects with zero change orders related to engineering design issues. During the rare situations that errors are identified during the quality review process, we follow a structured and transparent correction process that prioritizes swift resolution and clear communication with our clients.

The time required to correct a mistake or error depends on the complexity of the issue identified. Minor errors are typically addressed in 1-3 business days; larger errors may take 2 weeks to 4 weeks.

- Minor Errors: Issues such as small data inconsistencies or minor adjustments in designs are typically resolved within 1-3 business days.
- Other Errors: Problems requiring recalibration of models or adjustments to technical plans may take 1-2 weeks. or situations involving significant redesigns for unanticipated regulatory challenges can take 3-4 weeks or more, depending on the project's scale and urgency.

4.12. Describe the firm's techniques for quality control. At a minimum describe the firm's technique to control design and contract documentation, including record keeping.*

☑ Pass ☐ Fail

A key reason for Hazen's success is our continuous attention to quality. This means not only doing things right but **doing things right the first time.** Quality control plans (QCP) are a standard part of every project—not just a box to check. In accordance with the firm's Quality Assurance Policy Manual, our team will develop a QCP tailored for this project. The QCP will identify qualified QC reviewers, QC milestone dates, and appropriate QC budgets to fulfill the QCP. QC reviews will be conducted by independent, experienced technical staff prior to each milestone submittal. Piloting results will be reviewed by **Conner Murray, PhD, PE,** and **Paul Biscardi, PhD, PE.** Technical memos and reports will be reviewed by our team of qualified Technical Advisors. Our Project Manager, **Monique Durand, PE,** who also serves as the Hollywood Quality Control Leader, will ensure successful implementation of quality control reviews throughout all phases of the project.

For every project, we maintain a risk register, documenting the decisions made by the City and the design team for future reference. Documenting these decisions in this manner allows the City to return to this document for review of the mitigation measures for each risk as well as the associated savings (where applicable).

Document management procedures are initiated at the start of each project following Hazen's Document Retention Policy. When a project is closed, the Project Manager verifies with project team members that all documents related to the project are located in the central project files. Final documents (i.e., project correspondence including client deliverables such as reports and drawings, memoranda, field logs, calendars) are discarded 15 years after project close. Permanent documents (i.e., documents that establish scope of work, final drawings and calculations or specifications, milestone drawings, final reports) are maintained indefinitely. In the case where a contract has specific, client-requested provisions regarding confidentiality and maintenance of documents, Hazen will adhere to those provisions.

For more information, please refer to Additional Information, Firm's Understanding and Approach to the Work, Page 95.

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5. WILLINGNESS TO MEET TIME AND BUDGET REQUIREMENTS

Please note that during this portion of the process, the City is NOT asking for the firms to submit pricing. After the evaluation committee has selected the firms in order of preference, the City shall negotiate a contract with the most qualified firm for professional services at compensation which the agency determines is fair, competitive, and

reasonable. Should the agency be unable to negotiate a satisfactory contract with the firm considered to be the most qualified at a price the agency determines to be fair, competitive, and reasonable, negotiations with the firm must be formally terminated. The agency shall then undertake negotiations with the next most qualified firm.

Budget: This solicitation is for the award of professional services. The City has not established a budget for this project or the consultant fees, however staff estimates the construction cost of this project to be approximately **$54.5 million**, and the professional services are estimated at **$5,450,000, which includes design, permitting and bidding services.**

Timeline: Construction must be completed by **April 26, 2029**, to ensure compliance with the new regulatory requirements established by the U.S. Environmental Protection Agency (US EPA) for public water systems. Given that construction is anticipated to take approximately **twenty-four (24) months**, it is critical that design development begins promptly after the Notice to Proceed (NTP) and is completed within **twelve (12) months** of NTP. The selected consultant must adhere to these time constraints to ensure the project is completed by the mandated deadline.

5.1. In general, please explain your firm's approach in meeting "project specific" budget requirements and indicate whether Consultant is committed to meet these requirements when identified in this agreement.*

☑ Pass ☐ Fail

Our firm is committed to meeting the budget requirements for every project. We know the budget for this project and will execute the project within budget. If awarded this contract, Hazen will first meet with the City to prioritize the required scope of work. Once the scope items are prioritized, Hazen will develop an approximate schedule for each task. This schedule will be input into Hazen's system to ensure that the staff committed to each task will remain committed to these tasks and not be assigned to other projects that will compete for these staff resources.

Ms. Durand (Project Manager) and Mr. Page (Deputy Project Manager) will use the firm's computerized, web-based tool (Deltek Vantagepoint) for project planning, monitoring the cost of each task, and comparing these with actual progress of the work. By constantly monitoring progress, schedule, and budget, they will proactively make any necessary adjustments to keep the work moving forward effectively and efficiently. The City's Project Manager will be kept informed of any delay or possible cost issue through regular communication. This will allow the City and our team to monitor the progress and budget to identify and resolve issues prior to them negatively impacting the project. We will facilitate early decision making to keep each task on schedule and within budget.

Further, Ms. Wietgrefe will ensure that the appropriate Hazen resources are allocated to the project to complete the project on time and on budget.

5.2. Please advise if your firm is willing to meet the stated budget requirements.*

☑ Pass ☐ Fail

Our firm is committed to performing the work within the stated budget requirement.

5.3. What percentage of your completed projects have had cost overruns?*

☑ Pass ☐ Fail

We honor our cost commitments to clients and ensure negotiated fees are not exceeded, except in cases of exceptional circumstances. We typically absorb cost overruns unless there is a change in scope that can be negotiated with the client. Generally, less than 1 percent of our completed projects have had cost overruns. We have demonstrated previously to the City completion of all our City projects on time and on budget, with zero cost overruns for the City.

5.4. Tell me about a time when you went over budget and how you handled the situation?*

☑ Pass ☐ Fail

When Hazen establishes a budget with a client, and signs an agreement for that project budget, we've committed to honoring that upper limit and not charging the client for any potential overruns that may occur. Specifically, during design, if our required resources exceed our projected labor for the design, we will take the loss and only bill our client what was in the established agreement.

Hazen works with our clients to establish the correct budget for each project and does not waste our clients' time with minor variances and/or slight overruns on projects: we just get the job done. We have a history of completing our projects with the City on time and on budget and will continue to do so for this important project.

5.5. What cost-saving measures do you implement at your firm?* ☑ Pass ☐ Fail

Hazen implements many cost-savings measures. We operate primarily in a digital format. We produce very few paper deliverables and mostly deliver submittals electronically. Additionally, our largest cost saver is that all of our principals are working principals. Each project manager is also a technical expert and performs overall project management while performing the required scope of services on the project. This results in minimal project management costs for each project because the project manager is so intimately involved.

5.6. Who will be in charge of maintaining the budget on projects and how many accounts is this person assigned to at a given time?*

Our proposed Project Manager, Monique Durand, PE, will be responsible for maintaining the budget. ☑ Pass ☐ Fail Additionally, our Project Director, Janeen Wietgrefe, PE, PMP, will have online access to the budget and will check in with Ms. Durand and with the City regularly. Ms. Durand may manage up to three or four projects simultaneously. Based on the nature, phase, or task being managed, the projected workload of project management activities will range from 5% to 20% over the course of the project. During the initial planning stages, a greater time percentage commitment may be required. Ms. Durand is prepared and available for this project. Care is taken to ensure that the Project Manager has a reasonable workload.

5.7. In general, please explain your firm's approach in meeting "project specific" time requirements and indicate whether Consultant is committed to meet these requirements when identified in this agreement.*

Hazen is committed to meeting all "project-specific" time constraints on this project and anticipate ☑ Pass ☐ Fail completing the design within 12 months by leveraging the custom tools we have developed. To ensure that the schedule is met in accordance with the City's timeframe, a detailed project schedule in Microsoft Project will be developed immediately following the issuance of a notice to proceed and will be maintained over the course of the project. The project schedule details the steps required to complete the project utilizing a critical path methodology. Using scheduling software provides a time management tool to better track progress of the project in real terms.

We will maintain the project schedule and review deadlines internally and with the City as we complete the project. Ms. Durand will be responsible for ensuring that the overall schedule for each task is met. A proposed schedule is included in the Additional Information document.

5.8. Please advise if your firm is willing to meet the stated time requirements.* ☑ Pass ☐ Fail

Hazen is willing to meet the stated time requirements and intends to complete the planning and design of the project within 12 months of receiving the notice to proceed. Hazen presents an expedited schedule to meet PFAS compliance in Additional Experience, Firm's Understanding and Approach to the Work, Page 93.

5.9. What is your average on-time completion rate?* ☑ Pass ☐ Fail

A design of this nature typically requires Hazen 12 months to complete. We complete our design projects on time almost 100% of the time. The only time the designs are not completed on time is when an external factor, such as loss of land available for the project, occurs. We do not anticipate an external factor such as that on this project.

Further, Ms. Wietgrefe will access additional internal resources to ensure any potential internal issues (e.g. unpredicted medical leave) do not impact schedule.

5.10. How many projects does your firm typically take on at a given time?* ☑ Pass ☐ Fail

As a medium-sized consulting firm, our firm may have hundreds of projects in progress at a time. The number of projects that we take on at a time varies based on the size of the project. Hazen operates 84 offices nationwide. Our 10 offices in Florida often work together to complete assignments. If a project risks falling behind schedule, our local office can request support resources from any other office to ensure its timely completion.

5.11. Tell me about a time when the project timeline was delayed and how did you handle the situation?*

During the design of the membrane plant for Hallandale Beach years ago, the City of Hallandale Beach needed to obtain property by eminent domain. This required much longer than the City anticipated. Hazen worked with the City to hold the design of the project until the land was procured and then continued with the project as planned, at no cost impact to the City. ☑ Pass ☐ Fail

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5.12. Describe the firm's design and construction management methods and techniques. Include details on firm's ability to make decisions and facilitate resolution of disputes.*

Our firm has extensive experience in the design and construction management of utility projects. For these types of projects, Hazen believes that the engineer who designed the project allows field conflicts to be resolved most quickly and effectively. When this is not possible, another resident project representative (RPR) oversees construction and remains in constant communication with the design engineer, resolving issues often before the contractor even realizes an issue might exist. Doing so minimizes potential claims from the contractor and expedites the construction process. ☑ Pass ☐ Fail

Hazen understands that resolving conflicts before they can become claims is critical to the success of the project. Hazen commits to solidifying resolution on construction issues in a timely manner for the City.

5.13. Describe the firm's knowledge and experience with scheduling.* ☑ Pass ☐ Fail

The Hazen team understands the importance of maintaining schedule commitments for all projects. Our experience with similar assignments for comparable local utilities enables us to provide input and lessons learned to the City regarding performance of various activities, streamlining the decision-making process when possible. Proactive management ensures projects remain on schedule. Continuous management of any project is needed to ensure timeliness, quality, and budget. To achieve these goals, we make sure that adequate time is allocated for the Project Manager to perform their duties. We track progress and update our network-logic schedule monthly. This allows us to develop a recovery plan should an unexpected situation occur, which impacts the project schedule. Impacts are added to the network-logic schedule as dedicated activities to identify potential delays to the schedule's critical path. We then analyze the schedule and assess methods to mitigate any delays. Hazen uses Deltek Vantagepoint to provide rapid and accurate accounting of project labor expenditures. These project data facilitate keeping the project on schedule and on budget.

5.14. Please provide details of your proposed project schedule required to meet the regulatory timeframe.*

Hazen proposes the following project schedule to ensure compliance with the regulatory timeframe: ☑ Pass ☐ Fail

- Design Phase (12 months total): Tasks 1 through 3—Planning and Evaluation, Preliminary Design, and Detailed Design—will be executed concurrently to streamline progress and ensure completion within a 12-month period.
- Permitting and Bidding (10 months): Recognizing the recent variability in permitting and procurement timelines, we have allocated approximately 10 months for Task 4, which encompasses all permitting and bidding activities.
- Construction and Startup (24 months + 30 days): Task 5 includes comprehensive construction oversight services, with a construction duration of 24 months followed by 30 days dedicated to startup and operational assistance.

This accelerated schedule positions the Water Treatment Plant (WTP) to be fully operational by June 2029. In alignment with the EPA's PFAS regulatory extension, this timeline ensures that the City achieves compliance with PFAS removal 10 months ahead of the anticipated start of the one-year running average in April 2030, and well in advance of the final compliance deadline in April 2031.

6. RECENT, CURRENT, AND PROJECTED WORKLOADS OF THE FIRMS

Please provide any information regarding your firm's recent, current, and projected workloads for the Evaluation Committee to review.

6.1. Recent Workload: Describe your recent workload.* ☑ Pass ☐ Fail

Our Hollywood office is currently handling several projects related to water, wastewater, and stormwater, which are in different stages of design or construction. This workload is typical for an office of our size.
Specifically, Hazen has approximately 118 recently completed or ongoing projects in Broward County as indicated in the table below.

Municipality	Number of ongoing or recently completed projects
Broward County	13
Cooper City	8
Fort. Lauderdale	22
Hallandale Beach	4
Hollywood	19
Margate	4
Miramar	5
North Lauderdale	3
Oakland Park	4
Pembroke Pines	8
Plantation	15
Sunrise	13

6.2. Current Workload: Describe your current workload.* ☑ Pass ☐ Fail

If selected for this contract, the individuals listed on our organizational chart will be available to the City. We carefully plan for projects like yours, as well as for other projects such as those listed under 6.3 – Projected Workload. Your project aligns perfectly with our overall strategy and integrates seamlessly into our plan. By leveraging our meticulous planning process, we ensure that every project receives the attention and resources required, resulting in successful outcomes and exceeding expectations. If selected, our experienced engineers will complete their current design assignments and transition directly into the ion exchange design for the City.

We adopt a conservative approach of accepting new assignments only when adequate staff is available for the project's duration. Our proposed Project Director, **Janeen Wietgrefe, PE, PMP**, and Project Manager, **Monique Durand, PE,** will maintain regular communication with the City. This communication allows us to plan resource allocation and staff assignments proactively. In case of unforeseen circumstances requiring project acceleration, our team has support and backup staff experienced in all relevant disciplines. If additional resources are needed, Hazen has sufficient staff across nine Florida offices and can utilize firm-wide staff members.

6.3. Projected Workload: Describe your projected workload.* ☑ Pass ☐ Fail

Upcoming projects in Broward County include:

- **City of Hollywood Design of Membrane Train and Corrosion Control Study for PFAS Compliance:** This project includes two phases towards full PFAS compliance for the City, installation of another membrane train, and development of a corrosion control treatment protocol for the conversion to 100% membrane.
- **City of Hallandale Beach Addition of Second RO Skid for PFAS Compliance:** This project includes adding a second RO skid to the existing membrane plant to remove PFAS from the City wells.
  Miramar's Design and Construction of an Anaerobic Digester Unit: This project aims to improve waste management efficiency by breaking down organic waste into biogas through anaerobic digestion. The unit will reduce landfill usage and generate renewable energy.
- **Deerfield Beach's Risk and Resilience Assessment:** This assessment will identify potential risks to critical infrastructure, ensuring that Deerfield Beach is prepared for natural disasters or other emergencies. It involves thorough analysis and planning to enhance city resilience.
- **Sunrise's Springtree WTP Electrical Upgrades (Phase 2 CMS):** This phase focuses on upgrading the electrical systems of the Springtree Water Treatment Plant. Enhanced electrical infrastructure will ensure reliable water treatment and distribution, supporting the community's needs.

In summary, given our ongoing and upcoming work, Hazen has more than ample capacity to complete the work of this contract.

---

7. REFERENCE # 1

The minimum experience for this project is **ten (10) years**. Provide specific examples of similar experience conducting licensed work of equal or similar scope of work, preferably delivered by the proposed team members. A **minimum of 3** references should be from the last **ten years** and should be capable of explaining and confirming your firm's capacity to successfully complete the scope of work outlined herein. As part of the proposal evaluation process, the City may conduct an investigation of references, including a record check or consumer affairs complaints. Proposers' submission of a proposal constitutes acknowledgment of the process and consent to investigate. The City is the sole judge in determining Proposers qualifications. In this section you will have the ability to enter information for 5 different references including their contact details and specific project information.

Please note that the City prefers references who are not current employees of the City of Pembroke Pines, as we generally do not contact our own employees for reference checks.

Proposers are advised to confirm that:

1. Each reference provided by the Respondent has up to date contact persons and contact information;
2. The contact person provided for each reference is someone who has personal knowledge of the Proposer's performance during the referenced project; and
3. The contact person for each reference has been contacted by the Proposer regarding this specific bid submittal and such person confirmed their willingness to serve as a reference.

The projects listed in this section shall be the firm's best examples of previous projects that are similar in size and scope. These projects and additional projects may also be listed on Standard Form 330.

7.1. Reference Contact Information - Name of Firm, City, County or Agency* ☑ Pass ☐ Fail

Town of Jupiter, FL

7.2. Reference Contact Information - Reference's Business Address* ☑ Pass ☐ Fail

210 Military Trail Jupiter, Florida 33458

7.3. Reference Contact Information - Reference's Contact Name & Title* ☑ Pass ☐ Fail

Amanda Barnes, PE, Utilities Director

7.4. Reference Contact Information - Reference's E-mail Address* ☑ Pass ☐ Fail

AmandaB@jupiter.fl.us

7.5. Reference Contact Information - Reference's Phone Number* ☑ Pass ☐ Fail

(561) 741-2537

7.6. Project Information - Was your firm the prime contractor for the listed project?* ☑ Pass ☐ Fail

Yes

7.7. Project Information - Name of Contactor Performing the Work* ☑ Pass ☐ Fail

Hazen and Sawyer

7.8. Project Information - Name and location of the project* ☑ Pass ☐ Fail

14.5-mgd Nanofiltration Facility, Jupiter, FL

7.9. Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for* ☑ Pass ☐ Fail

Hazen provided design, permitting, and pilot testing oversight services for the 14.5-mgd Nanofiltration Facility (expandable to 17-mgd). The design included preparation of contract documents for construction of a new nanofiltration facility and ancillary facilities. The Town operated a water treatment plant with three independent treatment processes: lime softening, ion exchange, and reverse osmosis (RO). The Town added a nanofiltration facility (NF) to produce potable water from the surficial aquifer. The NF treatment continues ongoing product water quality improvement and ultimately allowed retirement of the lime softening treatment plant. The design included preparation of contract documents for construction of the new nanofiltration facility and ancillary facilities. The bid package included detailed design drawings and technical specifications.

Janeen Wietgrefe, PE, PMP: Project Manager for Predesign Phase

Jennifer McMahon, PE: Project Manager for Design Phase

Jean Paul Silva, PE, FRSE: Structural

Evan Curtis, PE: Instrumentation and Automation

7.10. Project Information - Project Duration* ☑ Pass ☐ Fail

01/2005-10/2010

7.11. Project Information - Completion (Anticipated) Date* ☑ Pass ☐ Fail

10/2010 (construction)

7.12. Project Information - Size of Project* ☑ Pass ☐ Fail

14.5 mgd

7.13. Project Information - Cost of Project* ☑ Pass ☐ Fail

$2 million (fee); $37 million (construction)

8. REFERENCE # 2

8.1. Reference Contact Information - Name of Firm, City, County or Agency* ☑ Pass ☐ Fail

Miami-Dade Water and Sewer Department (WASD), Miami-Dade County, FL

8.2. Reference Contact Information - Reference's Business Address* ☑ Pass ☐ Fail

3071 SW 38th Avenue, Room 554-10 Miami, FL 33146

8.3. Reference Contact Information - Reference's Contact Name & Title* ☑ Pass ☐ Fail

Virginia Walsh, PhD, PG Senior Professional Geologist, Chief of Hydrogeology Section

8.4. Reference Contact Information - Reference's E-mail Address* ☑ Pass ☐ Fail

Virginia.Walsh@miamidade.gov

8.5. Reference Contact Information - Reference's Phone Number* ☑ Pass ☐ Fail

(786) 552-8266

8.6. Project Information - Was your firm the prime contractor for the listed project?* ☑ Pass ☐ Fail

Yes

8.7. Project Information - Name of Contactor Performing the Work* ☑ Pass ☐ Fail

Hazen and Sawyer

8.8. Project Information - Name and location of the project* ☑ Pass ☐ Fail

PFAS Treatment Pilot, Miami-Dade County, FL

8.9. Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for* ☑ Pass ☐ Fail

In response to the finalization of the National Primary PFAS Standard, Miami-Dade WASD has embarked on an aggressive piloting and technology evaluation project, designed to identify, evaluate, and select treatment technology capable of meeting the new federal standards. Hazen is responsible for the development of pilot protocols, review of pilot results, and development of conceptual designs for all viable treatment options at each of the Department's three water treatment facilities. Pilot testing includes ion exchange and membrane facilities.

Jayson Page, PE: Project Director

Erik Rosenfeldt, PhD, PE: Technical Advisor

Nathan Rothe, PE: Project Engineer

Bahareh Tajdini, PhD: Project Engineer

8.10. Project Information - Project Duration* ☑ Pass ☐ Fail

Ongoing

8.11. Project Information - Completion (Anticipated) Date* ☑ Pass ☐ Fail

PFAS Management Plan complete under separate task. Piloting to be completed in the first quarter of 2026 (04/01/2026).

8.12. Project Information - Size of Project* ☑ Pass ☐ Fail

435 mgd

8.13. Project Information - Cost of Project* ☑ Pass ☐ Fail

$2.3 million (fee-to-date), Overall project cost for PFAS management at MDWASD will be more than $2 billion

9. REFERENCE # 3

9.1. Reference Contact Information - Name of Firm, City, County or Agency* ☑ Pass ☐ Fail

Toho Water Authority

9.2. Reference Contact Information - Reference's Business Address* ☑ Pass ☐ Fail

951 Martin Luther King Blvd. Kissimmee, FL 34741

9.3. Reference Contact Information - Reference's Contact Name & Title* ☑ Pass ☐ Fail

Tak Kai Pang, PhD, PE Director of Plants and Processes – Engineering

9.4. Reference Contact Information - Reference's E-mail Address* ☑ Pass ☐ Fail

tpang@tohowater.com

9.5. Reference Contact Information - Reference's Phone Number* ☑ Pass ☐ Fail

(407) 944-5030

9.6. Project Information - Was your firm the prime contractor for the listed project?* ☑ Pass ☐ Fail

Yes

9.7. Project Information - Name of Contactor Performing the Work* ☑ Pass ☐ Fail

Hazen and Sawyer

9.8. Project Information - Name and location of the project* ☑ Pass ☐ Fail

Toho Buenaventura Lakes WTP Process Upgrades, Osceola County, Florida

9.9. Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for* ☑ Pass ☐ Fail

Hazen is providing engineering design, permitting, and construction services to improve reliability and quality of the water for the Buenaventura Lakes WTP. This design incorporates considerations for a high growth area with raw water quality that requires advanced treatment to remove hydrogen sulfide, remove organics, and maintain disinfection by-product compliance. The scope of work includes pilot testing, design services, and site improvements to improve operations.

Paul Biscardi, PhD, PE: Technical Advisor, Process

Nicole Blute, PhD, PE: Technical Advisor, Process

Alex Rahimian-Pour, PE: Technical Advisor, Process

Tyler Davis, PE: QA/QC

George Brown, PE: Technical Advisor, Mechanical

Becki Rosenfeldt, PE: Technical Advisor, Process

Rose Jesse, CPE: QA/QC, Cost Estimate

Daniela Diaz, PE: Assistant Engineer

Jason Johnson: BIM/CADD

9.10. Project Information - Project Duration* ☑ Pass ☐ Fail

Ongoing

9.11. Project Information - Completion (Anticipated) Date* ☑ Pass ☐ Fail

12/18/2026

9.12. Project Information - Size of Project* ☑ Pass ☐ Fail

5 mgd

9.13. Project Information - Cost of Project* ☑ Pass ☐ Fail

$1.87 million (fee-to-date)

10. REFERENCE # 4

10.1. Reference Contact Information - Name of Firm, City, County or Agency ☑ Pass ☐ Fail

City of Plantation, FL

10.2. Reference Contact Information - Reference's Business Address ☑ Pass ☐ Fail

400 NW 73rd Avenue Plantation, FL 33317

10.3. Reference Contact Information - Reference's Contact Name & Title ☑ Pass ☐ Fail

Daniel Pollio Utilities Director

10.4. Reference Contact Information - Reference's E-mail Address ☑ Pass ☐ Fail

dpollio@plantation.org

10.5. Reference Contact Information - Reference's Phone Number ☑ Pass ☐ Fail

(954) 797-2209

10.6. Project Information - Was your firm the prime contractor for the listed project? ☑ Pass ☐ Fail

Yes

10.7. Project Information - Name of Contactor Performing the Work ☑ Pass ☐ Fail

Hazen and Sawyer

10.8. Project Information - Name and location of the project ☑ Pass ☐ Fail

Plantation East Water Treatment Plant Chemical Upgrades, Plantation, FL

10.9. Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for

☑ Pass ☐ Fail

Hazen provided engineering consulting services and construction management services for the design and construction of replacement of several chemical storage and feed facilities at the City of Plantation East Water Treatment Plant. The chemical storage and feed facilities included fluoride, sodium hydroxide, sodium hypochlorite, corrosion inhibitor, scale inhibitor and sodium hexametaphosphate. The replacement included all bulk storage and day tanks, transfer pumps and metering pumps, chemical loading stations, all chemical transmission piping and double containment, and all chemical injection points and quill assemblies. The project also included all chemical system SCADA and electrical upgrades needed for a new state-of-the-art facility.

Janeen Wietgrefe, PE, PMP: Project Director

Monique Durand, PE: Project Manager

George Brown, PE: Technical Advisor

Jean Paul Silva, PE, FRSE: Structural Engineer

John Burke, PE: Electrical Engineering

Alfredo Jimenez: Instrumentation and Automation

10.10. Project Information - Project Duration ☑ Pass ☐ Fail

05/2017-09/2019 (design) 03/2020-12/2021 (construction management services – Phase I) 01/2022-05/2024 (construction management services – Phase II)

10.11. Project Information - Completion (Anticipated) Date ☑ Pass ☐ Fail

05/2024

10.12. Project Information - Size of Project ☑ Pass ☐ Fail

12 mgd

10.13. Project Information - Cost of Project ☑ Pass ☐ Fail

$1.1 million (fee)

11. REFERENCE # 5

11.1. Reference Contact Information - Name of Firm, City, County or Agency ☑ Pass ☐ Fail

Santa Clarita Valley Water Agency

11.2. Reference Contact Information - Reference's Business Address ☑ Pass ☐ Fail

27234 Bouquet Canyon Road Santa Clarita, CA 91350

11.3. Reference Contact Information - Reference's Contact Name & Title ☑ Pass ☐ Fail

Jason Yim, PE, Principal Engineer

11.4. Reference Contact Information - Reference's E-mail Address ☑ Pass ☐ Fail

jyim@scvwa.org

11.5. Reference Contact Information - Reference's Phone Number ☑ Pass ☐ Fail

(661) 513-1277

11.6. Project Information - Was your firm the prime contractor for the listed project? ☑ Pass ☐ Fail

Yes

11.7. Project Information - Name of Contactor Performing the Work ☑ Pass ☐ Fail

Hazen and Sawyer

11.8. Project Information - Name and location of the project ☑ Pass ☐ Fail

PFAS Groundwater Treatment Improvements, Santa Clarita, CA

11.9. Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for

☑ Pass ☐ Fail

Hazen's responsibilities include preliminary and final design of the Ion Exchange (IX) treatment system (3.5 mgd) for removal of PFOS/PFOA from Santa Clara and Honby Wells. The project includes preparation of final design documents, 3D model of the treatment system, hydraulic analysis of well pumps, cost estimates, permitting, bid assistance, and engineering services during construction. Hazen also provides services for the Ion Exchange (IX) treatment system (7.0 mgd) for removal of PFOS/PFOA from E-Wells (E-14, E-15, E-16, and E-17). Responsibilities include preparation of preliminary design of the treatment system, site layouts, 3D model of the treatment system, hydraulic analysis of well pumps, and cost estimates.

Nicole Blute, PhD, PE: Technical Advisor
Alex Rahimian-Pour, PE: Project Manager

11.10. Project Information - Project Duration ☑ Pass ☐ Fail

Ongoing

11.11. Project Information - Completion (Anticipated) Date ☑ Pass ☐ Fail

01/2026

11.12. Project Information - Size of Project ☑ Pass ☐ Fail

Varies by project

11.13. Project Information - Cost of Project ☑ Pass ☐ Fail

$9 million (fee)

12. PROJECT DOCUMENTS

12.1. STANDARD FORM 330 (PARTS I and II)* ☑ Pass ☐ Fail

- Firms shall complete both Part I and II of the Standard Form 330 so that the City can obtain adequate information for this RFQ.

> *Standard_Form_330.pdf*

Hazen_Standard_Form_330.pdf

12.2. PROPOSERS BACKGROUND INFORMATION FORM* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Proposers_Background_Information_Form.xlsx*

Hazen_Proposers_Background_Information_Form_PSUT-25-06.xlsx

Hazen_Professional_Licenses_PE,_PG.pdf

Hazen_Response_to_Question_1.9.1_Proposer_Background_Info_Form.pdf

13. STANDARD DOCUMENTS

The following documents are standard documents that the City generally requires for every solicitation. As a result, we recommend vendors to keep these documents updated and readily available so that they can be easily uploaded for each project that the vendor would like to participate in. In the event that the City does not have one of the forms or documents listed below for your company, the City may reach out to your company after the bid has closed to obtain the document(s).

13.1. NON-COLLUSIVE AFFIDAVIT* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Non-Collusive_Affidavit.pdf*

Non-Collusive_Affidavit.pdf

13.2. SWORN STATEMENT ON PUBLIC ENTITY CRIMES FORM* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Sworn_Statement_on_Public_Entity_Crimes.pdf*

Sworn_Statement_on_Public_Entity_Crimes.pdf

13.3. EQUAL BENEFITS CERTIFICATION FORM* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Equal_Benefits_Certification_Form.pdf*

Equal_Benefits_Certification_Form.pdf

13.4. VENDOR DRUG FREE WORKPLACE CERTIFICATION* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Vendor_Drug-Free_Workplace_Certification_Form.pdf*

Vendor_Drug-Free_Workplace_Certification_Form.pdf

13.5. SCRUTINIZED COMPANY CERTIFICATION* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Scrutinized_Company_Certification.pdf*

Scrutinized_Company_Certification.pdf

13.6. E-VERIFY SYSTEM CERTIFICATION* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.
2. Effective January 1, 2021, pursuant to Section 448.095. Florida Statues, the City may not enter into a contract with a vendor/contractor/subcontractor unless that vendor/contractor/subcontractor is registered with and uses the E- Verify system administered by the U.S. Department of Homeland Security (“DHS”).
3. Contractor shall also require all subcontractors to provide an affidavit attesting that the subcontractor does not employ, contract with, or subcontract with, an unauthorized alien. The Contractor shall maintain a copy of such affidavit for the duration of the contract.

> *E-Verify_System_Certification_Statement.pdf*

E-Verify_System_Certification_Statement.pdf

13.7. HUMAN TRAFFICKING AFFIDAVIT* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Human_Trafficking_Affidavit.pdf*

Human_Trafficking_Affidavit.pdf

13.8. VENDOR INFORMATION FORM* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Vendor_Information_Form.pdf*

Vendor_Information_Form_Hazen.pdf

13.9. FORM W-9 (REVISED MARCH 2024)* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.
2. Note - Please use the March 2024 version of the form as previously dated versions of this form may delay the processing of any payments to the selected vendor.

> *Form_W-9_(Rev_March_2024).pdf*

Form_W-9_(Rev_March)_Hazen_final.pdf

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14. OPTIONAL DOCUMENTATION

14.1. TRADE SECRETS

1. The Proposer's response to this solicitation is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters or other material submitted in connection with this solicitation and the Contract to be executed for this solicitation, subject to the provisions of Chapter 119.07 of the Florida Statutes.
2. Any language contained in the Proposer's response to the solicitation purporting to require confidentiality of any portion of the Proposer's response to the solicitation, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the solicitation constitutes a Trade Secret.
3. EXCEPT FOR CLEARLY MARKED PORTIONS THAT ARE BONA FIDE TRADE SECRETS PURSUANT TO FLORIDA LAW, DO NOT MARK YOUR RESPONSE TO THE SOLICITATION AS PROPRIETARY OR CONFIDENTIAL. DO NOT MARK YOUR RESPONSE TO THE SOLICITATION OR ANY PART THEREOF AS COPYRIGHTED. ALL DOCUMENTS THAT THE FIRM PURPORTS TO BE CONFIDENTIAL, PROPRIETARY OR A TRADE SECRET SHALL BE UPLOADED TO THE OPENGOV WEBSITE AS A SEPARATE ATTACHMENT, IN THIS SECTION, CLEARLY IDENTIFYING THE EXEMPTION BEING CLAIMED UNDER FLORIDA STATUTES 119.07.
4. The city's determination of whether an exemption applies shall be final, and the proposer agrees to defend, indemnify, and hold harmless the city and the city's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the city's treatment of records as public records.

No response submitted

14.2. FINANCIAL STATEMENTS

☑ Pass ☐ Fail

1. The City is **NOT** requesting the vendor to submit any financial statements for this project and prefers if the vendor does not submit financial statements. In addition, if the City needs a copy of the vendor's financial statements, the City can contact the vendor after the bid due date to request those documents. However, if the vendor does submit the financial statements, they should be uploaded in this section.
2. Any claim of confidentiality on financial statements must be asserted at the time of submittal. The firm must identify the specific statute that authorizes the exemption from the Public Records Law.

Please note that the financial statement exemption provided for in Section 119.071(1)c, Florida Statutes only applies to submittals in response to a solicitation for a “public works” project.

14.2_Financial_Statements_Note.pdf

14.3. ADDITIONAL INFORMATION ☑ Pass ☐ Fail

1. Please provide any additional information that you deem necessary to complete your proposal in this section, if it has not been requested in another section.

Hazen_Additional_Information.pdf

15. VENDOR CLASSIFICATION

15.1. Is your firm a Local Pembroke Pines Vendor (LPPV) and Local Broward County Vendor (LBCV)?*

1. The evaluation of competitive bids is subject to section 35.36 of the City’s Procurement Procedures which, except where contrary to federal and state law, or any other funding source requirements, provides that preference be given to local businesses. To satisfy this requirement, the vendor shall affirm in writing its compliance with either of the following objective criteria as of the bid or proposal submission date stated in the solicitation. A local business shall be defined as: ☑ Pass ☐ Fail
    1. **"Local Pembroke Pines Vendor"** shall mean a business entity which has maintained a permanent place of business with full-time employees within the City limits for a minimum of one (1) year prior to the date of issuance of a bid or proposal solicitation. The permanent place of business may not be a post office box. The business location must actually distribute goods or services from that location. In addition, the business must have a current business tax receipt from the City of Pembroke Pines, **OR;**
    2. **“Local Broward County Vendor"** shall mean or business entity which has maintained a permanent place of business with full-time employees within the Broward County limits for a minimum of one (1) year prior to the date of issuance of a bid or proposal solicitation. The permanent place of business may not be a post office box. The business location must actually distribute goods or services from that location. In addition, the business must have a current business tax receipt from the Broward County or the city within Broward County where the business resides.
2. A preference of five percent (5%) of the total evaluation point, or five percent (5%) of the total price, shall be given to the Local Pembroke Pines Vendor(s); A preference of two and a half percent (2.5%) of the total evaluation point for local, or two and a half percent (2.5%) of the total price, shall be given to the Local Broward County Vendor(s).

Yes

15.1.1. Please indicate your Local Vendor Status* ☑ Pass ☐ Fail

Local Broward County Vendor (LBCV)

15.1.2. Local Vendor Preference Certification* ☑ Pass ☐ Fail

1. Please download the attached document, complete all required fields, and upload the completed form here.

> *Local_Vendor_Preference_Certification.pdf*

Local_Vendor_Preference_Certification.pdf

15.1.3. Local Business Tax Receipts* ☑ Pass ☐ Fail

1. If claiming Local Vendor Preference, please upload any previous business tax receipts to indicate that the business entity has maintained a permanent place of business for a minimum of one (1) year.

Hazen_Local_Business_Tax_Receipts.pdf

15.2. Is your firm a Veteran Owned Small Business (VOSB)?* ☑ Pass ☐ Fail

1. The evaluation of competitive bids is subject to section 35.37 of the City's Procurement Procedures which, except where contrary to federal and state law, or any other funding source requirements, provides that preference be given to veteran owned small businesses. To satisfy this requirement, the vendor shall affirm in writing its compliance with the following objective criteria as of the bid or proposal submission date stated in the solicitation. A veteran owned small business shall be defined as:
    1. **"Veteran Owned Small Business"** shall mean a business entity which has received a "Determination Letter" from the United States Department of Veteran Affairs Center for Verification and Evaluation notifying the business that they have been approved as a Veteran Owned Small Business (VOSB).
2. A preference of two and a half percent (2.5%) of the total evaluation point, or two and a half percent (2.5%) of the total price, shall be given to the Veteran Owned Small Business (VOSB).

No

15.3. Is your firm a Minority-Owned Business Enterprise (MBE)?* ☑ Pass ☐ Fail

No

15.4. Is your firm a Woman-Owned Business Enterprise (WBE)?* ☑ Pass ☐ Fail

No

15.5. Is your firm a HubZone Business / Labor Surplus Area Firm?* ☑ Pass ☐ Fail

No

15.6. Is your firm a Broward County Small Business Enterprise (SBE)?* ☑ Pass ☐ Fail

No

15.7. Is your firm a Broward County Business Enterprise (CBE)?* ☑ Pass ☐ Fail

No

15.8. Is your firm a Broward County Disadvantaged Business Enterprise (DBE)?* ☑ Pass ☐ Fail

No

15.9. Does your firm have a Vendor Classification that was not listed above?* ☑ Pass ☐ Fail

No