Hazen


**Qualifications**

# Civil and Environmental Engineering Services

**Proposal for the City of Coral Gables**

RFQ 2019-015 | May 30, 2019

Trusted Partnership

Institutional Knowledge

Proven Responsiveness

Hazen and Sawyer
999 Ponce de Leon Boulevard, Suite 1150 | Coral Gables, FL 33134
305.443.4001
Contact: Jayson Page, PE
Email: jpage@hazenandsawyer.com

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# Table of Contents

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# CITY OF CORAL GABLES, FL

2800 SW 72nd Avenue, Miami, FL 33155
Finance Department / Procurement Division
Tel: 305-460-5102 / Fax: 305-261-1601

# PROPOSER'S ACKNOWLEDGEMENT

| | |
|---|---|
| **RFQ Title: Civil and Environmental Engineering Services**<br><br>**RFQ No. 2019-015**<br><br>A cone of silence is in effect with respect to this RFQ. The Cone of Silence prohibits certain communication between potential vendors and the City. For further information, please refer to the City Code Section 2-1027 of the City of Coral Gables Procurement Code. | Sealed response submittals must be received prior to **2:00 p.m., Monday, May 27, 2019,** by the Procurement Office, located at 2800 SW 72nd Avenue, Miami, FL 33155 and are to remain valid for 120 calendar days. Submittals received after the specified date and time will be returned unopened.<br><br>Contact: Yusbel Gonzalez, CPPB<br>Title: Procurement Specialist<br>Telephone:305-460-5107<br>Email: ygonzalez@coralgables.com / contracts@coralgables.com |

| | |
|---|---|
| Proposer's Name:<br>Hazen and Sawyer | FEIN or SS Number:<br>13-2904652 |
| Complete Mailing Address:<br>999 Ponce de Leon Blvd., Suite 1150<br>Coral Gables, FL 33134 | Telephone No.: (305) 443-4001<br>Cellular No.: (954) 734-0875 |
| Indicate type of organization below:<br>Corporation: ✓ Partnership: ___ Individual: ___ Other: ___ | Fax No.: (305) 443-4549 |
| Bid Bond / Security Bond (*if applicable*) _____% | Email:<br>jpage@hazenandsawyer.com |

**ATTENTION: THIS FORM ALONG WITH ALL REQUIRED RFQ FORMS MUST BE COMPLETED, SIGNED (PERFERABLY IN BLUE INK), AND SUBMITTED WITH THE RESPONSE PRIOR TO THE SUBMITTAL DEADLINE. FAILURE TO DO SO MAY DEEM PROPOSER AS NON-RESPONSIVE.**

THE PROPOSER CERTIFIES THAT THIS SUBMITTAL IS BASED UPON ALL CONDITIONS AS LISTED IN THE RFQ DOCUMENTS AND THAT THE PROPOSER HAS MADE NO CHANGES IN THE RFQ DOCUMENT AS RECEIVED. THE PROPOSER FURTHER AGREES IF THE RESPONSE IS ACCEPTED, THE PROPOSER WILL EXECUTE AN APPROPRIATE AGREEMENT FOR THE PURPOSE OF ESTABLISHING A FORMAL CONTRACTUAL RELATIONSHIP BETWEEN THE PROPOSER AND THE CITY OF CORAL GABLES FOR THE PERFORMANCE OF ALL REQUIREMENTS TO WHICH THIS RFQ PERTAINS. FURTHER, BY SIGNING BELOW PREFERABLY IN **BLUE INK,** ALL RFQ PAGES ARE ACKNOWLEDGED AND ACCEPTED AS WELL AS ANY SPECIAL INSTRUCTION SHEET(S) IF APPLICABLE. THE UNDERSIGNED HEREBY DECLARES (OR CERTIFIES) ACKNOWLEDGEMENT OF THESE REQUIREMENTS AND THAT HE/SHE IS AUTHORIZED TO BIND PERFORMANCE OF THIS RFQ FOR THE ABOVE PROPOSER.

| Jayson Page, PE | Vice President | 5/28/2019 |
|---|---|---|
| *Authorized Name and Signature* | *Title* | *Date* |

# SOLICITATION SUBMISSION CHECKLIST

**Request for Qualifications (RFQ) No. 2019-015**

COMPANY NAME: (Please Print): Hazen and Sawyer
Phone: (305) 443-4001 Email: jpage@hazenandsawyer.com

**Please provide the PAGE NUMBER in the blanks provided as to where compliance information is located in your Submittal for each of the required submittal items listed below:**

**SUBMITTAL - SECTION I: TITLE PAGE, TABLE OF CONTENTS, REQUIRED FORMS, AND MINIMUM QUALIFICATION REQUIREMENTS.**

1) Title Page: Show the RFQ number and title, the name of your firm, address, telephone number, name of contact person, e-mail address, and date. PAGE # 1
2) Provide a Table of Contents in accordance with and in the same order as the respective "Sections" listed below. Clearly identify the material by section and page number. PAGE # 3
3) Fill out, sign, and submit the Proposer's Acknowledgement Form. PAGE # 5
4) Fill out and submit the Solicitation Submission Check List. PAGE # 6
5) Fill out, sign, notarize (as applicable), and submit the Proposer's Affidavit and Schedules A through M. ✓
6) Fill out, sign, and submit Standard Form 330, Architect-Engineer Qualifications. No response will be considered without this required form. Note: a separate Standard Form 330 is not required of each Sub-Consultant. The Proposer is responsible for filling out this form and including the sub-consultant information in the corresponding areas. PAGE # 45
7) Minimum Qualification Requirements: submit detailed verifiable information affirmatively documenting compliance with the Minimum Qualifications Requirements shown in Section 3. PAGE # 29
8) Indicate whether the Proposer is a State of Florida and/or County Certified Small Business or Minority Business Enterprise. If so, indicate the certifying organization or jurisdiction and include a copy of the certification with your submittal. PAGE # N/A

**SUBMITTAL - SECTION II: EXPERIENCE AND QUALIFICATIONS**

**(i) FOR PROPOSER**

1) Provide a complete history and description of your company, including, but not limited to: the number of years in business, size, number of employees, office location where work is to be performed, copy of applicable licenses/certifications, credentials, capabilities and capacity to effectively meet the City's needs, relevant experience and proven track record of providing the scope of services as identified in this solicitation to public sector agencies. PAGE # 85-116

2) Provide a statement detailing Proposer's familiarity with permitting agencies and permitting procedures, especially in Miami-Dade County. PAGE # 100

3) Describe the Proposer's expertise and experience working with other disciplines, including coordination with other design professionals and sub-consultants. PAGE # 116

4) Describe the Proposer's expertise and experience working with Envision and LEED Certifications. PAGE # 115

**(ii) FOR KEY PERSONNEL**

1) *Utilizing Standard Form SF330, Part I – Section E.,* provide a summary of qualifications, copy of applicable licenses/certifications, and experience, relevant to the scope of work, for all proposed key personnel (including sub-consultants). Include resumes (listing experience, education, licenses/certifications) for

your proposed key personnel and specify the role and responsibilities of each team member in providing the services outlined in the RFQ. Provide an organizational chart of all key personnel that will be used. PAGE # 45-77

**SUBMITTAL – SECTION III: PROJECT UNDERSTANDING, PROPOSED APPROACH, AND METHODOLOGY**

1) Describe in detail, your approach and methodology to perform the services solicited herein. Include detailed information, as applicable, which addresses, but need not be limited to: Proposer's understanding of the RFQ scope and requirements, strategies for assuring assigned work is completed on time, innovative interaction and communication with the community, City staff, and multiple stakeholders. PAGE # 165-212

2) Describe Proposer's approach to preserving the historic and natural environment of Coral Gables while providing the services solicited in this RFQ. PAGE # 205

3) Provide the recent, current, and projected workload of the Proposer and key personnel that will be assigned to the City. Explain how this potential contract will fit into the Proposer's workload.

   The detailed list should include at a minimum the following:
   a. The company/agency
   b. Dates of services
   c. Name/Contract # of the project
   d. Scope

   PAGE # 207-211

4) Describe the Proposer's ability to positively and innovatively move a project from the conceptual stage to a clearly defined project that may be designed and constructed, while minimizing the impact on the community. PAGE # 203

5) Describe the Proposer's ability to provide schedule control, cost control, and quality control for the services requested herein. Provide specific examples of similar initiatives that the Proposer has successfully undertaken with other public entities that were completed on-time and within budget. PAGE # 203-204, 206

6) Describe Proposer's ability to successfully deliver similar projects that have significant community and business involvement. PAGE # 205

7) Explain how Proposer has complied with the public policies of the Federal Government. These include amongst other things, past and current compliance with:

   a. Equal opportunity and nondiscrimination laws as required in 41 C.F.R. Part 60-1.4(b)

   b. Affirmative steps described in 2 CFR § 200.321(b) for all subcontracting under contracts supported by FEMA financial assistance. Document Proposer's efforts to utilize M/WBE firms, including what firms were solicited as suppliers and/or subcontractors.

   PAGE # 211-212

**SUBMITTAL – SECTION IV: PAST PERFORMANCE AND REFERENCES**

1) *Utilizing Standard Form SF330, Part I – Section F*, provide detailed information on five (5) of the Proposer's most recent and relevant projects similar in scope and nature to the services described in the solicitation. Under sub-section 23 – "Project Owner's Information" of Standard Form SF330, include an e-mail address for the "Point of Contact". **Note: Do not include work/services performed for the City of Coral Gables or City employees as references.** PAGE # 70-75

2) List all contracts which the Proposer has performed (past and present) for the City of Coral Gables. The City will review all contracts the Proposer has performed for the City in accordance with Section 4.10 Evaluation of Responses (c) (4) which states the City may consider "Proposer's unsatisfactory performance record, judged from the standpoint of conduct of work, workmanship, progress or standards of performance agreed upon in the Contract as substantiated by past or current work with the City".

As such the Proposer must list and describe all work performed for Coral Gables and include for each project:

a. Name of the City Department for which the services are being performed,
b. Scope/description of work,
c. Awarded value of the contract/current value
d. Effective dates and term of the contract
e. City project manager's name and phone number,
f. Statement of whether the Proposer was the prime contractor or subcontractor, and
g. Results of the project.

PAGE # 214

3) Provide a list with contact information of public sector clients, if any, that have discontinued use of Proposer's services within the past two (2) years and indicate the reasons for the same. The City reserves the right to contact any reference as part of the evaluation process. PAGE # 213

4) Please identify each incident within the last five (5) years where (a) a civil, criminal, administrative, other similar proceeding was filed or is pending, if such proceeding arises from or is a dispute concerning the Proposer's rights, remedies or duties under a contract for the same or similar type services to be provided under this RFQ (*See Affidavit D*). PAGE # 213

***- - N O T I C E - -***

**BEFORE SUBMITTING YOUR RFQ RESPONSE MAKE SURE YOU:**

☑ 1. Carefully read and have a clear understanding of the RFQ, including the Scope of Services and enclosed Professional Services Agreement (*draft*).

☑ 2. Carefully follow the Submission Requirements outlined in Section 6 of the RFQ.

☑ 3. Prepare and submit ONE ORIGINAL RESPONSE and SEVEN (7) PHOTOCOPIES with ONE (1) digital copy on a CD or flash drive.

☑ 4. Clearly mark the following on the outside of your submittal package: RFQ Number, RFQ Title, Proposer's Name and Return Address, Submittal Deadline.

☑ 5. Make sure your Response is submitted prior to the submittal deadline. **Late responses will not be accepted.**

**FAILURE TO SUBMIT THIS CHECKLIST AND THE REQUESTED DOCUMENTATION MAY RENDER YOUR RESPONSE SUBMITTAL NON-RESPONSIVE AND CONSTITUTE GROUNDS FOR REJECTION. THIS PAGE IS TO BE RETURNED WITH YOUR RESPONSE PACKAGE.**

## RESPONDENT'S AFFIDAVIT

**SOLICITATION:** **RFQ 2019-015 Civil and Environmental Engineering Services**

**SUBMITTED TO:** City of Coral Gables
Procurement Division
2800 SW 72 Avenue
Miami, Florida 33155

The undersigned acknowledges and understands the information contained in response to this solicitation and the referenced Schedules A through M shall be relied upon by Owner awarding the contract and such information is warranted by Respondent to be true and correct. The discovery of any omission or misstatements that materially affects the Respondent's ability to perform under the contract shall be cause for the City to reject the solicitation submittal, and if necessary, terminate the award and/or contract. I further certify that the undersigned name(s) and official signatures of those persons are authorized as *(Owner, Partner, Officer, Representative or Agent of the respondent that has submitted the attached solicitation response).* Schedules A through M are subject to Local, State and Federal laws (as applicable); both criminal and civil.

- SCHEDULE A – STATEMENT OF CERTIFICATION
- SCHEDULE B – NON-COLLUSION AND CONTINGENT FEE AFFIDAVIT
- SCHEDULE C – DRUG-FREE STATEMENT
- SCHEDULE D – RESPONDENT'S QUALIFICATION STATEMENT
- SCHEDULE E – CODE OF ETHICS, CONFLICT OF INTEREST, AND CONE OF SILENCE
- SCHEDULE F – AMERICANS WITH DISABILITIES ACT (ADA)
- SCHEDULE G – PUBLIC ENTITY CRIMES
- SCHEDULE H – ACKNOWLEDGEMENT OF ADDENDA
- SCHEDULE I – APPENDIX A, 44 C.F.R. PART 18-CERTIFICATION REGARDING LOBBYING
- SCHEDULE J –CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION
- SCHEDULE K – FEDERAL GRANT FUNDING SPECIAL PROPOSAL CONDITIONS
- SCHEDULE L – WORK HOURS & SAFETY CERTIFICATION
- SCHEDULE M – SAFETY ACCIDENT PREVENTION

This affidavit is to be furnished to the City of Coral Gables with the solicitation response. It is to be filled in, executed by the respondent and notarized. If the response is made by a Corporation, then it should be executed by its Chief Officer. This document MUST be submitted with the solicitation response.

| Jayson Page, PE | Vice President | 05/28/2019 |
|---|---|---|
| *Authorized Name and Signature* | *Title* | *Date* |

STATE OF Florida

COUNTY OF Miami-Dade

On this 28th day of May, 2019, before me the undersigned Notary Public of the State of Florida, personally appeared Jayson Page, PE
(Name(s) of individual(s) who appeared before Notary

And whose name(s) is/are subscribes to within the instrument(s), and acknowledges it's execution.

NOTARY PUBLIC, STATE OF Florida

Lisa Grant
(Name of notary Public; Print, Stamp or Type as Commissioned.)

LISA GRANT
MY COMMISSION # GG 279251
EXPIRES: November 26, 2022
Bonded Thru Notary Public Underwriters

NOTARY PUBLIC
SEAL OF OFFICE:

Personally know to me, or Produced Identification:

Personally known
(Type of Identification Produced)

**SCHEDULE "A" - CITY OF CORAL GABLES – STATEMENT OF CERTIFICATION**

Neither I, nor the company, hereby represent has:

a. employed or retained for a commission, percentage brokerage, contingent fee, or other consideration, any company or person (other than a bona fide employee working solely for me or the respondent) to solicit or secure this contract.

b. agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any company or person in connection with carrying out the contract, or

c. paid, or agreed to pay, to any company, organization or person (other than a bona fide employee working solely for me or the respondent) any fee, contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the contract except as here expressly stated (if any):

**SCHEDULE "B" - CITY OF CORAL GABLES - NON-COLLUSION AND CONTINGENT FEE AFFIDAVIT**

1. He/she is the Officer
(*Owner, Partner, Officer, Representative or Agent)*

of the Respondent that has submitted the attached response.

2. He/she is fully informed with respect to the preparation and contents of the attached response and of all pertinent circumstances respecting such response;

3. Said response is made without any connection or common interest in the profits with any other persons making any response to this solicitation. Said response is on our part in all respects fair and without collusion or fraud. No head of any department, any employee or any officer of the City of Coral Gables is directly or indirectly interested therein. If any relatives of Respondent's officers or employees are employed by the City, indicate name and relationship below.

Name: N/A Relationship: _____

Name: _____ Relationship: _____

4. No lobbyist or other Respondent is to be paid on a contingent or percentage fee basis in connection with the award of this Contract.

**SCHEDULE "C" CITY OF CORAL GABLES - VENDOR DRUG-FREE STATEMENT**

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:

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 solicitation 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 solicitation, 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 such 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. As the person authorized to sign the statement, I certify that this form complies fully with the above requirements.

The company submitting this solicitation has established a Drug Free work place program in accordance with State Statute 287.087

**SCHEDULE "D" CITY OF CORAL GABLES – RESPONDENT'S QUALIFICATION STATEMENT**

The undersigned declares the truth and correctness of all statements and all answers to questions made hereinafter:

**GENERAL COMPANY INFORMATION:**

Company Name: Hazen and Sawyer

Address: 999 Ponce de Leon Blvd, Suite 1150, Coral Gables, FL 33134
Street City State Zip Code

Telephone No: (305) 443-4001 Fax No: (305) 443-4549 Email: jpage@hazenandsawyer.com

How many years has your company been in business under its present name? 4 Years 64 years as Hazen and Sawyer, P.C.

If Respondent is operating under Fictitious Name, submit evidence of compliance with Florida Fictitious Name Statue:

See attached.

Under what former names has your company operated? : None

At what address was that company located? N/A

Is your company certified? Yes ✓ No _____ If Yes, **ATTACH COPY** of Certification.
Is your company licensed? Yes ✓ No _____ If Yes, **ATTACH COPY** of License

Has your company or its senior officers ever declared bankruptcy?

Yes _____ No ✓ If yes, explain: _____

**LEGAL INFORMATION:**

Please identify each incident ***within the last five (5)*** years where (a) a civil, criminal, administrative, other similar proceeding was filed or is pending, if such proceeding arises from or is a dispute concerning the Respondent's rights, remedies or duties under a contract for the same or similar type services to be provided under this solicitation ***(A response is required. If applicable please indicate "none" or list specific information related to this question. Please be mindful that responses provided for this question will be independently verified)***:

None

Has your company ever been debarred or suspended from doing business with any government entity?

Yes ___ No ✓ If Yes, explain _____

# *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, 2019, that its most recent annual report/uniform business report was filed on January 14, 2019, 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 Fourteenth day of January, 2019***

*Secretary of State*

**Tracking Number: 0927146459CC**

**To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.**

**https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication**

Ron DeSantis, Governor

FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS

**STATE OF FLORIDA**

**BOARD OF PROFESSIONAL ENGINEERS**

THE ENGINEERING BUSINESS HEREIN IS AUTHORIZED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

**HAZEN AND SAWYER, P.C.**

HAZEN AND SAWYER
498 SEVENTH AVENUE
11TH FLOOR
NEW YORK NY 10018

**LICENSE NUMBER: CA2771**

**EXPIRATION DATE: FEBRUARY 28, 2021**

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

FLORIDA DEPARTMENT OF STATE
Division of Corporations

September 1, 2015

HAZEN AND SAWYER
498 SEVENTH AVENUE
NEW YORK, NY 10018

Subject: **HAZEN AND SAWYER**

REGISTRATION NUMBER: **G15000090047**

This will acknowledge the filing of the above fictitious name registration which was registered on September 1, 2015. This registration gives no rights to ownership of the name.

Each fictitious name registration must be renewed every five years between January 1 and December 31 of the expiration year to maintain registration. Three months prior to the expiration date a statement of renewal will be mailed.

If the mailing address of this business changes, please notify this office in writing, or through the link provided on our website www.sunbiz.org 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.

Lewis S Berger
Reinstatement Section
Division of Corporations Letter No. 015A00018490

Account number: I20000000195 Account charged: 50.00

# APPLICATION FOR REGISTRATION OF FICTITIOUS NAME

**Note: Acknowledgements/certificates will be sent to the address in Section 1 only.**

2015 SEP -1 PM 4:29

G15000090047

This space for office use only

## Section 1

1. Hazen and Sawyer
   Fictitious Name to be Registered (see instructions if name includes "Corp" or "Inc")

   498 Seventh Avenue
   Mailing Address of Business

   New York, NY 10018
   City State Zip Code

3. Florida County of principal place of business: Multiple
   (see instructions if more than one county)

FEI Number: 13-2904652

## Section 2

**A. Owner(s) of Fictitious Name If Individual(s): (Use an attachment if necessary):**

1. Last First M.I.
   Address
   City State Zip Code

2. Last First M.I.
   Address
   City State Zip Code

**B. Owner(s) of Fictitious Name If other than an individual: (Use attachment if necessary):**

1. Hazen and Sawyer, P.C.
   Entity Name
   498 Seventh Avenue
   Address
   New York, NY 10018
   City State Zip Code
   Florida Document Number 841657
   FEI Number: 13-2904652
   ☐ Applied for ☐ Not Applicable

2. Entity Name
   Address
   City State Zip Code
   Florida Document Number
   FEI Number:
   ☐ Applied for ☐ Not Applicable

## Section 3

I the undersigned, being an owner in the above fictitious name, certify that the information indicated on this form is true and accurate. In accordance with Section 865.09, F.S., I further certify that the fictitious name to be registered has been advertised at least once in a newspaper as defined in chapter 50, Florida Statutes, in the county where the principal place of business is located. I understand that the signature below shall have the same legal effect as if made under oath and 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, F.S.

W. Crayon 8/24/2015
Signature of Owner Date

wcrayon@hazenandsawyer.com
E-mail address: (to be used for future renewal notification)

Phone Number: 212-539-7077

## Section 4

**FOR CANCELLATION COMPLETE SECTION 4 ONLY:**
**FOR FICTITIOUS NAME OR OWNERSHIP CHANGE COMPLETE SECTIONS 1 THROUGH 4:**

I (we) the undersigned, hereby cancel the fictitious name _____

_____, which was registered on _____ and was assigned

registration number _____

Signature of Owner Date

Signature of Owner Date

Mark the applicable boxes ☐ Certificate of Status — $10 ☐ Certified Copy — $30

**NON-REFUNDABLE PROCESSING FEE: $50**

SEP - 1 2015

L BERGER



CR4E001 (9/10)

**SCHEDULE "E" CITY OF CORAL GABLES – CODE OF ETHICS, CONFLICT OF INTEREST, AND CONE OF SILENCE**

THESE SECTIONS OF THE CITY CODE CAN BE FOUND ON THE CITY'S WEBSITE, UNDER GOVERNMENT, CITY DEPARTMENT, PROCUREMENT, PROCUREMENT CODE (CITY CODE CHAPTER 2 ARTICLE VIII); SEC 2-1023; SEC 2-606; AND SEC 2-1027, RESPECTIVELY.

IT IS HEREBY ACKNOWLEDGED THAT THE ABOVE NOTED SECTIONS OF THE CITY OF CORAL GABLES CITY CODE ARE TO BE ADHERED TO PURSUANT TO THIS SOLICITATION.

**SCHEDULE "F" CITY OF CORAL GABLES - AMERICANS WITH DISABILITIES ACT (ADA)**
DISABILITY NONDISCRIMINATION STATEMENT

I understand that the above named firm, corporation or organization is in compliance with and agreed to continue to comply with, and assure that any sub-contractor, or third party contractor under this project complies with all applicable requirements of the laws listed below including, but not limited to, those provisions pertaining to employment, provision of programs and service, transportation, communications, access to facilities, renovations, and new construction.

The American with Disabilities Act of 1990 (ADA), Pub. L. 101-336, 104 Stat 327, 42 U.S.C. 12101,12213 and 47 U.S.C. Sections 225 and 661 including Title I, Employment; Title 11, Public Services; Title III, Public Accommodations and Services Operated by Private Entities; Title IV, Telecommunications; and Title V, Miscellaneous Provisions.

The Florida Americans with Disabilities Accessibility Implementation Act of 1993, Sections 5553.501-553.513, Florida Statutes

The Rehabilitation Act of 1973, 229 U.S.C. Section 794

The Federal Transit Act, as amended, 49 U.S.C. Section 1612

The Fair Housing Act as amended, 42 U.S.C. Section 3601-3631

**SCHEDULE "G" CITY OF CORAL GABLES - STATEMENT PURSUANT TO SECTION 287.133 (3) (a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

1. I understand that a "public entity crime" as define 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 of the United States, including, but not limited to, any Proposal or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

2. I understand that "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, non-jury trial, or entry of a plea of guilty or nolo contendere.

3. 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 ownership 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.

4. I understand that a "person" as defined in Paragraph 287.133(1)(e), **Florida Statutes**, means any natural person or 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 Proposals or applies to Proposal on contracts for the provision of goods or services let by 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.

5. 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 below applies.]**

_✓_ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity subsequent to July 1, 1989.

____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the 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. However, there has been subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list.

***[*Attach a copy of the final order*]***

**I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.**

**SCHEDULE "H" CITY OF CORAL GABLES - ACKNOWLEDGEMENT OF ADDENDA**

1. The undersigned agrees, if this RFP is accepted, to enter in a Contract with the CITY to perform and furnish all work as specified or indicated in the RFP and Contract Documents within the Contract time indicated in the RFP and in accordance with the other terms and conditions of the solicitation and contract documents.
2. Acknowledgement is hereby made of the following Addenda, if any (identified by number) received since issuance of the Request for Proposal.

**Failure to adhere to changes communicated via any addendum may render your response non-responsive.**

Addendum No. 1 Date 5/8/2019 Addendum No._____ Date_____

Addendum No. 2 Date 5/14/2019 Addendum No._____ Date_____

Addendum No._____ Date_____ Addendum No._____ Date_____

**SCHEDULE "I" - APPENDIX A, 44 C.F.R. PART 18-CERTIFICATION REGARDING LOBBYING**

**LOBBYING - 31 U.S.C. 1352, as amended**

APPENDIX A, 44 CFR PART 18--CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements
*(To be submitted with each bid or offer exceeding $100,000)*

The undersigned [Company] certifies, to the best of his or her knowledge and belief, that:

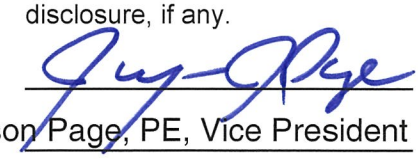
1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions

3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Respondent, Hazen and Sawyer, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq., apply* to this certification and disclosure, if any.


Signature of Company's Authorized Official

Jayson Page, PE, Vice President Name and Title of Company's Authorized Official

5/28/2019 Date

## SCHEDULE "J" – CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

### Government Debarment & Suspension Instructions

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out in accordance with these instructions.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person(s) to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549, at 2 C.F.R. Parts 180 and 417. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the System for Award Management (SAM) database.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph (5) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions**

The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552(a), as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 C.F.R.§§ 180.300, 180.355, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880.

**[READ INSTRUCTIONS ON PREVIOUS PAGE BEFORE COMPLETING CERTIFICATION]**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency;

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this solicitation

Jayson Page, PE, Vice President

Printed Name and Title of Authorized Representative

Signature

5/28/2019

Date

## SCHEDULE "K" FEDERAL GRANT FUNDING SPECIAL PROPOSAL CONDITIONS

This procurement is fully or partially Federally Grant funded. Respondent certifies that it shall comply with the applicable clauses as enumerated below.

1. **Drug Free Workplace Requirements:** Drug-free workplace requirements in accordance with Drug Free Workplace Act of 1988 (Pub l 100-690, Title V, Subtitle D) All proposers entering into Federal funded contracts over $100,000 must comply with Federal Drug Free workplace requirements as Drug Free Workplace Act of 1988.

2. **Respondent's Compliance**: The respondent shall comply with all uniform administrative requirements, cost principles, and audit requirements for federal awards.

3. **Conflict of Interest**: The respondent must disclose in writing any potential conflict of interest to the city or pass-through entity in accordance with applicable Federal policy.

4. **Mandatory Disclosures**: The respondent must disclose in writing all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award.

5. **Utilization of Minority and Women Firms (M/WBE):** The respondent must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible, in accordance with 2CFR 200.321. If subcontracts are to be let, prime proposer will require compliance by all sub-contractor. Prior to contract award, the respondent shall document efforts to utilize M/WBE firms including what firms were solicited as suppliers and/or subcontractor as applicable and submit this information with their bid submittal. Information regarding certified M/WBE firms can be obtained from:

   Florida Department of Management Services (Office of Supplier Diversity)
   Florida Department of Transportation
   Minority Business Development Center in most large cities and
   Local Government M/DBE programs in many large counties and cities

6. **Equal Employment Opportunity/Nondiscrimination**: (As per Executive Order 11246) The respondent may not discriminate against any employee or applicant for employment because of age, race, color, creed, sex, disability or national origin. The respondent agrees to take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their age, race, color, creed, sex, disability or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship.

7. **Davis-Bacon Act:** If applicable to this contract, the respondent agrees to comply with all provisions of the Davis Bacon Act as amended (40 U.S.C. 3141-3148). Respondents are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, respondents must be required to pay wages not less than once a week. If the grant award contains Davis Bacon provisions, the City will place a copy of the current prevailing wage determination issued by the Department of Labor in the solicitation document. The decision to award a contract shall be conditioned upon the acceptance of the wage determination.

8. **Copeland Anti Kick Back Act:** If applicable to this contract, respondents shall comply with all the requirements of 18 U.S.C. § 874, 40 U.S.C. § 3145, 29 CFR Part 3 which are incorporated by reference to this contract. Respondents are prohibited from inducing by any means any person employed in the construction, completion or repair of public work to give up any part of the compensation to which he or she is otherwise entitled.

9. **Contract Work Hours and Safety Standards Act** (40 U.S.C. 3701–3708): Where applicable, all contracts awarded in excess of $100,000 that involve the employment of mechanics or laborers must be in compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each respondent is required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

10. **Clean Air Act (42 U.S.C. 7401–7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251–1387):** as amended—The Respondent agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

11. **Debarment and Suspension** (Executive Orders 12549 and 12689): A contract award (see 2 CFR 180.220 and 2 CFR pt. 300) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), ''Debarment and Suspension. SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. The respondent shall certify compliance. The respondent further agrees to include a provision requiring such compliance in its lower tier covered transactions and subcontracts.

12. **Byrd Anti-Lobbying Amendment** (31 U.S.C. 1352): Respondents that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. The respondent shall certify compliance.

13. **Rights to Inventions Made Under a Contract or Agreement**: If the Federal award meets the definition of ''funding agreement'' under 37 CFR § 401.2 (a) and the recipient or sub-recipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that ''funding agreement,'' the recipient or sub-recipient must comply with the requirements of 37 CFR Part 401,''Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,'' and any implementing regulations issued by the awarding agency.

14. **Procurement of Recovered Materials**: Respondents must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

15. **Access to Records and Reports:** Respondent will make available to the City's granting agency, the granting agency's Office of Inspector General, the Government Accountability Office, the Comptroller General of the United States, City of Coral Gables, or any of their duly authorized representatives any books, documents, papers or other records, including electronic records, of the proposer that are pertinent to the City's grant award, in order to make audits, investigations, examinations, excerpts, transcripts, and copies of such documents. The right also includes timely and reasonable access to the respondent's personnel during normal business hours for the purpose of interview and discussion related to such documents. This right of access shall continue as long as records are retained.

16. **Record Retention:** Respondent will retain of all required records pertinent to this contract for a period of three years, beginning on a date as described in 2 C.F.R. §200.333 and retained in compliance with 2 C.F.R. §200.333.

17. **Federal Changes:** Respondent shall comply with all applicable Federal agency regulations, policies, procedures and directives, including without limitation those listed directly or by reference, as they may be amended or promulgated from time to time during the term of the contract.

18. **Termination for Default (Breach or Cause):** If a contract is entered into, the Respondent acknowledges that if it fails to perform in the manner called for in the contract, or if the Respondent fails to comply with any other provisions of the contract, the City may terminate the contract for default. Termination shall be effected by serving a notice of termination to the respondent setting forth the manner in which the respondent is in default. The respondent will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract.

19. **Safeguarding Personal Identifiable Information:** Respondent will take reasonable measures to safeguard protected personally identifiable information and other information designated as sensitive by the awarding agency or is considered sensitive consistent with applicable Federal, state and/or local laws regarding privacy and obligations of confidentiality.

20. **Prohibition on utilization of cost plus a percentage of cost contracts**: The City will not award contracts containing Federal funding on a cost plus percentage of cost basis.

21. **Energy Policy and Conservation Act (43 U.S.C.§6201):** All contracts except micro-purchases ($3000 or less, except for construction contracts over $2000). Contracts shall comply with mandatory standards and policies relating to energy efficiency, stating in the state energy conservation plan issued in compliance with the Energy Policy and Conservation act. (Pub. L. 94-163, 89 Stat. 871) [53 FR 8078, 8087, Mar. 11, 1988, as amended at 60 FR 19639, 19645, Apr. 19, 1995].

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above applicable requirements. I further certify that any subcontractor will also be required to comply with the requirements above.

DATE 5/28/2019

SIGNATURE 

COMPANY: Hazen and Sawyer

NAME: Jayson Page, PE

ADDRESS 999 Ponce de Leon Boulevard
Suite 1150
Coral Gables, FL 33134

TITLE: Vice President

E-MAIL: jpage@hazenandsawyer.com

PHONE NO (305) 443-4001

## SCHEDULE "L" - CONTRACTOR CERTIFICATION WORK HOURS AND SAFETY STANDARDS ADDENDUM

This certification is incorporated as part of the contract for Civil and Environmental Engineering Services.

The Contractor acknowledges and certifies that in accordance with the mandatory requirement that this provision be set forth in all FEMA related contracts, that it shall comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5).

Under 40 U.S.C. s. 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week.

The requirements of 40 U.S.C. s. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

More particularly, as set forth in 29 CFR s.5.5(b) which provides the required contract clauses:

(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

Hazen and Sawyer, hereby certifies that it shall adhere to the Work Hours and Safety Standards regulations throughout the duration of this Contract as set forth above.

Jayson Page, PE, Vice President

Contractor Signature

Date: 5/28/2019

## SCHEDULE "M" – SAFETY ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Construction Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. 3.Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carryout the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standard Act (40 U.S.C. 3704).

Hazen and Sawyer, hereby certifies that it shall adhere to the Safety Accident Prevention regulations throughout the duration of this Contract as set forth above.

Jayson Page, PE, Vice President

Contractor Signature

Date: 5/28/2019

## Section No. I

# Minimum Qualification Requirements

*Hazen meets all of the minimum qualification requirements specified in the request for proposal.*

### Proposer Requirements:

(1) Hazen has been regularly engaged in the business of providing the services described in this RFQ for a minimum of five (5) years, as evidenced in Standard Form 330 Architect-Engineer Qualifications at the end of Section 1, as well Section 2 - Experience and Qualifications. Hazen has been providing the services specified in the RFQ for 68 years.

(2) Proof of active status with the Florida Department of State, Division of Corporation is provided on the next page.

(3) Our State of Florida engineering firm license is provided on the next page.

### Key Personnel Requirements:

(1) Our proposed Project Manager, Christopher Kish, PE, ENVSP, is a licensed Professional Engineer in the State of Florida, with 25 years of documented experience as a Professional Engineer. Mr. Kish has 25 years of engineering experience working in Miami-Dade County, providing the services identified under the work categories in Section 2 of this RFQ. His experience includes providing similar services to government agencies at the municipal/local government level or higher. Similar project examples are provided below.

**City of Hialeah PSIP Design and Engineering Services During Construction (ESDC), City of Hialeah, FL:** Hazen was responsible for design and permitting of all the station improvements for PSIP Phase I, PS 4, 5, 56, 100, 101, 126, PSIP Phase II, PS 131, 133, 140, 141 and PS 106 and 150 as well the Phase I and II Force Main Improvements on a fast-track basis to obtain approval from DERM. Proposed improvements replaced mechanical, electrical, structural, and instrumentation components in 11 submersible pump stations. Mr. Kish served as Project Manager during the design phase, and Project Supervisor during ESDC.

**NPDES MS4 Annual Reporting and Seasonal Pollutant Load, Modeling, Homestead, FL:** In order to comply with the conditions of National Pollutant Discharge Elimination System (NPDES) Municipal Separate Stormwater System (MS4) Permit No. FLS000003-003, the City of Homestead is mandated by the Florida Department of Environmental Protection (FDEP) to engage in various activities related to its stormwater system/utility. Under the most recent version of the permit, which came into effect in June of 2011, the City of Homestead was required to perform seasonal pollutant load modeling to quantify the amount of pollutants (BOD, TSS, N, P, etc.) entering its receiving water bodies via stormwater outfalls. As such, the City selected Hazen to perform this work and associated subtasks, in addition to preparing the City's annual report to FDEP. Mr. Kish served as Project Engineer.

(2) Our Engineers have a minimum of three (3) years of documented experience. Experience includes services similar in scope provided to government agencies at the municipal/local government level or higher, as evidenced in Standard Form 330 Architect-Engineer Qualifications at the end of Section 1. Licenses are provided on the next page.

### Small Business or Minority Business Enterprise

Hazen is not a certified minority business enterprise as defined by the Florida Small and Minority Business Assistance Act of 1985. However, we have a strong commitment to including minority/women business enterprises (M/WBEs) on our project teams.

1021-287

# 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, 2019, that its most recent annual report/uniform business report was filed on January 14, 2019, 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 Fourteenth day of January, 2019*

*Secretary of State*

**Tracking Number: 0927146459CC**

**To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.**

**https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication**

Ron DeSantis, Governor

FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS

**STATE OF FLORIDA**

**BOARD OF PROFESSIONAL ENGINEERS**

THE ENGINEERING BUSINESS HEREIN IS AUTHORIZED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

**HAZEN AND SAWYER, P.C.**

HAZEN AND SAWYER
498 SEVENTH AVENUE
11TH FLOOR
NEW YORK NY 10018

**LICENSE NUMBER: CA2771**

**EXPIRATION DATE: FEBRUARY 28, 2021**

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

1021-287

DETACH HERE AND DISPLAY RECEIPT IN A CONSPICUOUS PLACE

# CITY OF CORAL GABLES, FLORIDA

LOCAL BUSINESS TAX RECEIPT

ANNUAL FIRE INSPECTION FEE RECEIPT
THIS IS NOT A BILL-DO NOT PAY

CUST. NO. 019539
RECEIPT NO.
BT-0007014280

2018-2019

**BUSINESS NAME:** HAZEN AND SAWYER PC
**DBA NAME:** HAZEN AND SAWYER PC
**LOCATION:** 999 PONCE DE LEON BLVD 1150

| CLASSIFICATION: | NO. OF UNITS | UNIT DESCRIPTION | AMOUNT PAID: $ 329.00 |
|---|---|---|---|
| 1 PROFESSIONAL SVC-PA, LLC, ETC | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

SQUARE FOOTAGE OF SPACE: 4192 *BUSINESS TAX RECPT RENEWAL*

VALID ONLY AT LOCATION ABOVE.
RECEIPT EXPIRES 09/30/2019

** This receipt does not constitute authority to begin operating at this location without a Certificate of Use and Inspection Approval **

# Local Business Tax Receipt

Miami–Dade County, State of Florida
–THIS IS NOT A BILL – DO NOT PAY

LBT

572165

**BUSINESS NAME/LOCATION**
HAZEN & SAWYER PC
999 PONCE DE LEON BLVD 1150
CORAL GABLES FL 33134

**RECEIPT NO.**
**RENEWAL**
**572165**

**EXPIRES**
**SEPTEMBER 30, 2019**
Must be displayed at place of business
Pursuant to County Code
Chapter 8A – Art. 9 & 10

**OWNER**
HAZEN & SAWYER PC

Employee(s) 1

**SEC. TYPE OF BUSINESS**
212 P.A./CORP/PARTNERSHIP/FIRM
EB02771

**PAYMENT RECEIVED BY TAX COLLECTOR**
$45.00 08/09/2018
CHECK21–18–078639

2018-19

**This Local Business Tax Receipt only confirms payment of the Local Business Tax. The Receipt is not a license, permit, or a certification of the holder's qualifications, to do business. Holder must comply with any governmental or nongovernmental regulatory laws and requirements which apply to the business.**

**The RECEIPT NO. above must be displayed on all commercial vehicles – Miami–Dade Code Sec 8a–276.**

**For more information, visit www.miamidade.gov/taxcollector**

1021-287

Ron DeSantis, Governor

Halsey Beshears, Secretary

Florida dbpr

**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

**KISH, CHRISTOPHER LEE**

9825 NE 4 AVENUE ROAD
9825 NE 4 AVENUE ROAD
MIAMI SHORES FL 33138

**LICENSE NUMBER: PE55480**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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Halsey Beshears, Secretary

Florida dbpr

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**DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

**BOARD OF PROFESSIONAL ENGINEERS**

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**TAYLOR, ROBERT B JR**

13393 159TH ST N
JUPITER FL 334780000

**LICENSE NUMBER: PE44165**
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## Licensee Details

### Licensee Information

| | |
|---|---|
| Name: | **PAGE, JAYSON J. (Primary Name)** |
| Main Address: | **1235 POLK STREET<br>HOLLYWOOD Florida 33019** |
| County: | **BROWARD** |
| License Mailing: | |
| LicenseLocation: | |

### License Information

| | |
|---|---|
| License Type: | **Professional Engineer** |
| Rank: | **Prof Engineer** |
| License Number: | **75018** |
| Status: | **Current,Active** |
| Licensure Date: | **08/28/2012** |
| Expires: | **02/28/2021** |

PROFESSIONAL LICENSING

GEORGIA SECRETARY OF STATE BRAD RAFFENSPERGER

CORPORATIONS • ELECTIONS • LICENSING • CHARITIES

## Licensee Details

### Licensee Information

**Name:** Ethan C Heijn

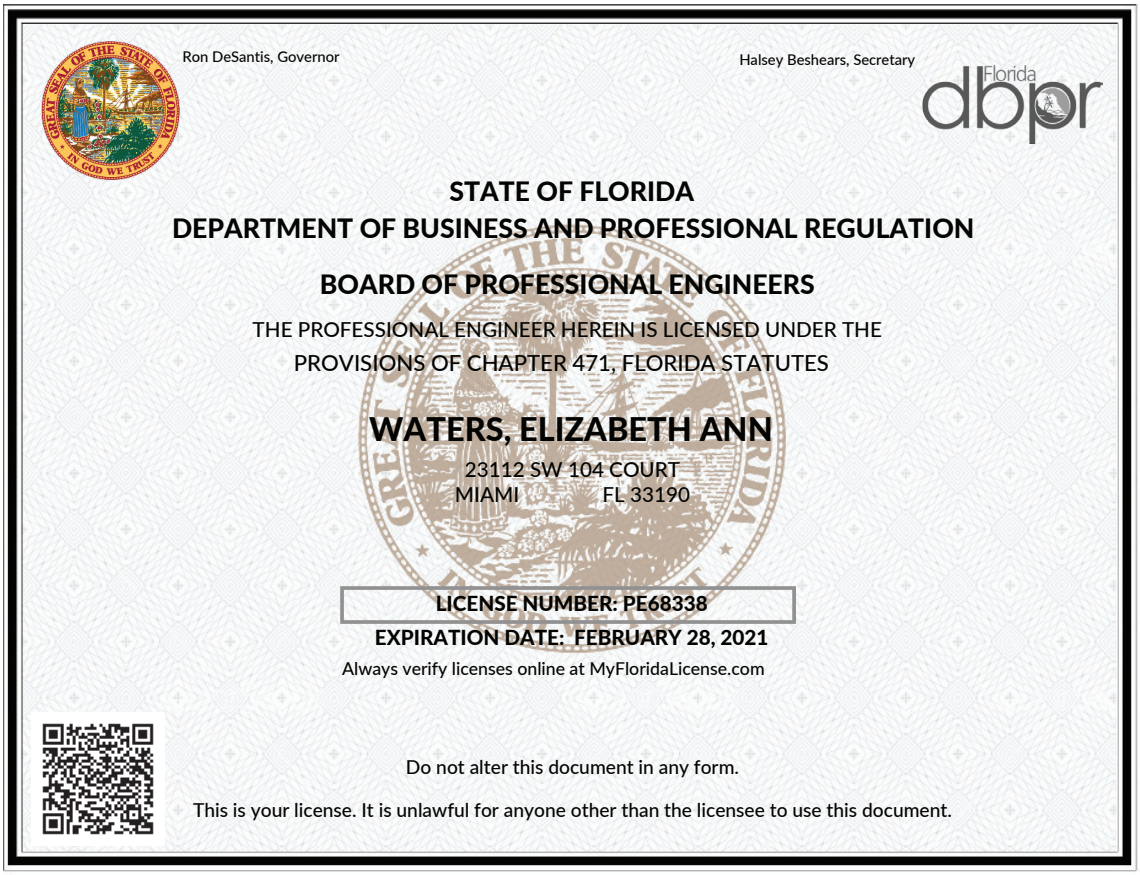
**Address:** 2640 NE 135 Street #407

North Miami FL 33181

### Primary Source License Information

| | | | | | |
|---|---|---|---|---|---|
| **Lic #:** | PE032709 | **Profession:** | Engineers & Land Surveyors | **Type:** | Professional Engineer |
| **Secondary:** | | **Method:** | Examination | **Status:** | Active |
| **Issued:** | 12/19/2007 | **Expires:** | 12/31/2020 | **Last Renewal Date:** | 10/19/2018 |

1021-287



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**WATERS, ELIZABETH ANN**

23112 SW 104 COURT
MIAMI FL 33190

**LICENSE NUMBER: PE68338**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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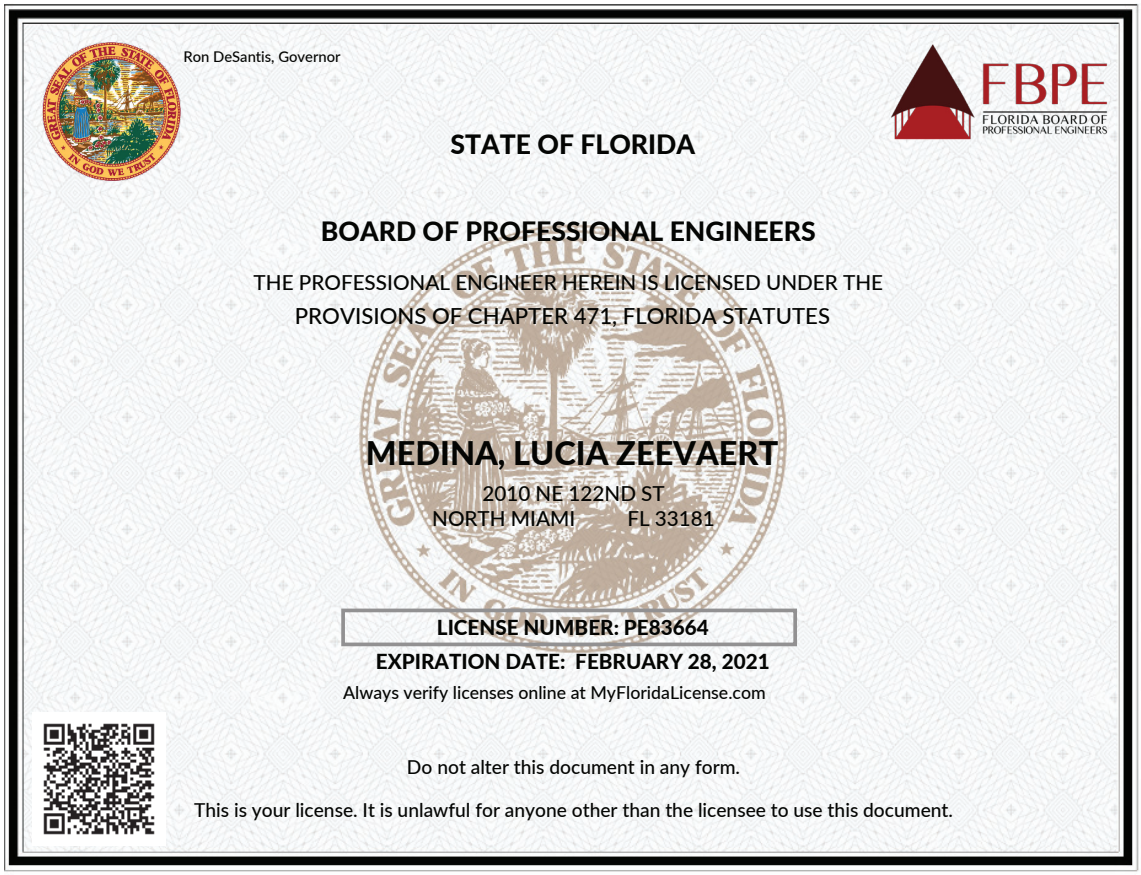

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**MEDINA, LUCIA ZEEVAERT**

2010 NE 122ND ST
NORTH MIAMI FL 33181

**LICENSE NUMBER: PE83664**
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| | |
|---|---|
| **Name** | BOWLES, EVAN CHRISTOPHER |
| **License Number** | 0402043096 |
| **License Description** | Professional Engineer License |
| **Rank** | Professional Engineer |
| **Address** | RICHMOND, VA 23230 |
| **Initial Certification Date** | 2007-06-25 |
| **Expiration Date** | 2019-06-30 |

The license information in this application was last updated at Tue May 28 02:50:19 EDT.

RICK SCOTT, GOVERNOR

JONATHAN ZACHEM, SECRETARY

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**HERNANDEZ, DAVID BYNE**

9180 SW 128TH LANE
MIAMI FL 33176

**LICENSE NUMBER: PE82352**

**EXPIRATION DATE: FEBRUARY 28, 2021**

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**WELLS, CRAIG A.**

12207 BRIGHTWATER BOULEVARD
TEMPLE TERRACE FL 33617

**LICENSE NUMBER: PE64161**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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**REGALADO, GUILLERMO A.**

1570 SW 191ST TERRACE
PEMBROKE PINES FL 33029

**LICENSE NUMBER: PE64905**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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## WANG, TIEZHENG

6066 NW 118TH DRIVE
CORAL SPRINGS FL 33076

**LICENSE NUMBER: PE50671**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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## TORRES, ANTONIO J

1091 GOLDEN CANE DRIVE
WESTON FL 33327

**LICENSE NUMBER: PE72693**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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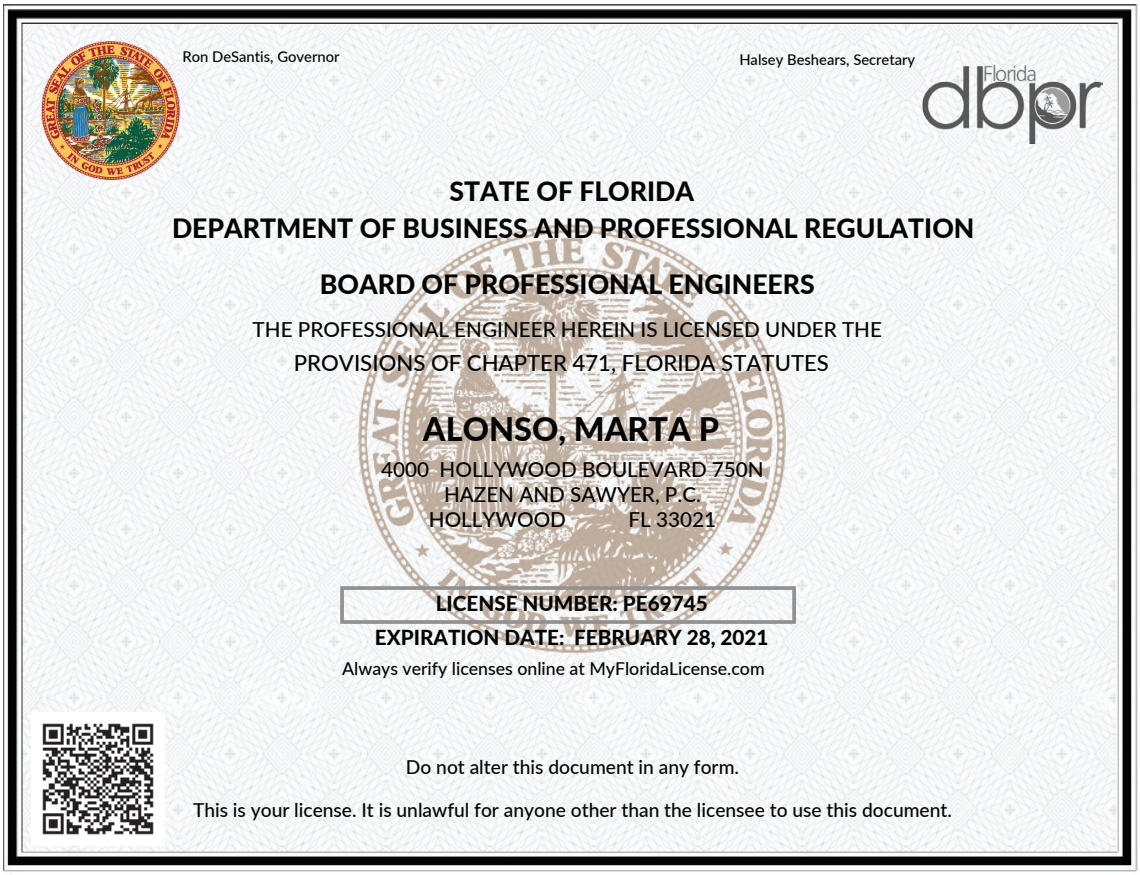

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**ALONSO, MARTA P**

4000 HOLLYWOOD BOULEVARD 750N
HAZEN AND SAWYER, P.C.
HOLLYWOOD FL 33021

**LICENSE NUMBER: PE69745**

**EXPIRATION DATE: FEBRUARY 28, 2021**

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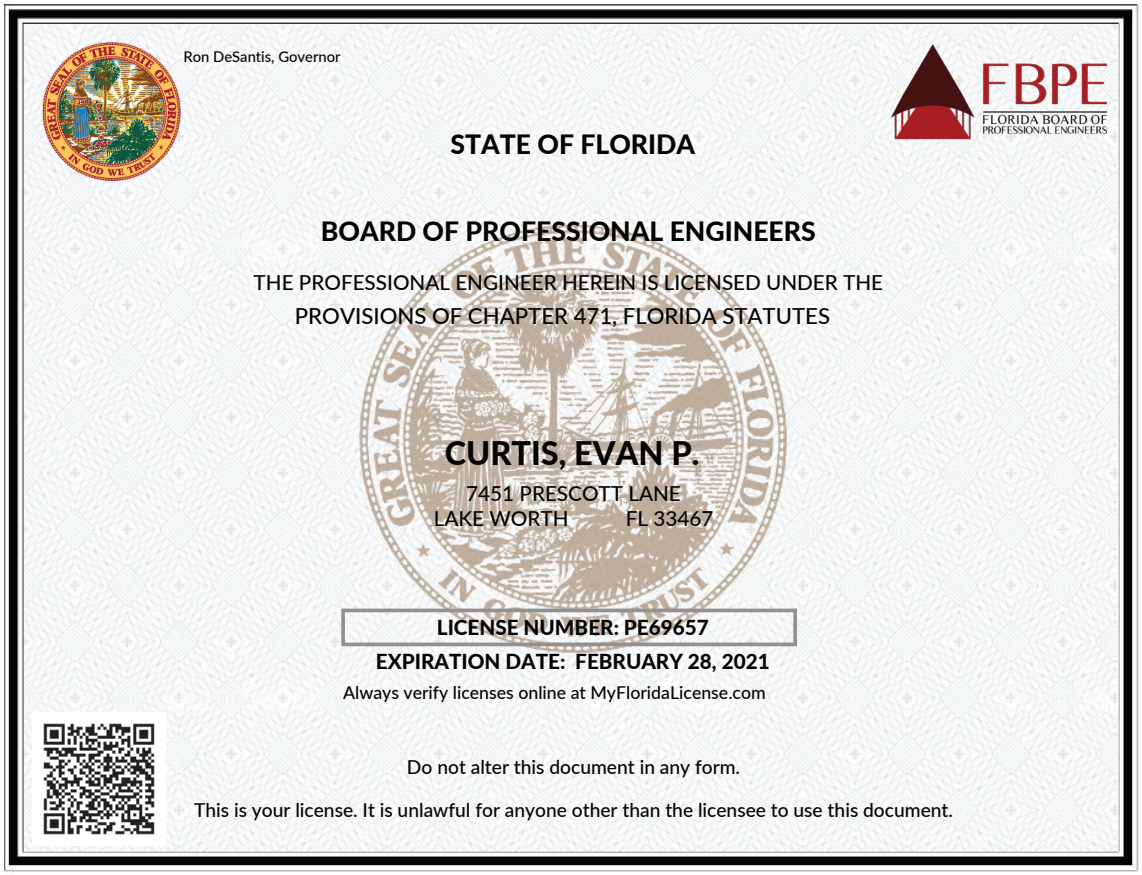

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**CURTIS, EVAN P.**

7451 PRESCOTT LANE
LAKE WORTH FL 33467

**LICENSE NUMBER: PE69657**

**EXPIRATION DATE: FEBRUARY 28, 2021**

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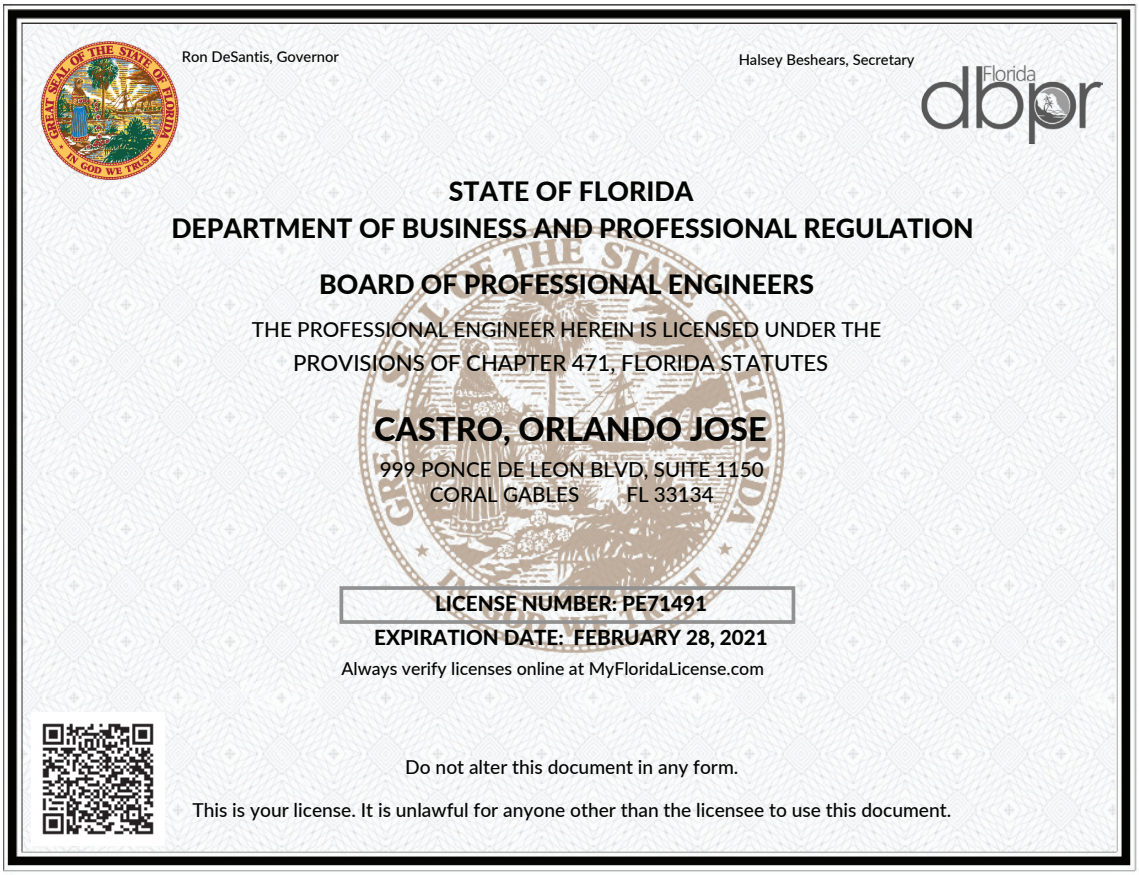

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**CASTRO, ORLANDO JOSE**

999 PONCE DE LEON BLVD, SUITE 1150
CORAL GABLES FL 33134

**LICENSE NUMBER: PE71491**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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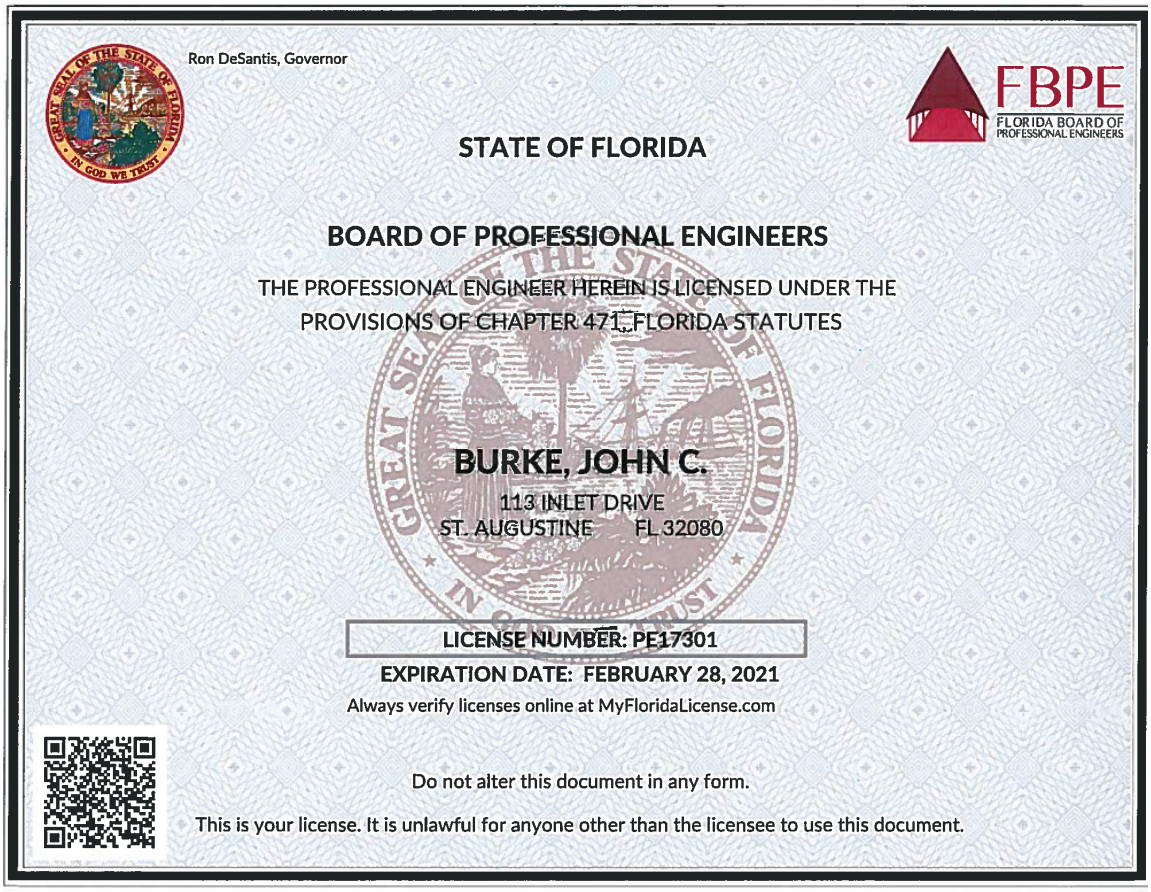

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**BURKE, JOHN C.**

113 INLET DRIVE
ST. AUGUSTINE FL 32080

**LICENSE NUMBER: PE17301**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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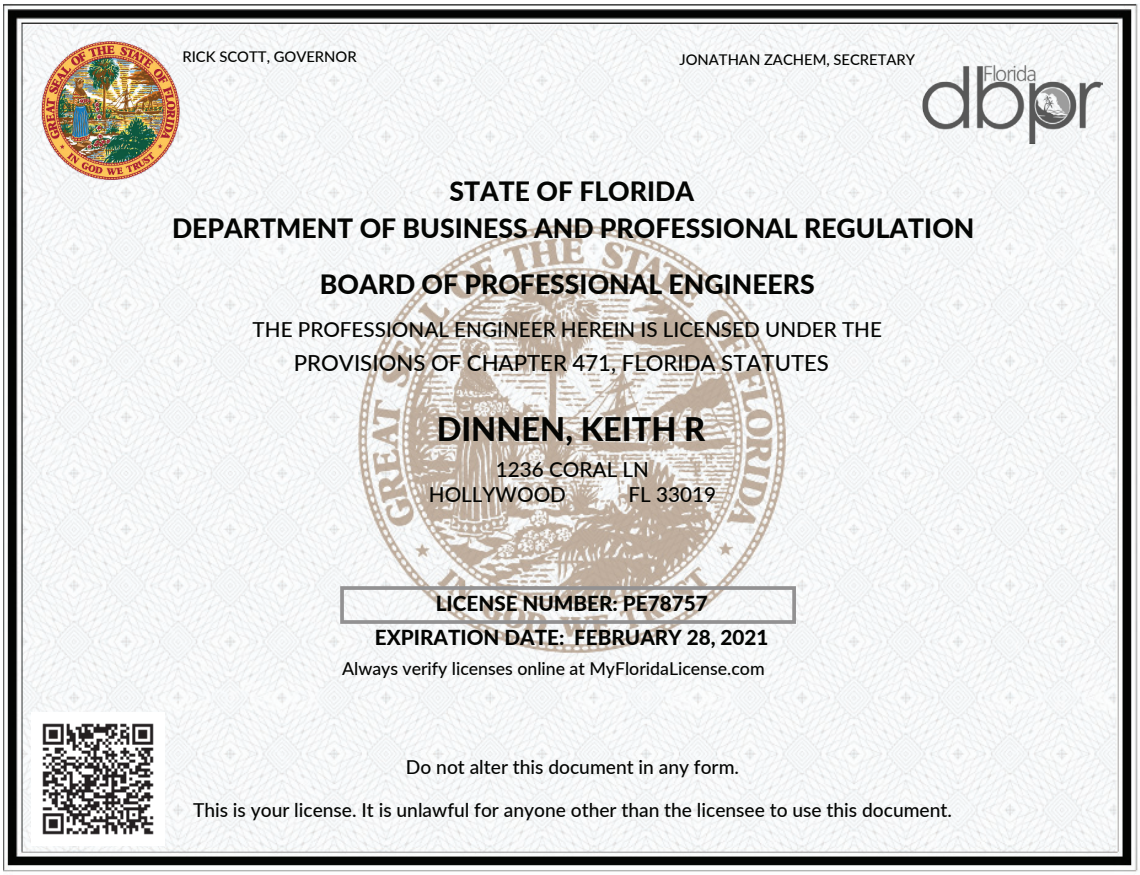

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JONATHAN ZACHEM, SECRETARY

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**DINNEN, KEITH R**

1236 CORAL LN
HOLLYWOOD FL 33019

**LICENSE NUMBER: PE78757**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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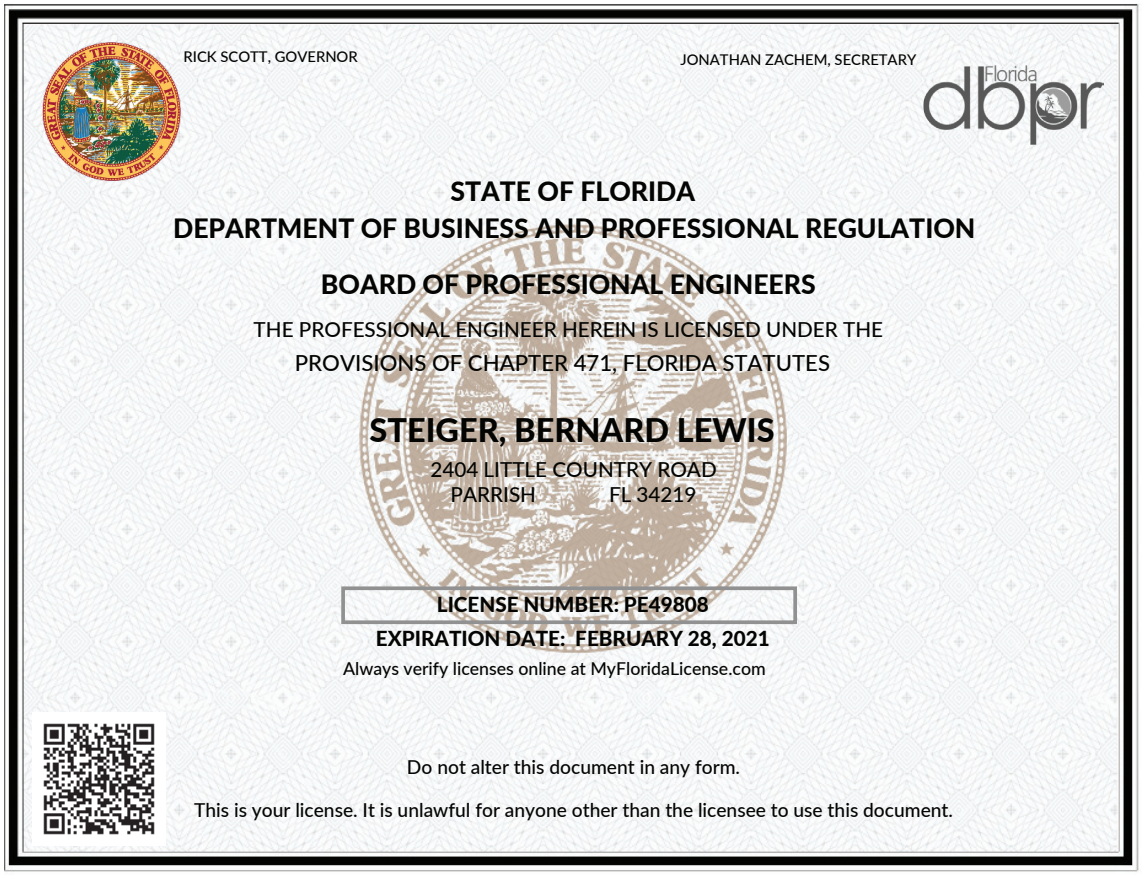

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JONATHAN ZACHEM, SECRETARY

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**STEIGER, BERNARD LEWIS**

2404 LITTLE COUNTRY ROAD
PARRISH FL 34219

**LICENSE NUMBER: PE49808**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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## BROWN, GEORGE A.

3585 SIMMS STREET
HOLLYWOOD FL 33021-0000

**LICENSE NUMBER: PE56076**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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## MCMAHON, JENNIFER NICOLE

6950 SW 5TH STREET
PEMBROKE PINES FL 33023

**LICENSE NUMBER: PE56800**
**EXPIRATION DATE: FEBRUARY 28, 2021**
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## STATE OF FLORIDA

## BOARD OF PROFESSIONAL ENGINEERS

THE ENGINEERING BUSINESS HEREIN IS AUTHORIZED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

**NV5, INC.**
200 S PARK ROAD
SUITE 350
HOLLYWOOD FL 33021

**LICENSE NUMBER: CA29065**
**EXPIRATION DATE: FEBRUARY 28, 2021**

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**Florida Department of Agriculture and Consumer Services**
**Division of Consumer Services**
**Board of Professional Surveyors and Mappers**
**2005 Apalachee Pkway Tallahassee, Florida 32399-6500**

License No.: **LB3870**
Expiration Date: February 28, 2021

## Professional Surveyor and Mapper Business License

Under the provisions of Chapter 472, Florida Statutes

**PULICE LAND SURVEYORS INC**
**5381 N NOB HILL RD**
**SUNRISE, FL 33351-4761**

Nicole Fried

NICOLE "NIKKI" FRIED
COMMISSIONER OF AGRICULTURE

This is to certify that the professional surveyor and mapper whose name and address are shown above is licensed as required by Chapter 472, Florida Statutes.

1021-287

HAZE&SA-01 KGODWIN

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 4/24/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

| PRODUCER | CONTACT NAME: | |
|---|---|---|
| Ames & Gough<br>8300 Greensboro Drive<br>Suite 980<br>McLean, VA 22102 | PHONE (A/C, No, Ext): (703) 827-2277 | FAX (A/C, No): (703) 827-2279 |
| | E-MAIL ADDRESS: admin@amesgough.com | |

| INSURED | INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|---|
| HAZEN AND SAWYER<br>498 Seventh Avenue<br>New York, NY 10018 | INSURER A : Hartford Fire Insurance Company A+ (XV) | 19682 |
| | INSURER B : Hartford Casualty Insurance Company A+ (XV) | 29424 |
| | INSURER C : Travelers Indemnity Company of Connecticut A++ (Superior) | 25682 |
| | INSURER D : Twin City Fire Insurance Company | 29459 |
| | INSURER E : Continental Casualty Company (CNA) A, XV | 20443 |
| | INSURER F : | |

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY | | | | | | | |
| | CLAIMS-MADE X OCCUR | X | X | 42UUNBH8062 | 3/29/2019 | 3/29/2020 | EACH OCCURRENCE | $ 1,000,000 |
| | | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ 1,000,000 |
| | X Contractual Liab. | | | | | | MED EXP (Any one person) | $ 10,000 |
| | | | | | | | PERSONAL & ADV INJURY | $ 1,000,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $ 2,000,000 |
| | POLICY X PRO-JECT X LOC | | | | | | PRODUCTS - COMP/OP AGG | $ 2,000,000 |
| | OTHER: | | | | | | | $ |
| B | AUTOMOBILE LIABILITY | | | | | | | |
| | X ANY AUTO | | | | | | COMBINED SINGLE LIMIT (Ea accident) | $ 1,000,000 |
| | OWNED AUTOS ONLY / SCHEDULED AUTOS | X | X | 42UENBH7997 | 3/29/2019 | 3/29/2020 | BODILY INJURY (Per person) | $ |
| | HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY | | | | | | BODILY INJURY (Per accident) | $ |
| | | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | Comp./Coll. Ded | $ 1,000 |
| C | X UMBRELLA LIAB X OCCUR | | | | | | EACH OCCURRENCE | $ 5,000,000 |
| | EXCESS LIAB CLAIMS-MADE | X | X | ZUP31N1064A19NF | 3/29/2019 | 3/29/2020 | AGGREGATE | $ 5,000,000 |
| | DED X RETENTION $ 10,000 | | | | | | | $ |
| D | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N | | | | | | X PER STATUTE / OTH-ER | |
| | ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N (Mandatory in NH) | N / A | X | 42WBAD0SYE | 3/29/2019 | 3/29/2020 | E.L. EACH ACCIDENT | $ 1,000,000 |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - EA EMPLOYEE | $ 1,000,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ 1,000,000 |
| E | Professional Liab | | | AEH008231489 | 3/29/2019 | 3/29/2020 | Per Claim/Agg | 1,000,000 |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The City of Coral Gables is included as additional insured with respect to General Liability, Automobile Liability and Umbrella Liability when required by written contract. General Liability is primary and non-contributory over any existing insurance and limited to liability arising out of the operations of the named insured and when required by written contract. General Liability, Automobile Liability, Umbrella Liability and Workers Compensation policies include a waiver of subrogation in favor of the additional insureds where permissible by state law and when required by written contract. 30-day Notice of Cancellation will be issued for the General Liability, Automobile Liability, Umbrella Liability, Workers Compensation and Professional Liability policies in accordance with policy terms and conditions.

**CERTIFICATE HOLDER**

City of Coral Gables
Insurance Compliance
PO Box 100085 - CE
Duluth, GA 30096

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Dan Knust



1021-287

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# ARCHITECT - ENGINEER QUALIFICATIONS

## PART I - CONTRACT-SPECIFIC QUALIFICATIONS

### A. CONTRACT INFORMATION

1. TITLE AND LOCATION *(City and State)*
Request for Qualifications – Civil and Environmental Engineering Services
City of Coral Gables, Florida

| 2. PUBLIC NOTICE DATE | 3. SOLICITATION OR PROJECT NUMBER |
|---|---|
| 5/3/2019 | RFQ 2019-015 |

### B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE
Jayson Page, PE, Vice President

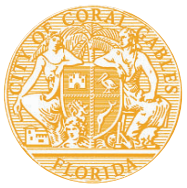
5. NAME OF FIRM
Hazen and Sawyer

| 6. TELEPHONE NUMBER | 7. FAX NUMBER | 8. E-MAIL ADDRESS |
|---|---|---|
| (305) 443-4001 | (305) 443-4549 | jpage@hazenandsawyer.com |

### C. PROPOSED TEAM
*(Complete this section for the prime contractor and all key subcontractors.)*

| | (Check) PRIME | J-V PARTNER | SUBCON-TRACTOR | 9. FIRM NAME | 10. ADDRESS | 11. ROLE IN THIS CONTRACT |
|---|---|---|---|---|---|---|
| a. | ☒ | ☐ | ☐ | **Hazen and Sawyer**<br>☒ CHECK IF BRANCH OFFICE | 999 Ponce de Leon Drive<br>Suite 1150<br>Coral Gables, Florida 33134 | **Primary Consultant** |
| b. | ☒ | ☐ | ☐ | **Hazen and Sawyer**<br>☒ CHECK IF BRANCH OFFICE | 4000 Hollywood Boulevard<br>Suite 750 N<br>Hollywood, Florida 33021 | **Primary Consultant** |
| c. | ☒ | ☐ | ☐ | **Hazen and Sawyer**<br>☒ CHECK IF BRANCH OFFICE | 2101 NW Corporate Boulevard<br>Suite 301<br>Boca Raton, Florida 33431 | **Primary Consultant** |
| d. | ☒ | ☐ | ☐ | **Hazen and Sawyer**<br>☒ CHECK IF BRANCH OFFICE | 10002 Princess Palm Avenue<br>Registry One Building, Suite 200<br>Tampa, Florida 33619 | **Primary Consultant** |
| e. | ☐ | ☐ | ☒ | **NV5 Global, Inc.**<br>☐ CHECK IF BRANCH OFFICE | 14486 Commerce Way<br>Miami Lakes, Florida 33016 | **Subconsultant** |
| f. | ☐ | ☐ | ☒ | **Pulice Land Surveyors, Inc.**<br>☐ CHECK IF BRANCH OFFICE | 5381 Nob Hill Road<br>Sunrise, Florida 33351 | **Subconsultant** |
| g. | ☐ | ☐ | ☐ | ☐ CHECK IF BRANCH OFFICE | | |

### D. ORGANIZATIONAL CHART OF PROPOSED TEAM ☒ *(Attached)*




CORAL GABLES
THE CITY BEAUTIFUL

| SUBCONSULTANTS |
| --- |
| NV5 Global, Inc. |
| Pulice Land Surveyors |

**Project Director**
Jayson Page, PE

**QA/QC**
Robert Taylor, Jr., PE

**Project Manager**
Christopher Kish, PE, ENV SP

**Water and Sanitary Systems**
Christopher Kish, PE, ENV SP
Hannah Borders, EI

**Environmental Assessments**
Ethan Heijn, PE
Beth Waters, PE, ENV SP

**Stormwater Systems**
Robert Taylor, Jr., PE
Lucia Medina, PE

**Hazard Mitigation Strategies**
Ethan Heijn, PE*
Beth Waters, PE, ENV SP

**Construction Management**
Beth Waters, PE, ENV SP
Michael Vinas

**Sustainability**
Evan Bowles, PE, ENV SP*
David Hernandez, PE, ENV SP

**Resiliency**
Jayson Page, PE
Craig Wells, PE, ENV SP

| SUPPORT SERVICES | | |
| --- | --- | --- |
| **Modeling**<br>Guillermo Regalado, PE<br>Tiezheng Wang, PhD, PE | **I/I Reduction**<br>Ethan Heijn, PE*<br>Antonio Torres, PE | **Electrical**<br>John Burke, PE<br>James Broad |
| **Lift Station/Pipeline Design**<br>Christopher Kish, PE, ENV SP<br>Hannah Borders, EI | **Permitting**<br>Marta Alonso, PE, ENV SP<br>Hannah Borders, EI | **Instrumentation**<br>Evan Curtis, PE<br>Keith Dinnen, PE |
| **Geotechnical**<br>NV5 Global, Inc. | **Paving and Drainage**<br>George Brown, PE<br>Jennifer McMahon, PE | **Structural**<br>Orlando Castro, PE, DBIA |
| **Survey**<br>Pulice Land Surveyors | | **HVAC/Plumbing**<br>Bernard Steiger, PE |

* Registered PE in a state other than Florida

## 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 |
| **Christopher Kish, PE, ENV SP**<br>**Associate Vice President** | **Project Manager; Water and Sanitary Systems; Lift Station/Pipeline Design** | **25** | **25** |

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, Civil Engineering | PE / FL – Civil Engineering |

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

Christopher Kish, PE, ENV SP, has managed the development of GIS-based atlases and CMOM programs, and has provided technical support related to asset management activities. These programs assessed available data and infrastructure, defined data gaps, and established protocol/methodologies necessary to evaluate infrastructure life cycles, levels of service, potentials for failure and the consequences of failure to comply with city, county, and EPA requirements. **Professional Organizations:** American Water Works Association, Construction Management, Master Planning, Pipeline Design, Pump Station Design, Hydraulic Analysis, Water and Wastewater Plant Mechanical Design

### 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Coral Gables Cocoplum 1 PS and FM Improvements**
**Coral Gables, FL**

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

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

The project involves improvements to the Cocoplum 1 Pump Station and discharge force main that requires modifications to the station's mechanical, structural, electrical, and instrumentation systems. Improvements include the installation of a new wet well and valve/meter box and associated piping. A diesel powered generator shall also be installed. The new 12-inch PVC force main from the station to the City's existing transmission main in Old Cutler Road will eliminate the need for PS D to re-pump Cocoplum 1, as it currently does, thus freeing up capacity at station D. Under the City's new sustainability requirements, the project is being evaluated for Envision certification. Based on the station/force main design consideration and improvements to the area surrounding the station, the City is seeking a Silver award. **Cost:** $1.8 million (anticipated construction cost) $185,000 (fee) **Specific Role:** Project Manager

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Hialeah PSIP and Engineering Services During Construction**
**Hialeah, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION (If applicable) Ongoing

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

Hazen was responsible for designing and permitting all of the station improvements for PSIP Phase I, PS 4, 5, 56, 100, 101, 126, PSIP Phase II, PS 131, 133, 140, 141 and PS 106 and 150 as well the Phase I and II Force Main Improvements on a fast track basis to obtain approval from DERM. Proposed improvements replaced mechanical, electrical, structural and instrumentation components in 11 submersible pump stations. PS 106, the largest of the facilities upgraded, was converted from a wet/ dry well station with booster pumps to a submersible pump station with four 3,855 HP submersible units. Of the 11 stations upgraded, three were converted to triplex stations to better address varying inflows/ force main pressures. Horsepower in the 11 stations ranged from 20 to 90 HP. **Cost:** $15.7 million (construction) $1.3 million (design/CMS fee) **Specific Role:** Project Manager

**c.**

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

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2016; 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 as the Program Manager for delivery of a new stormwater master plan and implementation of designs to address chronic flooding, other stormwater management challenges, and sea level rise (SLR) adaptation. The scope of work includes data collection; citywide hydraulic/hydrological stormwater modeling, including consideration of climate change impacts; a revised stormwater master plan with prioritized capital improvements; design, permitting, and construction services for stormwater capital improvement projects resulting from the revised stormwater master plan; watershed planning; community outreach services; and construction management services. **Cost:** $200 million (const. est.); $20 million (est. fee) **Specific Role:** QA/QC

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Coral Gables SLR Impact and Preliminary Adaptation Plan**
**Coral Gables, FL**

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

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

Hazen evaluated the potential impacts of SLR on specific existing City infrastructure. Critical infrastructure was identified, and a risk assessment was conducted under various scenarios. Adaptation strategies consisting of physical improvements, policy changes, and emergency response were developed. Hazen coordinated with City staff to collect data on existing wastewater and stormwater infrastructure throughout the City. As-built data was collected and analyzed to develop a preliminary list of critical stormwater infrastructure. As part of the data collection process, critical stormwater and wastewater assets were identified. Each asset or group of assets were characterized as being susceptible to the complete or partial loss of function and how the loss impacts the overall system operation. **Cost:** $187,000 **Specific Role:** Project Manager

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Cocoplum Stormwater Improvements Phase I Design/ ESDC**
**Coral Gables, FL**

(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 City of Coral Gables is responsible for providing its residents with an adequate level of service as it relates to stormwater management. To this end, the Cocoplum community which is located along the City's eastern limits has experienced ponding/ flooding from time to time in several locations. The City, through its staff addressed several areas of concern in-house but needed to continue to increase the level of service within the area. In order to accomplish this task, the City proposed a phased approach to addressing the flooding/ponding issues that exist within the community.Phase I involved stormwater improvements at the intersection of Los Pinos Blvd. and Los Pinos Circle, designed to mitigate ponding/ flooding that occurs within the area. Hazen was requested to assist the City by designing and permiting the stormwater improvements for this area. **Cost:** $750,000 (construction) $90,000 (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**<br>**Vice President** | **Project Director; Resiliency** | **21** | **16** |

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<br>BS, Environmental Science | PE / FL – Environmental Engineering |

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

Jayson Page, PE, has developed sea level rise adaptation strategies and is well-versed in developing risk and hazard mitigation plans. In recent years, Mr. Page has been working to determine the potential impacts of sea level rise and severe weather events on infrastructure systems. This work has included economic evaluations of adaptations and improvements to those systems to establish cost benefit and cost of asset protection for utilities and agencies in South Florida. **Professional Organizations:** American Water Works Association

## 19. RELEVANT PROJECTS

**a.**

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

**Miami-Dade County Rapid Action Plan**
**Miami-Dade County Office of Resilience, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
|---|---|
| 2018 | |

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

Mr. Page served as Project Manager for development of a Rapid Action Plan (RAP) to address the impacts of sea level rise (SLR) in Miami-Dade County. The RAP protects the County's most critical infrastructure from increasing flood risks due to rising sea levels. The scope of work included building on existing work completed by the County. Tasks included review and confirmation of vulnerability parameters and exposure data, identification of key infrastructure needs and vulnerability, assessment and prioritization of potential projects, preparation of the final report, and provision of advice to the County on a methodology for incorporating SLR into all capital planning. **Cost:** $200,000 (est. fee) **Specific Role:** Project Manager

**b.**

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

**Miami-Dade Ocean Outfall Legislation (OOL) Program**
**Miami-Dade County, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
|---|---|
| Ongoing | |

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

Mr. Page has been responsible for Capital Improvement Planning and Oversight for this program. The $2 billion master planning program addressed implications of new state regulations as well as threats of sea level rise and storm surge to their wastewater infrastructure. The 11-year OOL Program is driven by a regulatory mandate from the Florida Legislature to dramatically reduce wastewater discharge to the Atlantic Ocean by 2025. As a subconsultant to another national firm, Hazen shares responsibility for wastewater system master planning, as well as management of the overall delivery of a long-term program encompassing design, procurement, construction, and commissioning of approximately 20 major capital projects. Hazen used Envision as a master-planning tool for the OOL Program. Envision validated and expanded upon the initial drivers for the master plan identified by the client. **Cost:** $2 billion **Specific Role:** Project Manager

**c.**

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

**Sea Level Rise Assessment for Miami-Dade County Wastewater Treatment Facilities, Miami-Dade Water and Sewer Department, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
|---|---|
| 2013 | |

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

Mr. Page directed a study that evaluated potential severe weather impacts due to sea level rise projections of 9-24 inches by 2060 and estimated the overall risk for the County's three regional wastewater treatment facilities. The analysis identified adaptation strategies to mitigate the impacts of sea level rise on each facility. **Cost:** $30,000 (fee) **Specific Role:** Project Director

**d.**

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

**Assessment of Sea Level Rise Impacts on Existing Infrastructure and Adaptation Plan, City of Coral Gables, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
|---|---|
| 2017 | |

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

As Project Director, Mr. Page was responsible for oversight of the team that evaluated the potential impacts of SLR on specific existing City infrastructure. Critical infrastructure was identified, and a risk assessment was conducted under various scenarios. Adaptation strategies consisting of physical improvements, policy changes, and emergency response were developed. **Cost:** $187,000 **Specific Role:** Project Director

**e.**

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

**City-wide Vulnerability Assessment and Adaptation Plan, City of Hollywood, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2020 (est.) | |

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

Hazen was recently selected to conduct a city-wide climate change vulnerability assessment, prioritizing vulnerabilities, developing adaptation strategies, creating an adaptation plan, informing the public about risks and adaptation opportunities and building the capacity of the city to include climate change data in decision making. Mr. Page serves as Deputy Project Manager. **Cost:** $110,000 **Specific Role: D**eputy 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 |
| **Robert Taylor, Jr., PE**<br>**Vice President** | **QA/QC; Stormwater Systems** | **34** | **27** |

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

**Hazen and Sawyer, Hollywood, FL**

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

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.) (update intro after Rob sends comments)*

Robert Taylor, Jr., PE, has managed and completed numerous stormwater and water-related projects in South Florida over the last 32 years. Mr. Taylor's experience includes significant involvement with resiliency programs, projects, and practices on a national level, as well as in Florida coastal communities. He has been involved with vulnerability assessments and adaptation plans related to climate change for several South Florida communities. Mr. Taylor served for years as Hazen's Corporate Practice Area Leader in the field of stormwater management. **Professional Organizations:** NSPE, FES (including Leadership Institute), ASCE, AMTA, FICE, SESWA, FSA, and WEF

### 19. RELEVANT PROJECTS

**a.**

(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)*: 2024 (est.)

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

Mr. Taylor serves as Program Manager for delivery of a new stormwater master plan and design implementation to address chronic flooding and other stormwater management issues in the City. 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:** Estimated completion 2021, with an option to extend the contract for two additional 5-year terms **Cost:** Estimated total fee: $20 million ($9.9 million to-date) **Specific Role:** Program Manager

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade County Rapid Action Plan, Miami-Dade County Office of Resilience, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 06/2018; CONSTRUCTION *(if applicable)*:

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

Mr. Taylor served as Project Director for development of a Rapid Action Plan (RAP) to address the impacts of sea level rise (SLR) in Miami-Dade County. The RAP protects the County's most critical infrastructure from increasing flood risks due to rising sea levels. The scope of work included building on existing work completed by the County. Tasks included review and confirmation of vulnerability parameters and exposure data, identification of key infrastructure needs and vulnerability, assessment and prioritization of potential projects, preparation of the final report, and provision of advice to the County on a methodology for incorporating SLR into all capital planning. **Cost:** $200,000 (fee) **Specific Role:** Project Director

**c.**

(1) TITLE AND LOCATION *(City and State)*: **General Engineering Consultant - Stormwater Coral Gables, 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

The City of Coral Gables selected Hazen to be its general engineering consultant for stormwater and sanitary sewer projects in the early 1990s. Since that time the firm has assisted the City in executing numerous stormwater capital projects and maintaining regulatory compliance. Representative projects include: North Gables Stormwater Improvement Project, NPDES MS4 Pollutant Load Modeling and Annual Reporting, Cocoplum Stormwater Improvement Project and Stormwater Telemetry System. Mr. Taylor also assisted a team that evaluated the potential impacts of SLR on specific existing City infrastructure. **Status:** This project is ongoing. **Cost:** $2,120,000 (construction); $463,000 (fee) **Specific Role:** Project Manager

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Professional General Engineering Services for Water and Stormwater Capital Improvements (since 2000), Town of Jupiter, 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 has served as General Water and Stormwater Consultant for the Town of Jupiter for over 15 years. In this capacity, the firm has provided services related to stormwater planning, design, permitting, plan review, and construction oversight. During this time, the firm has become an extension to Town staff and has helped ensure the proper and efficient management of the municipal water and stormwater systems. Tasks performed include: 2002, 2007, and 2012 updates to the Town's Master Plan; review/revision of stormwater code; design of infrastructure improvements; regulatory compliance; floodplain management; asset management; and financial consulting. Recently, the Town of Jupiter code of ordinances and comprehensive plan were reviewed and compared to other coastal municipalities in Southeast Florida and municipalities in other regions confronting similar challenges relative to climate change and sea level rise. **Cost:** $6.3 million (fees) **Specific Role:** Project Director/Project Manager

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Financial Feasibility Study of the Grove Land Reservoir and Stormwater Treatment Area (STA), Northern Okeechobee and Southern Indian River Counties, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(if applicable)*:

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

This project evaluated the possibility of diverting stormwater away from the Indian River Lagoon/St. Lucie Estuary for storage and treatment in a 5000 acre reservoir and 2000 acre STA. Project results would include reduction in harmful stormwater discharges, reduced TN and TP loads to the estuary and lagoon, increased water supply for water utilities and the environment, and increased water management flexibility. Also included were development of life-cycle project costs; dollar value of benefits provided and beneficiary willingness-to-pay; and economic and financial feasibility analysis. **Cost:** $430 million (estimated capital cost) **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 |
| **Lucia Medina, PE**<br>**Principal Engineer** | **Stormwater Systems** | **5** | **4** |

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, Project Management 2013<br>BE, Civil Engineering, 2012 | FL Professional Engineer |

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

Lucia Medina's experience includes stormwater management, hydrologic and hydraulic modeling, wastewater process design, civil and drainage design, and project coordination. Ms. Medina is proficient in several platforms including AutoCAD, Civil3D, ArcGIS, and Interconnected Pond Routing Stormwater Modeling (ICPR4).

## 19. RELEVANT PROJECTS

**a.**

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

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 is focused on resilient adaptation to climate change and inclusion of innovative and regional solutions. Ms. Medina serves as Project Supervisor for the stormwater modeling task. She coordinates 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. Ms. Medina's role in this project 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:** Estimated total fee: $20 million ($9.9 million to-date) **Specific Role:** Modeling/Project Supervisor

**b.**

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

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

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

Ms. Medina assisted a team that evaluated 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. Ms. Medina's role included 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. She 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:** $187,000 **Specific Role:** Modeling

**c.**

(1) TITLE AND LOCATION *(City and State)*: **East Las Olas Boulevard Water Main and Force Main Fort Lauderdale, FL**

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

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

Ms. Alvarez assisted in providing permitting assistance during the development of the design criteria package for the City of Fort Lauderdale's water main relocation and new force main at Las Olas Boulevard. This project involved horizontal directional drilling under the Intracoastal Waterway; several permits, including those from the U.S. Army Corps of Engineers, were proactively requested and awarded in order to meet a demanding schedule. **Cost:** $3.1 million **Specific Role:** Permitting

**d.**

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

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

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

Hazen assisted the Town of Jupiter in improving the Seminole Basin drainage system by evaluating the benefit of a second pump station and outfall located towards the south portion of the basin near the intersection of Juno Street and Old Dixie Highway. The need for additional attenuation, water quality improvements and/or conveyance improvements within the basin were also evaluated. Ms. Medina evaluated the existing ICPR model of the Seminole Avenue Basin to include the proposed pump station located at Juno Street and for proposed connections into the existing drainage system from Old Dixie Highway north of Center Street. Modifications to existing components of the conveyance system were also evaluated to ensure the most effective use of the proposed pump station. **Cost:** $33,735 **Specific Role:** Modeling

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Evaluation of Proposed Water Farming at Three Florida Citrus Groves, Evans Properties**

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

Ms. Medina estimated the existing water quantity benefit for three citrus groves located in St. Lucie, Indian River, and Okeechobee using representative models in ICPR4 and scaling the results to compare to the post-project water quantity benefit. The modeled net benefit values were determined in collaboration with the South Florida Water Management District. **Cost:** $111,474 **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 |
| **Hannah Borders, EI**<br>**Assistant Engineer** | **Water and Sanitary Systems; Lift Station/Pipeline Design; Permitting** | **4** | **4** |

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, Environmental Engineering | |

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

Hannah Borders, EI, has experience in lift station analysis, determination of constituents of treated water and waste stream residuals, and preparation of permit documents and reports. Hannah's lift station work includes collection basin data, pump selection, basis of design reports, hydraulic modeling, and permit document preparation. **Professional Organizations:** American Society of Civil Engineers

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Cocoplum 1 Pump Station and Force Main Upgrades Design, Coral Gables, 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

As Assistant Engineer, Ms. Borders was responsible for assisting with the design for the pump station upgrade and the new discharge force main. Ms. Borders performed tasks such as hydraulic modeling, wet well cycling calculations and permitting. Construction is expected to begin in the latter half of 2019 and will involve replacing the existing wet well, converting the station from a triplex to a duplex station, as well as the addition of a generator, a new discharge force main, and other mechanical and electrical upgrades. These upgrades will also involve elevating the station's electrical equipment to account for the 100-year floodplain as well as sea level rise over the design life of the station. **Cost:** $1.8 million (est.) **Specific Role:** Assistant Engineer

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Corona del Mar Phase II – Pump Station and Collection System, North Miami Beach, 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

Hazen provided design services for a new wastewater collection system, pump station and discharge force main. The project will provide central sanitary sewer service to a select portion of the Corona del Mar neighborhood that currently uses septic tanks. Ms. Borders performed hydraulic calculations, modeling and permitting activities, field visits accompanied by City staff to locate septic tanks in order to design lateral placements convenient to property owners, and prepared the basis of design report. **Cost:** $2.6 million **Specific Role:** Assistant Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Pump Station 12 Corrective Action Plan and Force Main Improvements, Hialeah, 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

Ms. Borders performed collection system, downstream and wet well cycle time analyses, sized the upgraded pumping units as well as the upgraded force main, and projected the nominal average pump operating time (NAPOT) that could be achieved by these improvements. The design involved various mechanical and electrical upgrades to both the pump station and discharge force main. The project also required permitting, including a sea level rise analysis, with both the Miami-Dade Water and Sewer Department and the Miami-Dade Department of Regulatory and Economic Resources. **Cost:** $1,058,000 **Specific Role:** Assistant Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Hydraulic Model Calibration, Coral Gables, 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. Borders is serving as Project Manager and has also performed various modeling and data processing tasks for the calibration of the City's hydraulic model. Pump station operations were analyzed to generate an influent hydrograph for each of the City's pump stations, which were then input into the model. Pressure data at the station discharges were recorded and then compared to model output to confirm calibration, along with other flow and pressure data collected. Additionally, Ms. Borders prepared the report describing the actions taken to achieve agreement between the field observed data and modeled flows and pressures. **Cost:** $79,000 (for report) **Specific Role:** Project Manager

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Assessment of Sea Level Impacts on Existing City of Coral Gables Infrastructure and Preliminary 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

The City of Coral Gables retained Hazen to evaluate potential impacts of sea level rise on select existing City assets, and to identify potential adaptation strategies. Ms. Borders performed mapping activities utilizing ArcGIS, evaluated results from the preliminary, dynamic hydraulic and hydrologic model, and prepared a report describing these results. Assets were assigned a criticality ranking based on multiple criteria. This criticality prioritization was used to determine an appropriate adaptation recommendation for each asset. **Cost:** $183,000 (for report) **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 |
| **Ethan Heijn, PE**<br>**Senior Associate** | **Environmental Assessments; Hazard Mitigation Strategies; I/I Reduction** | **24** | **15** |

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)* |
|---|---|
| BA, History<br>MS, Civil and Environmental Engineering | PE / GA – Civil/Environmental Engineering |

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

Ethan Heijn, PE's expertise includes pipeline evaluation and rehabilitation, including sanitary sewer infiltration and inflow programs, and water system vulnerability assessments. He also focuses on condition assessment and asset management projects related to buried infrastructure, including both gravity piping for wastewater and stormwater as well as pressure piping for potable water, wastewater, and reclaimed water.

### 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Sewer Design and Implementation Program (Force Main Condition Assessment and Prioritization), City of Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing, est. completion 2020 | CONSTRUCTION (If applicable): Future phase

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

Mr. Heijn is managing an ongoing project to conduct a risk-based prioritization and condition assessment of the City of Fort Lauderdale's wastewater force mains, to comply with the requirements of a Consent Order with the Florida Department of Environmental Protection. Work includes prioritization of force mains based on probability and consequence of failure, evaluation and recommendation of alternatives for collection of additional condition assessment data where needed, and development of recommendations for repair or replacement through short- and long-term planning periods. **Cost:** $27 million (Engineering)**Specific Role:** Project Manager

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Asset Management and Capacity, Management, Operations, and Maintenance Program (AM-CMOM Program), Fort Lauderdale, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing, est. completion 2020 | CONSTRUCTION (If applicable): Not applicable

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

Mr. Heijn is managing an ongoing project to develop an AM-CMOM Program for the City of Fort Lauderdale's wastewater collection/transmission system, to comply with the requirements of a Consent Order with the Florida Department of Environmental Protection. Work includes development of a prioritized CMOM Program that meets the requirements of the CO including an updated Sanitary Sewer Overflow Response Plan, Grease Trap Ordinance and Program Enforcement Plan to minimize the risk of grease-related blockages in the gravity and pressure sewer system, and a Collection System Asset Management Program consistent with USEPA Guidance and focused on efforts to maximize the life of assets at the lowest cost while identifying risk and measures to mitigate the risk throughout the collection system. **Cost:** $560K (Engineering) **Specific Role:** Project Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Volume Sewer Customer Ordinance Compliance, Cities of Coral Gables, Homestead, Hialeah, and North Miami Beach, Miami-Dade County, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing, multiple projects | CONSTRUCTION (If applicable): Ongoing, multiple projects

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

As Project Manager, Mr. Heijn continues to assist multiple utilities who are satellite collection systems of the Miami-Dade Water and Sewer Department to comply with a County Ordinance derived from the Department's Federal Consent Decree. The Volume Sewer Customer Ordinance contains a variety of wastewater collection and transmission system requirements designed to ensure adequate capacity and prevent sanitary sewer overflows including collection system condition assessment, collection and pumping system rehabilitation for systems not meeting specified criteria, and peak flow hydraulic modeling to assess adequate transmission capacity at the system and basin levels for a two-year design storm. Current projects for multiple Volume Sewer Customers include risk-based force main prioritization for condition assessment and repair/rehabilitation/replacement as part of a Capacity, Management, Operation, and Maintenance (CMOM) program. **Cost:** $3.5M (Engineering) **Specific Role:** Project Manager

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Florida Department of Transportation Storm Sewer Condition Assessment and Rehabilitation, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Completed 2016 | CONSTRUCTION (If applicable): Completed 2018

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

Mr. Heijn served as a project team leader as a sub-consultant to a national underground utility rehabilitation contractor, to provide professional engineering services for inspection and repair of storm sewer manholes and piping. The project emphasized the identification and repair of structural problems and excessive infiltration rates which could undermine roadways and impede storm sewer system capabilities. The work included system dewatering, cleaning, TV inspection and videotaping, repair analysis and cost estimating, and database management. The team successfully cleaned and televised over 130,000 feet of storm sewer pipe ranging in size from 12-inch to 96-inch diameter, and inspected more than 1,300 structures. **Cost:** The estimated cost to rehabilitate defects, using trenchless or excavation methods as appropriate, is approximately $2.3 million dollars. **Specific Role:** Project Team Leader

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Sewer System Evaluation Survey and Rehabilitation Program City of Hialeah, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing, est. completion 2019 | CONSTRUCTION (If applicable): Ongoing, est. completion 2019

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

For over a decade, Mr. Heijn has served as Project Manager to support the City's sewer condition assessment and rehabilitation program. The goal of the program is to reduce infiltration and inflow into the City's collection system consisting of approximately 6,500 manholes and over 400 miles of gravity mains and laterals. Hazen assisted in identifying I/I sources through activities such as manhole inspections, smoke testing, night flow isolation, video inspection review, and basin prioritization. Based on Hazen's recommendations and construction oversight, and the repair work conducted over the course of the last decade, wastewater transmitted from the City to the Miami-Dade Water and Sewer Department dropped from approximately one billion gallons per month to 600 million gallons per month. **Cost:** $21 million (construction) **Specific Role:** Project Manager/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 |
| **Elizabeth (Beth) Waters, PE, ENV SP Associate** | **Environmental Assessments; Hazard Mitigation Strategies; Construction Management** | **17** | **16** |

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, Mechanical Engineering | PE / FL – Mechanical Engineering |

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

Elizabeth Waters, PE, ENV SP, brings extensive experience in the delivery and management of various water and wastewater study, design, and construction projects throughout South Florida. **Professional Organizations:** American Water Works Association, Events Chair, Florida Section Region VII, Volunteer of the Year 2009 and 2014

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Various Wastewater Improvement Projects, Hialeah, 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. Waters has been assisting the City of Hialeah with general engineering services over many years, including design, regulatory reporting, permitting, and construction management. Most recently, this included the design of thousands of feet of PVC force main, upgrades to 14 pump stations, and two Miami-Dade billing meter stations. These projects were advertised in seven different contracts, and Ms. Waters is currently serving as Project Manager for all contracts. Responsibilities include resolution of field inquiries, shop drawing review, participation in progress meetings, monthly reporting to the City on project progress, review and approval of pay applications, change order review, schedule tracking, and project closeout. **Status:** Designs Completed 2017, Construction is ongoing. **Cost:** $865,000 (fee), $18.6 million (construction) **Specific Role:** Project Manager

**b.**

(1) TITLE AND LOCATION *(City and State)*: **NPDES MS4 Permit Stormwater Standard Operating Procedures, Coral Gables, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; 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 Coral Gables, as a co-permittee with Miami-Dade County, is required to develop and annually review written standard operating procedures (SOPs) for each component of the City's Municipal Separate Storm Sewer System (MS4) Permit. Hazen and Sawyer assisted the City of Coral Gables in developing SOPs establishing best management practices. The SOPs were developed via a collaborative effort with City staff. The documents incorporated significant aspects of the City's current operations to enhance efficiencies. In total, 19 SOPs were prepared in relation to items such as development project review, stormwater erosion and sedimentation controls, staff training, and public outreach among others. The SOPs were submitted to and approved by the Florida Department of Environmental Protection, thus maintaining the City of Coral Gables in compliance with permit requirements. **Cost:** $62,500 **Specific Role:** Project Manager

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Renewal and Replacement Report, Miami Beach, 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

Ms. Waters served as Project Manager on the development of a Renewal and Replacement Report for the City of Miami Beach, which served as an initial step toward the development of a Master Plan. The Renewal and Replacement Report included the following: 1) assessing and documenting above ground asset conditions 2) developing a vulnerability and criticality evaluation of observable assets to severe weather and sea level rise 3) prioritizing known capital projects using a probability of failure vs. consequence of failure matrix 4) developing a Renewal and Replacement Report inclusive of the prioritized list of projects with associated cost estimates 5) providing an analysis and recommendation of available modeling software; and 6) updating the City's water and sewer GIS database. **Status:** Completion 5/2018 **Cost:** $162,460 (fee) **Specific Role:** Project Manager

**d.**

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

Hazen, in partnership with another national firm, is the Program Manager for the MDWASD Ocean Outfall Legislation compliance efforts. This is a $2 billion program that considers every aspect of the utility. Ms. Waters serves as a Project Manager for the MDWASD Ocean Outfall Legislation Program. She recently completed the development of a conceptual design report for a new regional WWTP. This work includes considering SLR impacts and considering resiliency of the new facilities during this planning phase. The Envision system developed by the Institute for Sustainable Infrastructure was used to evaluate various process alternatives. **Cost:** $800,000 (fee) **Specific Role:** Project Manager

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Terminal Island Force Main Design, Miami 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

The City owns and operates Wastewater Pump Station No. 30 (PS 30) located on Terminal Island. PS 30 discharges to Pump Station No. 2 (PS 2) located on Star Island, via approximately 3,300 linear feet of 10-inch ductile iron (DI) force main. A portion of this force main is subaqueous. Due to a failure in a segment of force main that crosses under the MacArthur Causeway, the City has tasked Hazen and Sawyer with the detailed design of a new segment of force main to replace the failed segment. The new segment will need to cross under the MacArthur Causeway, avoiding many critical utilities in the area. Permitting coordination with FDOT and DERM are included in the scope, as well as a long term analysis report to evaluate alternatives for replacement of the entire force main between PS 30 and PS 2. **Cost:** $94,000 (fee). **Specific Role:** Project Manager/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 |
| **Guillermo Regalado, PE**<br>**Senior Associate** | **Modeling** | **30** | **1** |

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, Irrigation Engineering<br>BS, Civil Engineering | PE / FL – Civil Engineering<br>PE / Puerto Rico – Civil Engineering  PE / Colombia – Civil Engineering |

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

Guillermo Regalado, PE, has 29 years of experience in a wide range of municipal and water resource engineering topics, including the application of hydraulic, hydrologic, and water quality engineering models to both large and small-scale projects. His project experience spans systems analysis for water distribution systems, pump stations, storm and wastewater sewer and engineering design, as well as systems analysis for water resource development (heuristic and optimization analyses).

### 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade Water and Sewer Department Consent Decree Program Management – Construction Management, Miami-Dade County, FL**

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

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

Mr. Regalado is the Wastewater Collection and Transmission System Hydraulic (WCTS) Model Task Leader for this project. He led the Hydraulic Modeling team to validate the Consent Decree Projects, refine and calibrate the existing WCTS Hydraulic Model according to the Environmental Protection Agency (EPA) Consent Decree. The hydraulic modeling effort, which amounts to a $6 million budget, included the update for dry and wet weather wastewater flow projections to 2035 and the review and calibration of the WCTS pump and flow models being used in the evaluation of the Consent Decree Projects. The model, which includes more than 1,000 wastewater pump stations, was developed in InfoWorks. This effort includes coordination with the MDWASD design consultants to provide the design criteria required by the Consent Decree projects. **Cost:** $6 million **Specific Role:** Hydraulic Modeling Task Leader

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Collier County Public Utilities Master Plan, Collier County, 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. Regalado was the Task leader for the Water Resources and Hydraulic Modeling evaluation for this project, which included the evaluation of the water, wastewater and irrigation quality systems and the identification of capital improvement programs. The project uses WaterGEMS and SewerGEMS to perform the hydraulic evaluations of the systems. Several scenarios were used to evaluate the proposed Capital Improvement Program, which included modifications to the pump station operation protocols. **Cost:** $300,000 (fee) **Specific Role:** Hydraulic Modeling Task Leader

**c.**

(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)* 2024 (est.)

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

Lead Modeler of the project, which included the development of a 1D and 2D integrated groundwater – surface water model (ICPR4) for the study area. ICPR4 relies heavily in 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:** $9.8 million (fee authorized for assignments to date) **Specific Role:** Lead Modeler

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade Water and Sewer Department Engineering and Geological Services for Water, Wastewater and Reclaimed Water Planning Services, Miami, 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

Mr. Regalado served as Technical Lead for the water and wastewater hydraulic modeling portion of the master planning efforts related to the contract. The assignments included the hydraulic analysis for the implementation of the program to extend sewer service to unsewered commercial and industrial areas of the county. The hydraulic modeling of the identified project areas included evaluation of proposed wastewater system infrastructure (gravity mains, pump stations and force mains) required to meet the additional peak flow capacity from the potential unsewered parcels for the planning period through 2035. The analyses were performed using the county InfoWorks Hydraulic Model. **Cost:** $250,000 (fee) **Specific Role:** Technical Lead

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade County, Department of Regulatory and Economic Resources (RER), Office of Resiliency. Sea Level Rise Study and Development of Rapid Action Plan (RAP), Miami-Dade County, FL**

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

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

Lead QA/QC and Technical Engineer in the project, which included evaluation of vulnerability to storm surge and sea level rise of County properties, assessment of criticality and project prioritization (RAP). The project used GIS procedures to assess the level of vulnerability of all County properties and most of their current CIP projects. **Cost:** $200,000 (fee) **Specific Role:** Lead QA/QC and Technical 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 |
| **Tiezheng Wang, PhD, PE**<br>**Senior Associate** | **Modeling** | **35** | **25** |

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)* |
|---|---|
| PhD, Civil / Environmental Engineering<br>MS, Applied Mathematics<br>BS, Mechanical Engineering | PE / FL – Civil Engineering |

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

Dr. Wang is an expert at identifying wastewater collection and water distribution system improvements, and providing design calculations for water and wastewater treatment plants. His skills include project management, water distribution system and wastewater collection and transmission system hydraulic modeling, water and wastewater treatment plant and process design, hydraulic transient flow analysis and hydraulic modeling training programs.

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **InfoWorks Model**
**Miami-Dade County, FL**

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

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

Dr. Wang developed and successfully calibrated the InfoWorks CS hydraulic model for the Miami-Dade sewer transmission system that includes gravity sewer, 780 miles of force mains, and more than 1,000 pump stations. Due to the unprecedented size and uniqueness of the sewer system, this project provided many challenges in hydraulic modeling. He has developed several innovative methods to meet the challenges and solved these problems. He performed the hydraulic analysis with the model for the Miami-Dade County Water and Sewer Department for the department's 2009 capital improvement master plan. **Cost:** $4.5 million **Specific Role:** Hydraulic Modeling

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Sewer System Modeling for Proposed Downtown Miami Booster Station and Force Main Design, Miami-Dade County, FL**

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

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

Dr. Wang led the currently ongoing effort of conducting the hydraulic modeling on the sewer transmission and collection system in downtown Miami area that includes 88 pump stations with a total pumping capacity of more than 200 mgd. Numerous model scenarios were evaluated to optimize the proposed pumping capacity and force main routing to provide design parameters for the booster pump station design. This project is part of the Miami-Dade County Ocean Outfall Legislation sewer system upgrade project. **Cost:** $193,659 **Specific Role:** Hydraulic Modeling

**c.**

(1) TITLE AND LOCATION *(City and State)*: **City of Sunrise Wastewater Collection and Transmission System**
**Sunrise, FL**

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

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

Dr. Wang led the efforts to update the City of Sunrise's wastewater collection and transmission system model. The tasks included the development of a new dynamic model from the existing base models with scaled dimensions for the force mains and pump stations and 24-hour inflow patterns for a total of 210 pump stations. The model has subsequently been utilized to plan City Capital Improvements and evaluate developer proposed improvements to the wastewater transmission system. **Cost:** $400,000 **Specific Role:** Hydraulic Modeling

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Pump Station / Transmission System Consent Order**
**Coral Gables, FL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011 — CONSTRUCTION (If applicable):

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

In 2008, a series of sanitary sewer overflows occurred within the Pump Station A collection basin. The City was issued a Notice of Violation by the Miami-Dade DERM and was requested to meet with FDEP to discuss the issuance of a Consent Order that would require improvements to various pump stations and transmission lines. The City contracted Hazen and Sawyer to assist with the Consent Order requirements, which outlined 19 pump stations and a force main that must be analyzed and upgraded if necessary by given dates, with a final completion date of July 31, 2012. Hazen and Sawyer was assigned Pump Stations A, E, Bella Vista 1 and 2, and the Ponce De Leon Road Force Main Replacement. The design development and permitting of the above mentioned projects is complete, and is currently in the bidding/award or construction phases. Status: All projects will be complete by end of 2011. **Cost:** $2.5 million (est. fee) **Specific Role:** Hydraulic Modeling

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Master Plan Peak Flow Study**
**Miami-Dade County, FL**

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

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

Dr. Wang developed and successfully calibrated the InfoWorks CS hydraulic model for the Miami-Dade sewer transmission system that includes gravity sewer, 780 miles of force mains, and more than 1,000 pump stations. Due to the unprecedented size and uniqueness of the sewer system, this project provided many challenges in hydraulic modeling. He developed several innovative methods to meet the challenges and solve these problems. He performed the hydraulic analysis with the model for the Miami-Dade County Water and Sewer Department for the Department's 2009 capital improvement master plan. **Cost:** $4,500,000 **Specific Role:** Hydraulic 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 |
| **Antonio Torres, PE**<br>**Senior Principal Engineer** | **I/I Reduction** | **32** | **10** |

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, Industrial Engineering/BS, Chemical Engineering | PE / FL – Civil Engineering |

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

Antonio Torres, PE, has 32 years of experience in GIS, database management, modeling, scheduling, and field inspections. **Professional Organizations:** American Water Works Association, Water and Environment Federation, Data Processing and Analysis, Master Planning, GIS Mapping

## 19. RELEVANT PROJECTS

**a.**

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

**City of Coral Gables Infiltration – Inflow Reduction Program Phase 3**
**Coral Gables, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2016 | 2017 |

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

The Phase 3 portion of the SSES reporting is the implementation of the rehabilitation requirements identified within the Phase 2 Report and the documenting of the activities performed. Mr. Torres has coordinated all activities associated with the City's $2 million rehabilitation program. These activities included the review of over 70,000 linear feet of CCTV video necessary locate and recommend proper defect rehabilitation efforts. Once identified, Mr. Torres developed a series of GIS maps noting defect locations as well as repair recommendations to be utilized by the contractors. In total, approximately 30,000 lf of cured-in-place liner installations were completed, with pipe diameters ranging in size from 8 to 18-inches. 31 manhole repairs were conducted, and 7 via the application of cementitious or epoxy lining. Over – point repairs were also conducted in the various basins in advance of lining activities or on their own to address leaks/ structural issues as warranted. Mr. Torres has reviewed all pay applications to confirm items being billed for had been performed and were done so incompliance with the contract specifications. All rehabilitation activities have been included with the City's GIS based sewer atlas by Mr. Torres. **Cost:** $2.1 million (construction); $128,000 (fee) **Specific Role:** Project Engineer

**b.**

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

**Miami-Dade Aviation Department Master Plan/VSC Mandates**
**Miami, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2010 | Ongoing |

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

The Miami Dade Aviation Depart (MDAD) is responsible for providing engineering services, to several airports within Miami-Dade County, including Miami-International. As part of this project, Hazen and Sawyer has assisted MDAD in developing a sanitary sewer GIS atlas, SSES Phase 1 and 2 reports, development of a computerized hydraulic model of the collection and transmission system, annual reports to Miami-Dade RER, and development of a plan of compliance for addressing requirements of the new MDWASD consent decree. **Cost:** $1.6 million (fee)(est.) **Specific Role:** Project Engineer

**c.**

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

**City of Homestead I/I Reduction and Sewer Rehabilitation Program**
**Homestead, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2018 | 2018 |

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

Hazen developed an SSES plan through direct coordination with the Miami-Dade Department of Regulatory and Economic Resources (DRER) that has allowed the City to reduce I/I within its collection system while meeting the requirements set forth in the Miami-Dade County Code. The first task within the plan required development of a basin prioritization report via flow monitoring. As a cost-saving measure to the City, Hazen used existing night inflow information. **Cost:** $150,000 **Specific Role:** Project Engineer.

**d.**

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

**Sewer System Evaluation and Rehabilitation**
**Hialeah, 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

Engineering services to support the City's sewer condition assessment and rehabilitation program to reduce infiltration and inflow into the City's collection system consisting of approximately 6,500 manholes and over 400 miles of gravity mains and laterals. Hazen and Sawyer assisted in identifying I/I sources through activities such as manhole inspections, smoke testing, night flow isolation, video inspection review, and basin prioritization. Based on Hazen and Sawyer's recommendations and construction oversight, the repair work conducted over the course of the last decade resulted in wastewater transmitted from the City to MDWASD being reduced from approximately 1 billion gallons per month to 600 million gallons per month. **Cost:** $14 million **Specific Role:** Project Engineer

**e.**

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

**Sanitary Sewer Evaluation Survey Phase I and 2 Studies**
**Coral Gables, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2010 | 2012 |

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

The Miami-Dade County Code requires that Volume Sewer Customers perform a variety of activities related to collection system assessment, rehabilitation, and management. One such requirement concerns the completion of an SSES, followed by sewer rehabilitation and post-rehabilitation flow monitoring to assess compliance with the 5,000 gallon per day-inch-mile (gpdim) standard for infiltration and inflow (I/I). Since 2002, Hazen has assisted the City of Coral Gables in meeting sewer system rehabilitation needs via planning, budgeting, and program implementation using a collaborative approach. Most recently, Hazen and Sawyer prepared the City of Coral Gables' Phase I and II Sanitary Sewer Evaluation Survey (SSES) reports, and is currently assisting the City with I/I program implementation. **Cost:** $195,000 (fee) **Specific Role:** Data Collection and 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 |
| **Marta Alonso, PE, ENV SP<br>Associate** | **Permitting** | **15** | **11** |

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)* |
|---|---|
| BS, Civil Engineering; MS, Environmental Engineering;<br>MS/BS, Accelerated Honors Program | PE / FL & MD – Civil Engineering (FL 69745 / MD 35284) |

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

Marta P. Alonso, PE, has over 15 years of permitting experience, including environmental resource, potable water, wastewater, stormwater, air, hazardous material, tree removal, and municipal permits including building/zoning in Florida. **Professional Organizations:** American Society of Civil Engineers - Engineering Practice Policy Committee (2013-2018), Florida Section Membership Chair (2017-Present), Florida Section Vice President – District I (2015-2017)

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade Ocean Outfall Legislation Program<br>Miami-Dade County, Florida**

(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 is currently serving as Environmental Compliance Senior Technical Consultant/Permitting Lead on the Miami-Dade Water and Sewer Department's $2 billion, 11-year program, which includes upgrades to the County's 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. Ms. Alonso's responsibilities on the program include: ensuring regulatory compliance of over 20 projects (in planning, design and construction), identifying and tracking the permitting requirements on the program, identifying environmental impact minimization measures on each project, identifying measures to accelerate the regulatory agency approval process, presenting the program components to local regulatory agencies, reviewing environmental assessments and reports, identifying project environmental considerations including protected environmental resources and contamination sites, and progress reporting. Ms. Alonso also served as liaison to the Miami-Dade County WASD Consent Decree program **Cost:** $2 billion **Specific Role:** Permitting Lead/Environmental Compliance Senior Technical Consultant/Project Manager

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Seminole Tribe of Florida Hollywood Reservation - Deep Injection Well Permitting, Hollywood, Florida**

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

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

The project consists of the permitting and design of a deep injection well system for disposal of effluent from the Hollywood Reservation Water Treatment Plant, and concentrate disposal from the Hollywood Reservation Water Treatment Plant. Since the project location is within Tribal Lands, the project requires permitting and coordination with the United States Environmental Protection Agency. **Status:** This project is ongoing. **Cost:** $12 million (estimated construction) **Specific Role**: Permitting Engineer/Project Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Bear Cut Bridge and West Bridge Rehabilitation / HDD Water Main Replacement Project, Miami, Florida**

(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 (SFWMD), 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 **Specific Role:** Permitting Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Government Cut Utility Relocation Projects<br>Miami, Florida**

(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

The Government Cut Utility Relocation Projects consisted of the design-build replacement of a portion of the existing 54-inch force main from south Miami Beach to Fisher Island, beneath the Government Cut Channel, via micro-tunnel, and the replacement of the existing 20-inch water main from Port Island to Fisher Island beneath the Fisherman's Channel, via Horizontal Directional Drill. Close coordination with the FDEP, ACOE, DRER and the Miami-Dade County Department of Health, as well as expedited permitting was required to meet strict deadlines. **Status:** This project is ongoing **Cost:** $72 million **Specific Role:** Project Engineer/Permitting Engineer

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Woodrow Wilson Bridge Replacement Mega-Project<br>Washington, DC Metropolitan Area**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2007; CONSTRUCTION *(If applicable)*: 2013

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

The 13-year mega-project included the construction of two new six-lane spans of the bridge over the Potomac River, as well as the reconstruction of four adjacent interchanges (7.5 mile section of I-95). The project was coupled with an environmental program that included water quality monitoring, permitting of over 30 concurrent construction projects, regulatory coordination, environmental impact assessment, environmental impact tracking, and environmental mitigation. The environmental mitigation package included reforestation, wetland restoration, stream restoration, shoreline stabilization, and sea-grass transplantation projects. **Cost:** $2.4 billion **Specific Role:** Permit Manager/Environmental Compliance 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 |
| **Michael Vinas**<br>**Senior Field Coordinator** | **Construction Management** | **13** | **2** |

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)* |
|---|---|
| | NASSCO Certifications in PACP, MACP; Confined Space Safety in Construction - 29 CFR 1926 Subpart AA - 2 Hours; OSHA Permit-Required Confined Space Entry - OSHA 29 CFR 1910.146 - 2 Hours; OSHA Construction Occupational Safety and Health – 30 hours |

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

Michael Vinas has 13 years of experience serving as a construction manager, inspector, and project superintendent. His experience includes project management and supervision of and of construction activities; development of daily reports; review and approval of monthly pay applications; tracking and management of schedules/project progress and cost changes; and coordination with engineers-of-records, contractors, and stakeholders including residents, cities, utility companies, and permitting agencies. Most recently, he is serving as Senior Field Coordinator for various wastewater improvements project for the City of Hialeah, comprised of 9 different contracts.

## 19. RELEVANT PROJECTS

**a.**

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

**Pump Station and Force Main Construction Services**
**Hialeah, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2017 | Ongoing |

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

Hazen has been assisting the City of Hialeah with various wastewater improvement projects over many years. Most recently this included the design of thousands of feet of PVC force main, upgrades to 14 pump stations, and two Miami Dade billing meter stations. These projects were advertised in seven different contracts, and Mr. Vinas is currently serving as field coordinator for all contracts. Responsibilities resolution of field inquiries, periodic site inspections, completion of daily reports, conducting monthly progress meetings, review and approval of pay applications, coordination with the Contractor and City, coordination of permitting, as-built review and project closeout. Construction started in late 2017 and is anticipated to be completed by December 2020. **Cost:** $18.6 million (construction est.) **Specific Role:** Senior Field Coordinator

**b.**

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

**Influent Pump Station**
**City of Homestead, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2016 | 2019 |

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

The City of Homestead is currently constructing a master Influent Pump Station at their wastewater treatment facility. This pump station will transmit all flow from the City of Homestead to the WWTP headworks for treatment. The pump station will have a wet well that houses (3) 168 HP and (3) 70 HP submersible pumps. The project also includes the installation of a standby generator and the construction of an electrical building to serve the pump station. Mr. Vinas is currently serving as field coordinator. Responsibilities resolution of field inquiries, periodic site inspections, completion of daily reports, conducting monthly progress meetings, review and approval of pay applications, coordination with the Contractor and City, coordination of permitting, as-built review and project closeout. Construction started in January 2016 and is anticipated to be completed by June 2018. **Cost**: $6.1 million (construction est) **Specific Role**: Senior Field Coordinator

**c.**

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

**High Service Pump Replacement**
**Hallandale Beach, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2019 | 2020 (est.) |

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

The City of Hallandale Beach operates a High Service Pump Station at their water treatment plant to provide potable water to their distribution system. This project will replace the current high service pumps which have surpassed their service life and also includes providing a temporary high service pump station to provided uninterrupted service to the distribution system, along with various electrical improvements. Mr. Vinas will serve as Senior Field Coordinator for this project. Responsibilities include resolution of field inquiries, periodic site inspections, completion of daily reports, review and approval of pay applications, coordination with the Contractor and City, pump station startup, as-built review and project closeout. Construction started in May 2019 and is anticipated to be completed by April 2020. **Cost:** $5.6 million **Specific Role**: Senior Field Coordinator

**d.**

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

**Flagler County Line Corporate Park**
**Hialeah, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| N/A | Ongoing |

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

Hazen has been assisting the City of Hialeah with limited construction inspection services associated with the Flagler County Line Corporate Park, which is located in the City's annexation area and totals approximately 160 acres. The project includes the installation of a pump station, sanitary sewer collection system, and potable water infrastructure to serve various buildings in the Corporate Park. Mr. Vinas is serving as Senior Field Coordinator, assisting with resolution of field inquiries, startup and testing activities, and coordinating with the City on project status. **Cost:** $120,148 (fee) **Specific Role:** Field Coordinator

**e.**

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

**NE 172 Street Stormwater Pump Station Rehabilitation**
**North Miami Beach, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2017 | Ongoing |

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

The City of North Miami Beach owns the NE 172 Street Stormwater Pump Station which is comprised of a wet well structure that houses five submersible pumps, a flow diversion structure, and a pollution control structure. Mr. Vinas is serving as Senior Field Coordinator for upgrades to this station which includes pump and piping rehabilitation, installation of new flow diversion and pollution control structures, and installation of all new electrical and control components. Responsibilities include resolution of field inquiries, periodic site inspections, completion of daily reports, review and approval of pay applications, coordination with the Contractor and City, pump station startup, as-built review and project closeout. Construction started in early 2018 and is anticipated to be completed by July 2019. **Cost**: $550,000 **Specific Role**: Senior Field Coordinator

## 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 Bowles, PE, ENV SP**<br>**Senior Associate** | **Sustainability** | **16** | **6** |

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)* |
|---|---|
| MSEnvE, Virginia Tech, 2012<br>BSCE, Virginia Tech, 2003 | PE / VA – Engineering<br>PE / NC – Engineering |

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

Evan Bowles, PE, ENV SP, has extensive experience in wastewater collection and treatment. His collection experience includes hydraulic analysis, master planning, pumping station design, and gravity sewer design. Mr. Bowles also has broad experience in the planning, management, and design of wastewater treatment facilities. He serves as the corporate lead of Hazen and Sawyer's Sustainability Service Group, wherein lies his passion for sustainable design of resilient wastewater infrastructure. **Professional Organizations:** Water Environment Federation, Institute for Sustainable Infrastructure

### 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Cocoplum 1 Pump Station and Force Main, City of Coral Gables. 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

Mr. Bowles served as the sustainability lead for the replacement of an existing pump station and force main owned and operated by the City of Coral Gables. The existing pump station had elevated runtimes, and thus required a capacity increase, which in turn allowed for increased system-wide operating efficiencies. Mr. Bowles lead the planning efforts to identify opportunities for increased elements of sustainability. The Envision framework was used to coordinate multi-departmental initiatives into the design. The owner is in the process of achieving third party verification for project award. **Cost:** $1.5 million (est.) **Specific Role:** Sustainability Lead

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Ocean Outfall Legislation Compliance Plan Validation, Miami, 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

Mr. Bowles led and conducted the Envision analysis as part of the effort to validate the findings and recommendations of Miami-Dade WASD's (MDWASD) Ocean Outfall Legislation (OOL) Compliance Plan. The OOL mandated that all utilities discontinue use of ocean outfalls from wastewater treatment facilities by 2025, thereby requiring alternate forms of treated effluent disposal – including reuse and aquifer recharge. MDWASD identified seven feasible alternatives to meet this requirement, each of which requiring varying amounts of new or replacement infrastructure throughout their collection and conveyance system. MDWASD identified preferred alternative, requiring more than $5 billion dollars in system-wide construction projects. Hazen and Sawyer conducted the validation of these findings, utilizing both financial and triple-bottom-line analysis. The Envision Sustainable Infrastructure Rating System was leveraged to identify sustainable practices throughout all seven viable alternatives, and served as an objective method to determine which alternative best fulfilled triple-bottom-line elements. **Cost:** $5 billion (est.) **Specific Role:** Sustainability Lead

**c.**

(1) TITLE AND LOCATION *(City and State)*: **West Park Equalization Facility, Nashville Metro Water Services, Nashville, TN**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2016; CONSTRUCTION *(if applicable)* 2018

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

Mr. Bowles assisted with the Envision pre-assessment audit, assessment, and Institute for Sustainable Infrastructure's verification of the new equalization facility within West Park, a dilapidated park that no longer served the needs of the surrounding community. After completion of the 60% design package, the project team utilized the Envision framework to measure the sustainable implements of the project to enhance the utility design and valuable recreational community asset. The project achieved a Platinum rating, which is the highest possible award. **Cost:** $15.1 million **Specific Role:** Sustainability Lead

**d.**

(1) TITLE AND LOCATION *(City and State)*: **SWIFT Phase 3 Demonstration Facility, Hampton Roads Sanitation District, Suffolk, VA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2017; CONSTRUCTION *(if applicable)* 2018

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

Mr. Bowles served as the sustainability lead for the planning, design, and construction of the 1-mgd advanced water treatment demonstration facility that serves as the treatment and performance basis for HRSD's Sustainable Water Initiative for Tomorrow (SWIFT) program. The Envision Sustainable Infrastructure Rating System was used as the basis for sustainable performance on the project. The facility performs advanced water treatment of final effluent from the Nansemond Treatment Plant, and recharges the Potomac Aquifer with water treated to meet drinking water standards, and conditioned to be compatible with existing aquifer geochemistry. The success of the demonstration facility supports the efforts to permit the proposed full-scale program in which over 100-mgd of treated wastewater will ultimately be diverted from surface water discharge, and instead used to recharge the aquifer which will serve as a sustainable groundwater source for the eastern Virginia region. At the full-scale operation, the program will also significantly reduce nutrients discharged to the Chesapeake Bay, potentially mitigate the impacts of sea level rise, and improve groundwater conditions due to increased supply and reduced saltwater intrusion. **Cost:** $24.1 million **Specific Role:** Sustainability Lead

**e.**

(1) TITLE AND LOCATION *(City and State)*: **New York City DEP Bureau of Wastewater Treatment – Rockaway WWTP Basis of Design, New York, NY**

(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

Mr. Bowles lead and conducted the Envision analysis as part of the effort to determine the long-term fate of the 40-mgd Rockaway WWTP, DEP's smallest, most under-utilized, least energy efficient, and most vulnerable to sea level rise wastewater treatment plant. Utilization of the Envision framework allowed an objective means of measuring the sustainable attributes of the three study alternatives: maintain Rockaway for continued treatment, or consolidate flow to 26th Ward WWTP via horizontal directional drill or tunnel boring. Harvard University's Graduate School of Design, the developers of the Envision rating system, conducted a peer review of the assessment, and utilized the findings of the assessment to execute a financial model of the considered alternatives. **Cost:** $1.8 million **Specific Role:** Envision Lead

## 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 Hernandez, PE, ENV SP**<br>**Principal Engineer** | **Sustainability** | **6** | **6** |

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, University of Miami, 2013, Civil Engineering<br>BS, University of Miami, 2013, Environmental Engineering | PE / FL – Civil/Environmental Engineering |

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

David Hernandez, PE, ENV SP, has 6 years of experience in the water/wastewater industry. He has been involved in wastewater design and construction and has worked on sustainability projects using the Envision Rating System. **Professional Organizations:** Florida Water Environment Association - South Florida Chapter Chair - Young Professionals Chair; American Water Works Association; Water Environment Federation

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Sawgrass Wastewater Treatment Plant Clarifier Scum System Improvements, City of Sunrise, FL**

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

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

Hazen is currently providing design, bidding, and construction administration services to the City of Sunrise to improve its clarifier scum handling system for four of its existing clarifiers. The current scum handling system uses pneumatic ejectors to send clarifier scum to an existing sludge holding tank. Hazen is currently in the design phase of this scope, which will replace the existing scum handling system with 2 scum wet wells (1 common scum wet well for two clarifiers) with horizontal recessed impeller pumps that will send clarifier scum to an existing sludge holding tank. Mr. Hernandez served as the construction manager for this work. **Status:** Construction Substantial Completion reached May 2019. **Cost:** $65,841 **Specific Role:** Construction Manager

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Miami-Dade County Ocean Outfall Legislation (OOL) Program MDWASD, 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 OOL Program is Miami-Dade's approach to comply with the Ocean Outfall Legislation. One of the tasks under the OOL Program was to evaluate different treatment technologies for the proposed West District Wastewater Treatment Plant. Mr. Hernandez was responsible for using the Envision Rating System as a method for alternative analysis for the different treatment alternatives. **Cost:** $2 billion **Specific Role:** Project Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Plan of Compliance (POC) Various Municipalities**

(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

Mr. Hernandez is providing Plan of Compliance (POC) services for the cities of North Miami, Coral Gables, Hialeah, Homestead, and North Miami Beach; and the Miami-Dade Aviation Department (MDAD). The documents defined procedures, programs, staffing requirements, and associated costs necessary to implement and maintain a Capacity Maintenance Operation and Management (CMOM) program based on County/EPA requirements. As part of this process, Mr. Hernandez developed the standard operating procedures for wastewater overflows, gravity sewer, force main and pump station maintenance and operation. The documents were submitted to the regulatory agency in March 2016 as required. **Cost:** $230,000 (fee for Coral Gables POC) **Specific Role:** Plan of Compliance Services

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Cocoplum 1 Pump Station (PS-CC1) and Force Main Upgrade Coral Gables, FL**

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

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

The project involves improvements to the Cocoplum 1 Pump Station and discharge force main that requires modifications to the station's mechanical, structural, electrical, and instrumentation systems. Improvements include the installation of a new wet well and valve/meter box and associated piping. A new liquid propane powered generator was also installed. The new 12-inch PVC force main from the station to the City's existing transmission main in Old Cutler Road will eliminate the need for PS D to re-pump Cocoplum 1, as it currently does, thus freeing up capacity at station D. Under the City's new sustainability requirements, the project was also evaluated for Envision certification. Based on the station/force main design consideration and improvements to the area surrounding the station, the City will apply for a Silver award. Mr. Hernandez has been involved in the Envision evaluation and the verification process. **Cost:** $1.8 million **Specific Role:** Envision Evaluator/Award Coordinator

**e.**

(1) TITLE AND LOCATION *(City and State)*: **City of Coral Gables Pump Station Evaluation Coral Gables, 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

Hazen and Sawyer was responsible for assessing the condition of the City of Coral Gables' wastewater pump stations. Mr. Hernandez was part of the team who conducted the field work to assess the stations and provide recommendations for rehabilitation and upgrades. **Cost:** $35,000 (for report) **Specific Role:** Inspector

## 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 |
| **Craig Wells, PE, ENV SP**<br>**Associate Vice President** | **Resiliency** | **25** | **<1** |

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

**Hazen and Sawyer, Tampa, FL**

| 16. EDUCATION (DEGREE AND SPECIALIZATION) | 17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)* |
|---|---|
| BS, Civil Engineering | PE / FL – Civil Engineering<br>PE / MI – Civil Engineering |

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

Craig Wells, PE, ENV SP, has the capability to apply the principles of sustainable design to infrastructure projects. His experience includes managing, planning, design, permitting and construction and bidding phase services for water and wastewater systems, stormwater management systems, and various infrastructure improvements. His area of technical expertise is assessing climate vulnerability of infrastructure and creating climate resiliency. He has conducted climate vulnerability assessments for several utilities in coastal Florida and Georgia and assisted in the planning and design of hardening measures to make those utilities climate resilient. He also has presented on the topic at professional conferences in Florida, Texas, Georgia and South Carolina.

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **City of Sarasota Lift Station 87, Sarasota, FL**

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

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

Mr. Wells provided a climate resilience evaluation for the City's Master Lift Station #87. The Sarasota County building code required the building finish floor be set 1.0' above the FEMA 100-year flood elevation of 9.0'. However, the Category 3 storm surge elevation, determined for the site in year 2040, calculated with the NOAA high curve for the region showed an elevation of 22.0' was necessary. As a result, critical infrastructure was raised to elevation 23.0' and noncritical was placed on the first floor and designed to operate in a flooded condition. **Cost:** $26 million **Specific Role:** Resilience Engineer

**b.**

(1) TITLE AND LOCATION *(City and State)*: **St. Augustine WWTP Climate Resiliency Analysis, St. Augustine, 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

Mr. Wells provided a climate resiliency survey and analysis to assess the vulnerability of the City's wastewater treatment plant (WWTP) to flooding, and to evaluate the impact of storm surge and sea level rise on the facility today and out to the year 2100 with interim assessments at years 2030, 2050 and 2070. To support the City's planning efforts, the analysis also projected future Mean Higher High Water (MHHW) sea level elevations for the area adjacent to the WWTP based on the established MHHW for the St. Augustine region. **Cost:** $80,000 (fee) **Specific Role:** Resilience Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **WWRF Operations Building Preliminary Engineering, City of Largo, FL**

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

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

As Resilience Engineer for this project, Mr. Wells provided a climate resilience evaluation for the City of Largo WWRF, which led to establishing the Category 5 storm surge elevation and future 100-year floodplain evaluation out to year 2100 to be used as the base elevation for hardening of all vulnerable components of the facility. This work began in 2017, the hardening is ongoing, and the evaluation is finished. **Cost:** 875,000 (design fee) **Specific Role:** Resilience Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **City of Tampa Howard F. Curren WWTP Master Plan, Tampa, 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

Mr. Wells provided a climate resilience evaluation for Phase 1 of master planning for this wastewater treatment plant that is permitted to treat 96 mgd with a Type I two-stage, high rate (pure oxygen and fine bubble aeration) activated sludge biological nitrification/denitrification process. **Cost:** $2.5 million **Specific Role:** Resilience Engineer

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Pinellas County Capri Isle Pumping Station & Madeira Beach Pressure Reducing Valve Improvements, Treasure Island, FL**

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

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

Mr. Wells provided resiliency engineering for project that included a Preliminary Engineering Report (PER), 60% and 90% designs, permitting, bidding, Civil 3D documents and construction observation services for pump station rehabilitation. The project entailed site and stormwater system improvements, and climate resiliency efforts such as raising exterior louver elevations 1 foot above current Category III storm surge elevation of 16 feet. **Cost:** $5 million **Specific Role:** Resilience 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 |
| **Evan Curtis, PE**<br>**Senior Associate** | **Instrumentation** | **25** | **18** |

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

**Hazen and Sawyer, Boca Raton, FL**

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

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

Evan Curtis, PE, has considerable experience designing and commissioning various water and wastewater utility projects, most significantly in the area of instrumentation and controls (I&C). 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; Project Management; Instrumentation and Controls Design; Radio Communication Studies; SCADA System Design; Construction Phase Services; PLC and HMI Programming

## 19. RELEVANT PROJECTS

**a.**

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

**Water and Wastewater Master Plan**
**Riviera Beach, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2013 | N/A |

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

☒ Check if project performed with current firm

I&C Engineer responsible for evaluating existing instrumentation and control systems and recommending capital improvements at the City's water treatment plant and remote pumping stations. The project included interviewing plant operations and maintenance staff and inspecting instrumentation and control systems. Developed capital improvement cost estimates and implementation schedules. **Cost:** $534,270 **Specific Role:** I&C Engineer

**b.**

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

**Pine Island Road Pump Station**
**Cooper City, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2010 | 2012 |

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

☒ Check if project performed with current firm

I&C engineer responsible for design and construction phase services for a new 4 MGD water distribution re-pump station. The design featured 3 variable speed pumps with fully automatic pressure and flow controls, emergency power generator, digital security cameras and a high speed communication link to the water treatment plant using a secure virtual private network over the Internet. Communication links utilized landline broadband service from the telephone company with cellular communications as a backup. **Cost:** $1.8 million (estimated fee to date for current contract). **Specific Role:** I&C Engineer

**c.**

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

**Master Pump Station 310**
**Broward County, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2015 | |

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

☒ Check if project performed with current firm

Hazen provided professional consulting services to Broward County Water and Wastewater Services for the design and construction management of a new inline wastewater booster pump station including primary pumps, jockey pumps, seal water system, and on-site lift station. The control system features PLC-based automated controls for the variable speed booster pumps and pump discharge throttling valves. **Cost:** $3.2 million (construction, est.) **Specific Role:** I&C Engineer

**d.**

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

**Water Conserv II Transmission Main Booster Pump Station Improvements, Winter Garden, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| Ongoing | Pending |

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

☒ Check if project performed with current firm

I&C engineer responsible for the design of a new 90-mgd inline booster pump station to increase the capacity of an existing reuse water transmission system. The design features seven 450 HP VFD driven vertical can pumps, motorized discharge control valves, and surge control facilities. I&C design includes a PLC based control panel, touchscreen operator interface unit, digital video surveillance system, access control system, and broadband microwave Ethernet link to a control room at a remote site. **Cost:** $18 million **Specific Role:** I&C Engineer

**e.**

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

**Water and Wastewater Telemetry Reliability Upgrade**
**City of Boca Raton, FL**

(2) YEAR COMPLETED

| PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
|---|---|
| 2018 | 2021 (est.) |

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

☒ Check if project performed with current firm

Project Manager and I&C engineer responsible for the design of a 288-site radio telemetry system. The project included the design of upgrades to remote telemetry units, 900 MHz licensed radio base station equipment, the addition of cellular communication links, and electrical improvements. The upgraded system replaces the existing serial Modbus protocol with Ethernet DNP3 protocol featuring event logging at each RTU and report-by-exception communications. Cellular communications will be provided to each site and both cellular and licensed 900 MHz radios at critical sites with automatic failover between cellular and radio. **Cost:** $4.38 million (construction) **Specific Role:** Project Manager/I&C 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 |
| **James Broad**<br>**Master Electrician** | **Electrical** | **51** | **34** |

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)* |
|---|---|
| | FL-CME |

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

For over 51 years, James Broad has participated in the decision and implementation of numerous instrumentation and electrical assignments, ranging from major municipal treatment plants, regional pump stations, city-wide telemetry systems and SCADA systems. Mr. Broad has been instrumental in his involvement during the construction phase of projects by ensuring the proper installation of instrumentation and electrical disciplines. **Professional Organizations:** Instrumentation Society of America.

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Coral Gables Pump Station and Force Main Improvements**
**Coral Gables, 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 has assisted the City of Coral Gables with its wastewater system needs for over 20 years. During this time period, the firm has performed the evaluation, design, permitting bid/award and construction oversight of over 15 pump stations and miles of force main. The most recent improvements involve upgrades to Pump Stations City 2, City 4B, Police as well as the Pump Station D Force Main Replacement project. Infrastructure improvements were designed and successfully permitted through MDWASD, DERM, Miami-Dade County Public Works, and other agencies. These pump station and force main projects were successfully bid and awarded. The City 4B and Police Pump Station projects have been constructed and are currently in operation, while the City 2 Pump Station and Pump Station D Force Main projects are currently in construction. **Cost:** $2.95 million (construction cost) **Specific Role:** Electrical Engineer

**b.**

(1) TITLE AND LOCATION *(City and State)*: **North Gables Flood Mitigation Project**
**Coral Gables, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2000; CONSTRUCTION (If applicable): 2002

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

In the early 2000s, the City experienced substantial flooding which led to an effort to mitigate stormwater deficiencies. The North Gables Flood Mitigation project sought to improve level of service via the construction of a stormwater pumping station and effluent discharge works. Hazen was selected to provide detailed design, permitting and construction management services for the new facilities which would serve to mitigate flooding experienced in the City. The station is comprised of two 10-ft by 10-ft by 20-ft wet wells and associated screening structures and involved the design and installation of 5,500 lf of 24-inch force main, 2,200 lf of exfiltration trench along Granada Boulevard, and 900 lf of 24-inch gravity main. **Cost:** $1,377,000 **Specific Role:** Electrical Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Pump Station Improvement Program**
**Hialeah, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2009; CONSTRUCTION (If applicable): 2013

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

The City's wastewater collection and transmission system is comprised of over 400 miles of gravity sewers, 31 miles of force mains, and 84 pump stations. The majority of the existing infrastructure is deteriorating. In 2004, the City requested Hazen formulate a Corrective Action Plan (CAP) to satisfy the requirements set forth by regulatory agencies. Hazen developed a hydraulic model capable of analyzing manifolded pumping stations and downstream gravity systems. Since the issuance of the 2004 CAP, the City has requested Hazen oversee the implementation of the improvements. Hazen designed the upgrades to more than 25 pump stations and 5,200 lf of force mains. **Cost:** $5.5 million **Specific Role:** Electrical Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **North Miami Beach Pump Station Improvement Program**
**North Miami 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

Hazen has been assisting the City of North Miami Beach with water, wastewater and stormwater improvements for over 25 years. Most recently, Hazen and Sawyer's provided assistance with the City's Pump Station Improvement Program (PSIP). As part of the PSIP, the City proposed upgrades to 10 pump stations. Hazen was responsible for designing and permitting two of the stations on a fast track basis to obtain approval from DERM as well as the State Revolving Loan Fund (SRF), the entity funding the project. Once complete, the City requested that Hazen perform a constructability review of all 10 stations based our knowledge of the City's standards and experience. In order to establish one source of responsibility during the bidding and construction phases, the City directed Hazen to provide bidding as well as construction management services for all 10 pump stations. **Status:** Design Completed 2013, Construction Ongoing **Cost:** $353,000 (fee), $3.2 million (construction) **Specific Role:** Electrical Engineer

**e.**

(1) TITLE AND LOCATION *(City and State)*: **South District Wastewater Treatment Plant 285-mgd High Level Disinfection Project, 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

Miami-Dade County is in the process of implementing a landmark wastewater reuse program. The first phase involves completing a fast-track project encompassing the design and construction of a 285-mgd (peak flow) High Level Disinfection (HLD) facility, one of the largest in the world. This new facility must not only meet FDEP's HLD reuse standards, but also must comply with primary drinking water standards. The effluent from this facility may also tie into a reuse project such as a groundwater recharge facility or the Comprehensive Everglades Restoration Plan as a source of fresh water replenishment to the Biscayne Bay. **Cost:** $660 million (estimated) **Specific Role:** Electrical 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 |
| **Orlando Castro, PE, DBIA**<br>**Senior Associate** | **Structural** | **14** | **11** |

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)* |
|---|---|
| BSCE, Civil Engineering | PE / FL – Civil Engineering (FL 79141)<br>PE / NY – Civil Engineering<br>GC / FL – General Contractor |

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

Orlando Castro, PE, DBIA, has over 14 years of experience in the planning, design and construction of water and wastewater infrastructure. Orlando serves as the regional lead for the corporate Program Management/Construction Management practice group. **Professional Organization:** American Water Works Association, National Society of Professional Engineers, Florida Engineering Society, Adjunct Professor at Florida Atlantic University, Chair - AWWA Groundwater Committee, National Water Well Association, Tau Beta Phi

## 19. RELEVANT PROJECTS

**a.**

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

**City of Coral Gables Cocoplum 1 Pump Station and Force Main**
**Coral Gables, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| Ongoing | Pending |

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

Mr. Castro currently serves as the Structural Engineer-of-Record for the design of a new pump station and elevated platform for the generator and electrical equipment in the Cocoplum community of Coral Gables. His responsibilities also included the design of the pipe supports for the aerial crossing of the force main. This project is currently under review by the City's Building Department and is expected to be bid in late 2019. During construction his responsibilities will include review of RFI's and shop drawings and he will provide specialty structural inspections as needed. **Cost:** $1.85 million **Specific Role:** Structural Engineer-of-Record

**b.**

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

**Largo Wastewater Reclamation Facility Influent Pump Station and Headworks Improvement, City of Largo, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2015 | 2018 |

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

Mr. Castro was the Structural Engineer-of-Record for the design of a new influent pump station and pretreatment facility for a flow of 43 million gallons per day (mgd). The project also involves preparation of the structural design criteria for a 5-million-gallon pre-stressed concrete equalization tank, design of the rehabilitation to existing pump stations within the wastewater reclamation facility, and design of the conversion of the existing chlorine gas building to a new electrical facilities building. He is currently assisting with design services during the construction of the facility. **Cost:** $24.1 million **Specific Role:** Structural Engineer-of-Record

**c.**

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

**Fort Lauderdale 2nd Avenue Water Tank**
**City of Fort Lauderdale, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2008 | 2018 |

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

Hazen provided design, permitting, and construction management services for rehabilitation of a 60-year-old, 1-million-gallon elevated water storage steel tank. The project consisted of blasting away the old lead paint, applying a new coating system to the tank, replacing ladders and guardrails that were unsafe and did not meet OSHA standards, and performing repairs on deteriorated sections of the tank. Design included evaluating other types of water storage options. Services during construction included part-time inspections. Mr. Castro served as the Special Inspector for the project. **Cost:** $859,113 **Specific Role: Structural Special Inspector**

**d.**

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

**Sunrise Sawgrass Wastewater Treatment Plant (WWTP) Emergency Air Header Repair Project, City of Sunrise, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2014 | 2014 |

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

Mr. Castro served as Project Manager and Structural Engineer-of-Record responsible for the design of the emergency repairs of the air piping and pipe supports that serve the aeration basins that were damaged when the pipe supports were damaged by a vehicle collision. Mr. Castro worked alongside the contractor selected by the City for this Construction Manager at-Risk (CMAR) project to expedite the design and permitting process and place the air piping with its permanent pipe supports in service as soon as possible. A temporary pipe was put in place at the same time the new pipe was placed. The plant remained operational during design and construction. The pipe repair was essential to keep the wastewater treatment plant's aeration basin in service. He also performed specialty inspections and provided final certifications to close out the permit required by the Building Department. **Cost:** $200,000 **Specific Role:** Project Manager/Structural Engineer-of-Record

**e.**

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

**River Oaks Reservoir Rehabilitation**
**JEA, Jacksonville, FL**

| (2) YEAR COMPLETED | |
|---|---|
| PROFESSIONAL SERVICES | CONSTRUCTION (If applicable) |
| 2011 | 2011 |

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

Mr. Castro served as Structural Engineer-of-Record for the structural rehabilitation of a 1.4-million-gallon ground water storage tank constructed in the 1940s that was deteriorated by the hydrogen sulfide gas in the water. Mr. Castro led the design team and during construction was responsible for the shop drawing reviews and detailed structural inspections. **Cost:** $611,522 (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 |
| **George Brown, PE**<br>**Senior Associate** | **Paving and Drainage** | **25** | **23** |

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)* |
|---|---|
| BS, Environmental Engineering | PE / FL – Environmental Engineering |

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

George Brown, PE, has 25 years of experience in the design and construction of water and wastewater infrastructure along with managing multidisciplinary teams from master planning, conceptual planning, detailed design, and permitting through construction and startup. **Professional Organizations:** American Water Works Association, Florida Section Risk Management/Safety Committee

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Parkway Street Infrastructure and Roadway Improvements, Town of Jupiter, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014; CONSTRUCTION *(If applicable)* 2015

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

Mr. Brown recently served as Project Manager and Civil Engineer-of-Record for the design and permitting of the Town of Jupiter's Parkway Street Infrastructure and Roadway Improvements project. Key features of the project included: 1) 400 feet of 30-inch diameter exfiltration trench for improvement of drainage for a 15 acre area to facilitate future development of an 800+ space parking garage on the south side of Parkway Street; 2) removal of Parkway Street and realignment of the road 15 feet south of the original alignment; 3) elevated speed table to calm traffic; 4) stormwater catch basins along north and south side of realigned roadway; 5) new curb and gutters; 6) pavement striping and road sign design; 7) new American's with Disabilities Act compliant sidewalks and walkways; 8) outfall weir box structure to control exfiltration trench; 9) modification of Loxahatchee River District owned sanitary sewers to accommodate the road realignment; and 10) crosswalk utilizing pavers to enhance the pedestrian experience. **Cost**: $420,355 **Specific Role:** Project Manager and Civil Engineer-of-Record

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Winson WTP Lime Softening Plant Rehabilitation, City of North Miami, 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

Mr. Brown recently served as the project manager and Civil and Mechanical Engineer-of-Record for the design and permitting of $20 million in upgrades to the City of North Miami's Winson Water Treatment Plant (WTP). **Cost:** $19 million (estimated) **Specific Role:** Project Manager

**c.**

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

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

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

Mr. Brown served as the Project Manager and Engineer-of-Record (civil, mechanical, landscaping, and irrigation) 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). The design and building permit acquisition for this project were completed in 2012. **Cost:** $25 million (estimated construction) **Specific Role:** Project Manager

**d.**

(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)* 2024 (est.)

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

Mr. Brown served as the Project Engineer for delivery of a new stormwater master plan and design to address chronic flooding and other stormwater management issues in the City of Fort Lauderdale. 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. The City covers approximately 23,000 acres of highly urbanized neighborhoods with much of its coastal land area lying within the flood plain. **Cost:** Estimated total fee: $20 million ($9.9 million to-date) **Specific Role:** Project Engineer

**e.**

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

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

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

Mr. Brown served as the Project Manager and general, civil and mechanical design engineer during the design, permitting and construction phases for 15 water supply wells and associated conveyance piping at the City's Prospect, Dixie and Floridan Aquifer Wellfields, at a construction cost (in millions) of: Prospect: $2.0; Dixie: $9.2 and Floridan Aquifer: $3.0. He has extensive knowledge of the City's water supply infrastructure and future water supply plans. **Cost:** $14.2 million **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 |
| **Jennifer McMahon, PE**<br>**Associate Vice President** | **Paving and Drainage** | **21** | **13** |

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<br>BCE, Civil Engineering | PE / Florida – Civil Engineering (FL 56800) |

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

Jennifer McMahon, PE, has over 21 years of extensive experience in the water and wastewater industry including project management; and civil, mechanical, and process design of potable water treatment and distribution systems and wastewater treatment, transmission, and collection systems. Ms. McMahon is skilled in detailed design, project management, and construction management; and provides quality control reviews for numerous design projects. She also has a proven history of delivering projects on budget and on schedule, as demonstrated on numerous projects for multiple clients. **Professional Organizations**: American Society of Professional Engineers

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **McKinley Street Interceptor, City of Hollywood, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2009; CONSTRUCTION (If applicable) 2013

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

This 6,400-foot-long, 66-inch PCCP sanitary sewer serves as the main conduit for raw wastewater to enter the City's 55.5-mgd regional wastewater treatment plant. The project involved design and permitting of jack and bore crossings through FDOT and FEC Railway right-of-way, extension of system force mains ranging in size from 4 to 54 inches, which allowed the existing 60-inch interceptor along Taft Street to be removed from service for rehabilitation. **Cost**: $12 million **Specific Role:** Preliminary and detailed design, permitting and bid services

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Master Pump Station 440 Modifications, Broward County Water and Wastewater Services, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2008; CONSTRUCTION (If applicable) 2015

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

Ms. McMahon served as Project Manager and Lead Design Engineer for the upgrade of MPS 440 in-line booster wastewater pumping station. Upgrades included replacement of three primary pumps (250 HP each), emergency generator, seal water system, and other miscellaneous improvements. In addition, a jockey pump (60 HP) was added to accommodate low flow conditions. Bypass pumping was also included as part of this project. Project responsibilities included management, preparation of updated basis of design report, preparation of detailed design documents, multidisciplinary design coordination, permitting, bid services, and construction administration. **Cost**: $3.16 million **Specific Role:** Project Manager and Lead Design Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Wastewater Reclamation Facility Reuse Expansion to 7.5 mgd, City of Miramar, 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

Ms. McMahon served as Lead Design Engineer for the Miramar Wastewater Reclamation Facility Reuse Expansion. The reuse facilities were expanded from 4-mgd to 7.5-mgd. Hazen also assisted the City in obtaining a paper uprating of existing facilities from 4-mgd to 5-mgd. New facilities included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, a ground storage tank, and high service pumps. **Cost:** $5.5 million **Specific Role:** Lead Design Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Design Criteria Package for Las Olas Boulevard Force Main, Fort Lauderdale, 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

Ms. McMahon served as Project Manager and Lead Design Engineer for the development of a Design Criteria Package for the City of Fort Lauderdale's Phase II 16-Inch Force Main along Las Olas Boulevard. This force main is required to improve sanitary service along the Las Olas Boulevard corridor and connects Pump Station D-37 and Pump Station D-38 to an existing force main under the Intracoastal Waterway. **Status:** DCP is scheduled to be issued in Spring of 2019 for RFP. **Cost:** $2.4 Million **Specific Role:** Project Manager and Lead Design Engineer

**e.**

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

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2016; CONSTRUCTION (If applicable) Ongoing

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

Ms. McMahon serves as Lead Design Engineer for two new stormwater pumping stations within the City of Fort Lauderdale. The first station has a capacity of 16.5 mgd and the second station has a capacity of 81 mgd. Each pump station is designed to accommodate future phased increases of stormwater pumping capacity to account for potential expansions in service areas. Each station incorporates submersible pumps and influent water quality technology to reduce impacts of receiving surface waters. The stations have been designed to account for a future rise in sea level with elevated floor plans where applicable. One pump station is planned for construction in an area of high visibility. This station was designed with structures to blend into the surrounding area, including planned native landscaping to camouflage the proposed infrastructure. **Cost**: $ **Specific Role:** Lead 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 |
| **Keith Dinnen, PE**<br>**Senior Principal Engineer** | **Instrumentation** | **14** | **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)* |
|---|---|
| BSEE, Electrical Engineering | PE / Florida – Electrical Engineering |

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

Keith Dinnen, PE, is an Instrumentation and Control Systems Engineer with 14 years of experience implementing automation and electrical power systems for municipal, industrial, and commercial markets. **Professional Organizations:** International Society of Automation (ISA); American Water Works Association (AWWA); Water Environment Federation (WEF); Florida Water Environment Association (FWEA); American Society of Civil Engineers (ASCE)

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Reverse Osmosis Instrumentation & Controls (I&C) Design**
**Hallandale Beach, 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

Lead I&C Engineer for a 2-mgd Reverse Osmosis expansion at the Hallandale Beach Water Treatment Plant. The project includes a 350-Hp membrane feed pump, a reverse osmosis membrane softening skid, chemical metering pumps, and associated control system upgrades. Project responsibilities included development of detailed process and instrumentation drawings (P&IDs) and development of control narratives and specifications. **Specific Role:** Lead I&C Engineer

**b.**

(1) TITLE AND LOCATION *(City and State)*: **I&C Master Plan for 47-mgd Water Treatment Plant**
**West Palm Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2008; CONSTRUCTION (If applicable) 2007

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

I&C Engineer responsible for evaluation of existing conditions and development of a comprehensive plan for improving and modernizing the plantwide I&C system for the City of West Palm Beach's Water Treatment Plant. **Specific Role:** I&C Engineer

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Broward County NRWWTP Fine Bubble**
**Broward County, FL**

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

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

Mr. Dinnen served as Lead Instrumentation Engineer responsible for the design of the aeration system. **Specific Role:** Lead Instrumentation Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Hollywood Wastewater Treatment Plant Improvements,**
**Seminole Tribe of Florida, Hollywood, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing; CONSTRUCTION (If applicable) 2010

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

Mr. Dinnen is currently designing the instrumentation and control system for a new 3-mgd wastewater treatment facility for the Seminole Tribe's Hollywood Reservation. The project includes design of a wastewater treatment facility using sequencing batch reactors (SBR) for the treatment of 3 mgd of annual average flow with space planning for expansion to treat 6 mgd of annual average flow. The new facility will be constructed on a new project site and include a headworks facility with odor control, SBRs with equalization, a blower facility, aerobic digesters, an electrical building designed to meet "safe room" level of protection, an emergency backup power system, a chemical facility, an injection well pump station, an operations building designed to meet "safe room" level of protection, a sludge dewatering system, and an effluent disposal pipeline to transmit flow from the new site to the injection wells at the existing Hollywood wastewater treatment site. **Specific Role:** I&C Engineer

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Plantwide I&C Assessment**
**North Miami Beach, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2010; CONSTRUCTION (If applicable) N/A

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

Plantwide assessment of existing I&C and SCADA system conditions, including a report with detailed recommended improvements and cost estimates. **Specific Role:** I&C 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 |
| **Bernard Steiger, PE**<br>**Senior Associate** | **HVAC/Plumbing** | **40** | **12** |

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

**Hazen and Sawyer, Tampa, FL**

| 16. EDUCATION (DEGREE AND SPECIALIZATION) | 17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)* |
|---|---|
| BSME, Mechanical Engineering | PE / FL – Mechanical Engineering |

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

Bernard Steiger, PE, has over 35 years of engineering experience in all phases of design and construction administration. He is responsible for design and quality control of drawings and specifications for water and wastewater treatment systems; pump stations; air pollution control systems; heating, ventilating, and air conditioning systems; process and fluid flow piping systems; heat and energy transfer systems; material transfer systems; plumbing systems; and instrumentation and control systems. He is also an expert in public- and private-sector energy conservation and operating cost reduction programs. **Professional Organizations**: American Society of Mechanical Engineers

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Pineda Causeway Booster Pump Station**, **Melbourne, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2008; CONSTRUCTION (If applicable) 2010

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

Hazen and Sawyer provided design, permitting, bidding and construction for the Pineda Causeway ground storage tank and booster pump station. As part of the design, Hazen utilized the City of Melbourne's most current calibrated WaterCAD hydraulic model to evaluate the minimum pumping capacity requirements for the new pump station to satisfy minimum system pressures during peak hour demand periods and minimum fire flow capacity requirements during maximum day demand periods in the northern service areas through year 2020. The new station consists of three new 60-hp vertical turbine pumps with variable frequency drive controls, a new 250-kW diesel-powered generator in a sound attenuating enclosure with an integral fuel tank, a new electrical and controls building, an electric actuated fill valve assembly, and a two million gallon pre-stressed concrete ground storage tank. The electrical and controls building will house the automatic transfer switch, motor control center, programmable logic controller, radio telemetry equipment, variable frequency drives, and other associated appurtenances. **Cost:** $333,000 (fee) **Specific Role:** HVAC/Plumbing

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Eugene Hickson WTP**, **City of Arcadia, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION (If applicable) Ongoing

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

Hazen was retained to replace the City's existing lime softening Water Treatment Plant with a new 1.5-mgd ion exchange water treatment plant. The project included the pilot testing, planning, design, permitting, construction, and start-up services for the facility upgrade. The project also included providing funding assistance and preparation of the facility use plan for FDEP SRF grant /loan funding. The design included a new raw water well and piping, booster pump station, two-stage ion exchange system, free chlorine contact piping, ammonia feed systems, new ground storage tank, high service pumps, operations and controls building, and all associated electrical and instrumentation. Permits were obtained from SWFWMD and FDEP and the project was fast tracked to meet all FDEP funding deadlines. Through the assistance of Hazen and Sawyer, the City was able to secure a $7M dollar loan with a $3-million loan **Status:** Construction is ongoing. **Cost:** $1.1 million (design fee); $6 million (construction)**Specific Role:** HVAC/Plumbing

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Madbury Water Treatment Plant**, **Portsmouth, NH**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2010; CONSTRUCTION (If applicable) 2011

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

Prepared computer energy use models for the plant energy use analysis and submittal for the prestigious Leadership in Energy and Environmental Design (LEED) silver certification. The plant is expected to produce energy savings exceeding 24% or $35,000 annually. The $20-million plant went online in 2011 after eight years of planning, testing, design and construction to replace a 50-year-old facility at the same location. The new energy-efficient plant provides drinking water to customers in Portsmouth, Newington, New Castle, and parts of Rye, Greenland, Madbury, Dover and Durham. **Cost:** $20 million **Specific Role:** Energy Audit

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Wastewater Treatment Plant Energy Audit, Southtowns WWTP**, **Erie County, NY**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2006; CONSTRUCTION (If applicable) N/A

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

The treatment plant is rated for an average flow of 18 mgd and is operated up to approximately 28 mgd. The Southtowns treatment facility consists of screenings, pure oxygen activated sludge reactors, clarification, filtration, chlorine disinfection, sludge thickening and storage, sludge dewatering, and incineration. In addition, a seven million gallon overflow retention facility (ORF) is utilized under peak wet weather conditions. The facility was constructed in 1980. The energy audit provided evaluation and cost savings calculations for six measures at the plant. The measures included VFD on Submersible Influent Pump, Dew Point Controller on Plant Instrument Air Dryer, VFD on Plant Air Blower, VFD on High Pressure Service Water Pump, Automated Control and High Efficient Mixers on Oxygen Activated Sludge Reactors, and New Heat Recovery Heat Exchanger and Overfire Air on Incinerator. The total annual cost savings for all six measures was $230,000. **Cost:** $30,000 (audit fee) **Specific Role:** Energy Audit

**e.**

(1) TITLE AND LOCATION *(City and State)*: **T.P. Smith Water Reclamation Facility**, **City of Tallahassee, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION (If applicable) Ongoing

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

Prepared HVAC design drawings and construction contract documents for upgrades to the City's 26.5-mgd wastewater treatment facility. Work includes electrical equipment cooling, air conditioning for administrative areas, and process area ventilation system. The design uses 3D model-based design software from Autodesk, including AutoCAD MEP software. **Cost:** $174 million **Specific Role:** HVAC/Plumbing

## 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**<br>**Senior Associate** | **Electrical** | **52** | **14** |

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

**Hazen and Sawyer, Jacksonville, Florida**

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

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

John Burke, PE, has 52 years of experience in the planning, design and project management of power, control and instrumentation systems associated with water and wastewater facilities. His capabilities range from concept through final design and extend to construction management and power systems analysis. He has also provided complete electrical, control and instrumentation interface design and construction management for new water and wastewater treatment pumping, as well as the electrical design for the addition and modifications to existing stations. **Professional Organizations:** National Society of Professional Engineers, Florida Engineering Society

## 19. RELEVANT PROJECTS

**a.**

(1) TITLE AND LOCATION *(City and State)*: **Pump Station A**, **Coral Gables, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2009; CONSTRUCTION (If applicable) 2011

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

As a result of a sanitary sewer overflow the City was required to upgrade PS A. The City retained Hazen in the fall of 2009 to prepare contract drawings and specification and obtain the necessary permits to initiate construction. Hazen staff collected as-built data and actual field pressures that were recorded using pressure monitoring devices. **Cost:** $4 million **Specific Role:** Electrical Engineer-of-Record

**b.**

(1) TITLE AND LOCATION *(City and State)*: **Bella Vista 1 and 2 Improvements,**, **Coral Gables, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION (If applicable) 2011

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

Several pump stations and the force main were identified as infrastructure requiring improvement. Two of the stations identified for improvement were Bella Vista 1 and 2 (BV 1 and 2), both of which were assigned to Hazen and Sawyer for analysis and subsequent bid document development. **Specific Role:** Electrical Engineer-of-Record

**c.**

(1) TITLE AND LOCATION *(City and State)*: **Cocoplum 1 Pump Station and Force Main Improvements**, **Coral Gables, 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

Hazen is performing mechanical, electrical and structural upgrades to the Cocoplum 1 Pump Station to accommodate peak flows and increase system reliability and integrity. The City owns and operates a wastewater collection and transmission system comprised of 340,000 lf of gravity main, 35 pump stations, and approximately 100,300 lf of force main. **Cost:** $1.4 million, $167,000 (fee) **Specific Role:** Electrical Engineer

**d.**

(1) TITLE AND LOCATION *(City and State)*: **Pump Station City 2 Improvements**, **Coral Gables, 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

The City of Coral Gables owns/operates Pump Station City No. 2 (City 2) located in the heart of the City's downtown corridor. The station's basin encompasses the downtown area as well as an upstream pump station (Pump Station City 1). As such, the need to ensure that the station's Nominal Pump Operating Time (NAPOT) stays below the County-mandated 10-hour runtime criteria is essential in allowing continued development downtown. **Cost:** $1,875,000, $195,000 (fee) **Specific Role:** Electrical Engineer-of-Record

**e.**

(1) TITLE AND LOCATION *(City and State)*: **Pump Station D Upgrades**, **Coral Gables, FL**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 1999; CONSTRUCTION (If applicable) 1999

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

Pump station D (PS D) is a regional pump station located in the eastern portion of the City of Coral Gables in the CocoPlum development. Pump Station D was identified as requiring upgrades during the 1995 pump station evaluation that the City utilized to formulate its Pump Station Improvement Program (PSIP) necessary to reduce station operating hours below the VSCO mandated 10-hours/day nominal pump operating time (NAPOT). **Specific Role:** Electrical Engineer-of-Record

| F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT<br>*(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<br>**1** |
|---|---|

| 21. TITLE AND LOCATION *(City and State)* | 22. YEAR COMPLETED | |
|---|---|---|
| | PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
| **Sea Level Rise Assessment for Miami-Dade County WWTPs**<br>**Miami-Dade County, Florida** | **2013** | **N/A** |

## 23. PROJECT OWNER'S INFORMATION

| a. PROJECT OWNER | b. POINT OF CONTACT NAME | c. POINT OF CONTACT TELEPHONE NUMBER |
|---|---|---|
| **Miami-Dade County, Florida** | **Douglas Yoder**<br>**Deputy Director**<br>**douglas.yoder@miamidade.gov** | **(786) 552-8225** |

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

**Size**

Evaluation of potential weather impacts and its risks to the County's treatment facilities

**Cost**

$30,000 (fee)

**Description**

Vulnerability assessments of each plant were developed, followed by economic considerations, which included estimates of asset values and adaptation cost. Asset component values (i.e., electrical, instrumentation, etc.) were estimated to better determine adaptation cost to protected asset ratios.

Because Southeast Florida is considered one of the most vulnerable areas to climate change and sea level rise, the County ratified the Southeast Florida Regional Climate Change Compact on December 1, 2009. This Compact is a collaborative effort among the counties of Palm Beach, Broward, Miami-Dade, and Monroe Counties and its municipalities and partners to develop concerted action in reducing greenhouse gas emissions and adapting to regional and local impacts of a changing climate.

Potential impacts to the treatment facilities identified in this assessment were compiled and adapted from planning documents developed by the Compact and the National Oceanographic and Atmospheric Administration (NOAA).

Potential impacts from sea level rise to the three regional treatment facilities include:

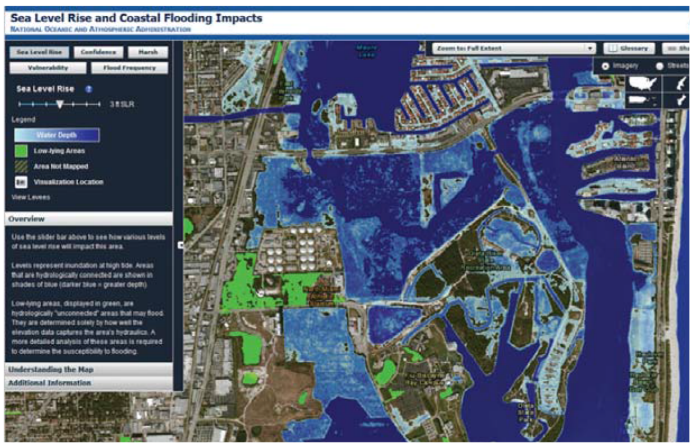
- Physical inundation
- Modified hydraulics
- Variable influent characteristics
- Change in energy use or pumping requirements
- Process instability
- Regulatory compliance issues
- Saltwater intrusion
- Chemical storage vulnerability

Each of the MDWASD facilities is susceptible to storm impacts. Higher storm tides under the projected sea level rise will increase these risks significantly. Most structures will be inundated during a direct storm landfall event of a severe storm. The results of this study indicated that the largest costs would be associated with the electrical power systems and the system controls.

The study identified the following adaptation strategies necessary to mitigate the impacts of sea level rise:

- Raising the threshold of a building, instead of making modifications to each of the critical assets within that building, will protect many assets simultaneously.
- Relocation of vulnerable equipment above anticipated flood elevation.
- Construction of watertight doors and windows where feasible, to protect vulnerable equipment.
- Revision of proposed project design criteria to address sea level rise.
- Development of plans allowing for coastal inundation in defined areas.

Improvements to existing plants to prevent loss of service or extended downtime following a Category 4 or 5 storm with anticipated sea level rise will be extremely costly when compared to simple rehabilitation improvements recommended. The study recommended elevation of new facilities at finished floor elevations above the estimated storm tide, or with designed strategies to mitigate potential impacts.




## 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** |
| a. | **Hazen and Sawyer** | **Hollywood, Florida** | **Primary Consultant** |

| F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT<br>*(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<br>**2** |
|---|---|

| 21. TITLE AND LOCATION *(City and State)* | 22. YEAR COMPLETED | |
|---|---|---|
| | PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
| **Stormwater Master Planning and Design Implementation Services**<br>**City of 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, Florida** | **Rares Petrica, PE**<br>**Senior Project Manager**<br>**RPetrica@fortlauderdale.gov** | **(954) 828-7150** |

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

**Size**

Preparation of a stormwater master plan model, a prioritized stormwater/resiliency capital improvements plan, and implementation of designs to address chronic flooding and other stormwater management issues in the City.

**Cost**

$9.9 million (fee authorized for assignments to date)

**Description**

Hazen was selected as the Program Manager for delivery of a new stormwater master plan and implementation of designs to address chronic flooding, other stormwater management challenges, and sea level rise (SLR) adaptation.


The City covers approximately 23,000 acres of highly-urbanized neighborhoods, with much of its coastal land area lying within the floodplain and numerous rivers and tributaries running throughout the City. The scope of work includes data collection; City-wide hydraulic/hydrological stormwater modeling, including consideration of climate change impacts; a revised stormwater master plan with prioritized capital improvements; design, permitting, and construction services for stormwater capital improvement projects resulting from the revised stormwater master plan; watershed planning; community outreach services; and construction management services.

The project team evaluated long-range solutions that perform effectively over a broad range of climatological and other uncertain future conditions. Concurrent with the planning process, the City identified seven neighborhoods with immediate needs relative to chronic stormwater and/or tidal flooding for accelerated design implementation.

The program is expected to result in a re-prioritized capital improvement plan to address key neighborhoods and climate change adaptation action areas. Further modeling and project development associated with improvements beyond the original seven neighborhoods are anticipated to continue through 2021.

**Methodology and Approach**

- Organization, mobilization and management of a large team (to meet an aggressive schedule). Required creation of 3 modeling teams (10 watersheds) and 4 design teams (7 neighborhood designs).
- Developed standard modeling practices/format, CADD standards, standard details/specifications, and drawing templates to assure consistency.
- Routine coordination with client, including periodic project updates.
- Numerous meetings with regulators, leading to issuance of conceptual approval of 7 neighborhoods and City-wide model.

**Quality Assurance/Quality Control Methods**

- Development of project-specific QA/QC plan
- Established standard procedures, details, specifications.
- Internal QA/QC teams developed in advance for modeling and design (included discipline experts for design review).
- Close coordination with owner's engineering and operations staff.
- Quarterly review (by regional manager) of adherence to project-specific QA/QC plan

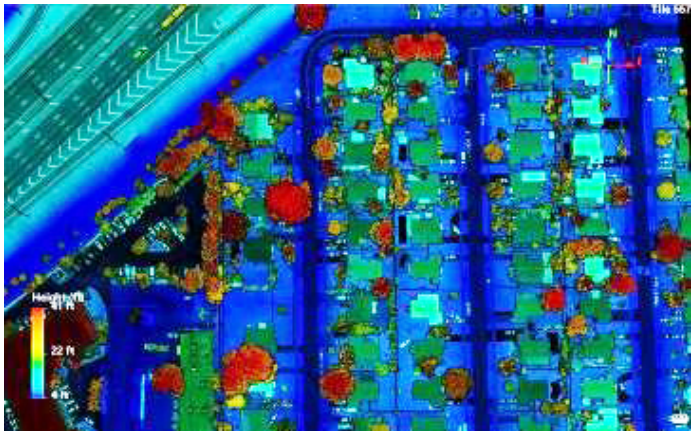
**Management Processes Used**

- Develop (modify as necessary) and follow project specific work plan
- Use of core modeling and design team representatives
- Routine progress meetings and progress reports
- Monthly examination of schedule and estimate (of effort) to complete
- Use of shared project sites (Buzzsaw, Sharepoint, Projectwise) for distributing, sharing and reviewing information.
- Describe whether schedule and budget were met.

## 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** |

- Schedule and budget for all tasks completed to date have been met. Modification of conceptual permit for phased construction is ongoing and bidding and CMS have not yet been authorized.




*Example LiDAR Data*

| 25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT | | | |
|---|---|---|---|
| a. | (1) FIRM NAME<br>**Hazen and Sawyer** | (2) FIRM LOCATION *(City and State)*<br>**Coral Gables, Florida** | (3) ROLE<br>**Primary Consultant** |
| b. | (1) FIRM NAME<br>**Hazen and Sawyer** | (2) FIRM LOCATION *(City and State)*<br>**Hollywood, Florida** | (3) ROLE<br>**Primary Consultant** |
| c. | (1) FIRM NAME<br>**Hazen and Sawyer** | (2) FIRM LOCATION *(City and State)*<br>**Boca Raton, Florida** | (3) ROLE<br>**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: **3**

21. TITLE AND LOCATION *(City and State)*

**General Wastewater and Water Engineering Services**
**Broward County, Florida**

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 |
|---|---|---|
| **Broward County Water and Wastewater Services, Florida** | **Alan Garcia, PE**<br>**Director**<br>**agarcia@broward.org** | **(954) 831-0704** |

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

**Size**

Hazen is presently providing study, design, permitting, and/or construction management services for four water and wastewater projects under the 2008 Agreement.

**Cost**

$17.98 million (fee-to-date for 2002 and 2008 agreements)

**Description**

Hazen has provided general wastewater and water consulting services to Broward County under a 2002 and 2008 Agreement in the following areas: water and wastewater treatment plants; water collection and wastewater distribution; hydraulic modeling; pumping stations; water wells and effluent disposal wells; water reclamation; ocean science and marine engineering; and financial studies; and regulatory assistance. Hazen completed over 100 separate projects under the Agreements. Some of these projects are summarized below.

- Design, permitting, bid, and construction oversight services for the replacement of the supervisory control and data analytics (SCADA) system at the NRWWTP (ongoing)
- Design, permitting, and inspection services for generator no. 4 installation at NRWWTP (ongoing)
- Design, permit, bid, and construction oversight services for floating gasholder cover for a 100-foot diameter anaerobic digester (Digester 3)
- Preliminary study and basis-of-design report for improvements at the Septage Receiving Facility followed by design through construction management services
- Design, permit, bid, and construction oversight services for chlorination improvements project including both vacuum chlorine and sodium hypochlorite delivery
- Design, permit, bid, and construction oversight services for the addition of a generator to Master Pump Station 462
- Design, permit, and construction management services for construction of a replacement Master Pump Station 310
- Basis-of-design for mechanical and electrical upgrade of Deerfield Beach Master Pump Station 440
- Design, permit, and construction management for replacement of multiple motor control centers
- Design and construction management services for the rehabilitation and conversion to in-line booster configuration of the Coral Spring East Master Pump Station
- Preparation of basis-of-design reports for Master Pump Stations 424, 440, 450, and 456
- Study for improvements to the wastewater metering systems
- Mechanical Integrity Testing of six Class I injection wells at the NRWWTP
- Plan of Study for the Florida Atlantic Coast Environmental Initiative
- Design for installation of concrete mats on the 54-inch open ocean outfall pipe
- Deployment of ADCP current meter near the terminus of outfall pipe
- Water and Wastewater Annual Reports for Fiscal Years 2001 through 2009
- Engineer's Report for Utility Bonds Series 2003 and 2009
- Wastewater flow measurement of targeted rehab area
- Monitoring well rehabilitation at NRWWTP
- Development of design standards for the NRWWTP (electrical and mechanical disciplines ongoing)
- Design, permitting, and construction management (ongoing) for bypass and lift station force main rerouting
- Design, permitting, and construction management for control panel replacement for the outfall pump station
- Design, permitting, bidding, and construction oversight for sodium hypochlorite addition at 1A and 2A WTPs
- Design, permitting, and construction management of replacement monitor well (No. 6) at NRWWTP

### 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** |

**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)*

**Project Management Services for Wastewater Recovery Permanent Repair Projects, Wantagh, New York**

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 |
|---|---|---|
| **Nassau County DPW** | **Vincent Falkowski, PE**<br>**Deputy Commissioner**<br>**aspevpm@gmail.com** | **(516) 571-7575** |

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

**Size**

Provided Program Management services to facilitate the delivery of a wide variety of additional projects required to fully repair and harden the plant against future storm events.

**Cost**

$700 million (construction)
$120 million (fees)

**Description**

Hazen, in joint venture, is leading the Program Management of emergency and long-term repairs and future storm resilience solutions for the Bay Park Sewage Treatment Plant (STP) for the Nassau County Department of Public Works (DPW). The 70-mgd Bay Park STP was one of the many public infrastructure works that were severely flooded by the storm surge of Superstorm Sandy, resulting in a complete shutdown of operations at the facility for several weeks. After providing emergency construction management in the immediate aftermath of the storm, Hazen was formally selected to provide Program Management services to facilitate the delivery of a wide variety of additional projects required to fully repair and harden the plant against future storm events. Client work to date has included:

- Preparation of FEMA Damage Assessments for over two dozen facilities
- Development of a 'multiple lines of defense' flood mitigation strategy including both site-wide storm resiliency and facility-specific storm hardening measures
- Preparation and successful negotiation of an $810 million FEMA Alternative Procedures 428 grant – the largest ever of its kind
- Translation of the multiple lines of defense flood mitigation strategy into a ready-to-implement procurement strategy
- Preparation of preliminary designs for each project and prepared procurement documents for final design services.
- Preparation of 100% design for select projects, including the site-wide perimeter flood protection and electrical distribution networks with elevated substations
- Site-wide construction management services, including program-wide schedule management and construction logistics planning
- Preparation of procurement documentation for third party construction managers for individual projects
- Program-wide document management services via the implementation of a web-based Program Management Information System, enabling the easy accessibility of documentation by appropriate parties as well as the organization of documentation required to meet FEMA reporting requirements
- Oversight of all third party contractors on program including designers, construction contractors and construction managers, and management of all payments made to these parties
- Compliance with relevant regulatory requirements, including renewal of standard permits for the STP, compliance with newly defined requirements associated with the FEMA grant funding process, and oversight of third party efforts to obtain necessary design and construction-related permits
- Support for the development of a community relations strategy, including preparation and attendance at public meetings
- Included aesthetic designs to reflect community history and recreational connectivity with the use of walking trails within upgraded park facilities.

**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** |

| F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT<br>*(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<br>**5** |
|---|---|

| 21. TITLE AND LOCATION *(City and State)* | 22. YEAR COMPLETED | |
|---|---|---|
| | PROFESSIONAL SERVICES | CONSTRUCTION *(If applicable)* |
| **Pump Station Improvement Program Design and Engineering Services During Construction, City of Hialeah, Florida** | **2017** | **2019** |

## 23. PROJECT OWNER'S INFORMATION

| a. PROJECT OWNER | b. POINT OF CONTACT NAME | c. POINT OF CONTACT TELEPHONE NUMBER |
|---|---|---|
| **City of Hialeah, Florida** | **Armando Vidal, PE**<br>**Director**<br>**avidal@hialeahfl.gov** | **(305) 556-3800** |

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

**Size**

Design and permitting all of the station improvements for PSIP Phase I, PS 4, 5, 56, 100, 101, 126, PSIP Phase II, PS 131, 133, 140, 141 and PS 106 and 150 as well the Phase I and II Force Main Improvements.

**Cost**

$15.7 million (construction)
$1.3 million (design/CMS fee)

**Description**

Over the past 20 years, Hazen has designed improvements to 22 out of the City's 91 pump stations. Most recent work has focused on the City's Pump Station Improvement Program (PSIP). As part of the PSIP, the City proposed upgrades to 12 pump stations. Improvements were performed to satisfy regulatory requirements, replace aging infrastructure, increase reliability and standardized all stations on a submersible type configuration.

Hazen was responsible for designing and permitting all of the station improvements for PSIP Phase I, PS 4, 5, 56, 100, 101, 126, PSIP Phase II, PS 131, 133, 140, 141 and PS 106 and 150 as well the Phase I and II Force Main Improvements on a fast track basis to obtain approval from DERM. Proposed improvements replaced mechanical, electrical, structural and instrumentation components in 11 submersible pump stations. PS 106, the largest of the facilities upgraded, was converted from a wet/ dry well station with booster pumps to a submersible pump station with four 3855 HP submersible units. Of the 11 stations upgraded, three were converted to triplex stations to better address varying inflows/ force main pressures. Horsepower in the 11 stations ranged from 20 to 90 HP. Proposed force mains ranged in size from 8 to 16-inches in diameter and were necessary to manifold stations together/ MDWASD or reroute flow upstream to segments of gravity main with appropriate carrying capacity. As part of the force main improvements, a pay flow meter was also designed for a new connection between MDWASD and City. As part of the permitting process of these projects, Hazen was required to obtain permit approval from the following entities having jurisdiction over the project's implementation, City of Hialeah Building and Zoning (B&Z)/ Streets Department, Miami Dade County B&Z and Public Works, FDOT and DERM. Coordination meeting were also held with FPL to advise them of the proposed station 240 to 480V power increase.

In order to establish continuity during the bidding and construction phases, Hazen to provided bidding as well as construction management services for all 12 pump stations and associated force mains. As part of the bidding process, various addendum were addressed and recommendation to award was issued. Tasks performed as part of the construction services include attendance of construction phase meetings, shop drawing review, periodic field inspections, pay application review/ recommendation, RFI resolution, change order review and negotiation assistance, as-built review and issuance of the Certification of Completion.

Due to the length of the project, Hazen was tasked with organizing and conducting monthly progress meetings with the client and contractor. Initial meetings focused on the fast track submittal and approval of shop drawings for all 12 pump stations. This allowed the contractor to purchase all long lead items upfront and store them, thus shortening the construction duration.

Upon commencement of construction, Hazen visited each of the job sites to verify progress and confirm that proposed equipment and materials were being installed in compliance with contract documents. Interaction with City staff, permitting agencies such as the City of Hialeah and Miami Dade County Building and Zoning as well as FPL were required to facilitate construction activities and prevent delays. Additionally, based on most of the stations' locations in right-of-way in front of homes, constant interaction with impacted residents, businesses and the community at large was required to mitigate interruptions and assure restoration was performed to their satisfaction.

Prompt responses to RFI's and pay applications afforded the contractor the ability to address unforeseen conflicts quickly and assure personnel and subcontractors/ equipment providers were paid in a timely manner. Hazen, in coordination with the contractor, negotiated change orders on behalf of the City to assure pricing was within industry standards for work performed.

Construction activities related to the upgrade of the 12 pump stations/ force mains is going at this time with final closeout anticipated to occur during the fourth quarter 2019. The as-built drawings and Certification of Completions for those facilities completed to date have been issued an approved by the City/ DERM respectively. NAPOT varies per station, but all stations that have been upgraded are operating between 2 to 5 hours/ day.


## 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** |
| b. | **Hazen and Sawyer** | **Boca Raton, 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 | | | | | |
| Christopher Kish, PE, ENV SP | Project Manager; Water and Sanitary Systems; Lift Station/ Pipeline Design | ☒ | ☒ | ☒ | ☐ | ☒ | | | | | |
| Jayson Page, PE | Project Director; Resiliency | ☒ | ☒ | ☐ | ☒ | ☒ | | | | | |
| Robert Taylor, Jr., PE | QA/QC; Stormwater Systems | ☒ | ☒ | ☒ | ☐ | ☐ | | | | | |
| Lucia Medina, PE | Stormwater Systems | ☐ | ☒ | ☐ | ☐ | ☐ | | | | | |
| Hannah Borders, EI | Water and Sanitary Systems; Permitting; Lift Station/Pipeline Design | ☐ | ☒ | ☐ | ☐ | ☒ | | | | | |
| Ethan Heijn, PE | Environmental Assessments; Hazardous Mitigation Strategies; I/I Reduction | ☒ | ☐ | ☐ | ☐ | ☒ | | | | | |
| Beth Waters, PE, ENV SP | Environmental Assessments; Hazardous Mitigation Strategies; Construction Management | ☒ | ☒ | ☐ | ☐ | ☒ | | | | | |
| Guillermo Regalado, PE | Modeling | ☒ | ☒ | ☒ | ☐ | ☒ | | | | | |
| Tiezheng Wang, PhD, PE | Modeling | ☒ | ☒ | ☐ | ☐ | ☒ | | | | | |
| Antonio Torres, PE | I/I Reduction | ☒ | ☒ | ☐ | ☐ | ☒ | | | | | |
| Marta Alonso, PE, ENV SP | Permitting | ☒ | ☒ | ☒ | ☐ | ☒ | | | | | |
| Michael Vinas | Construction Management | ☐ | ☐ | ☐ | ☐ | ☒ | | | | | |
| Craig Wells. PE, ENV SP | Resiliency | ☐ | ☐ | ☐ | ☐ | ☐ | | | | | |
| Evan Bowles, PE, ENV SP | Sustainability | ☐ | ☐ | ☐ | ☐ | ☐ | | | | | |
| David Hernandez, PE, ENV SP | Sustainability | ☐ | ☐ | ☐ | ☒ | ☒ | | | | | |
| Evan Curtis, PE | Instrumentation | ☐ | ☒ | ☐ | ☐ | ☒ | | | | | |
| James Broad | Electrical | ☐ | ☒ | ☐ | ☐ | ☒ | | | | | |
| Orlando Castro, PE, DBIA | Structural | ☐ | ☒ | ☐ | ☐ | ☒ | | | | | |
| John Burke, PE | Electrical | ☐ | ☐ | ☐ | ☐ | ☒ | | | | | |
| Keith Dinnen, PE | Instrumentation | ☐ | ☐ | ☐ | ☐ | ☐ | | | | | |
| Bernard Steiger, PE | HVAC/Plumbing | ☐ | ☐ | ☐ | ☐ | ☒ | | | | | |
| George Brown, PE | Paving and Drainage | ☐ | ☒ | ☐ | ☐ | ☐ | | | | | |
| Jennifer McMahon, PE | Paving and Drainage | ☐ | ☒ | ☐ | ☐ | ☐ | | | | | |

### 29. EXAMPLE PROJECTS KEY

| NO. | TITLE OF EXAMPLE PROJECT (FROM SECTION F) | NO. | TITLE OF EXAMPLE PROJECT (FROM SECTION F) |
|---|---|---|---|
| 1 | Sea Level Rise Assessment for Miami-Dade County WWTPs Miami-Dade County, Florida | 4 | Project Management Services for Wastewater Recovery Permanent Repair Projects, Wantagh, New York |
| 2 | Stormwater Master Planning and Design Implementation Services City of Fort Lauderdale, Florida | 5 | PSIP Design and Engineering Services During Construction City of Hialeah, Florida |
| 3 | General Wastewater and Water Engineering Services Broward County, Florida | | |

## H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Hazen is a nationally and internationally recognized environmental engineering consulting firm, specializing in the engineering and management of water, wastewater, stormwater, and water resources. Since its founding the firm has completed thousands of major assignments in the United States and abroad for government agencies, utilities, and industrial organizations. These range in scope from water resource master planning for small communities to water quality assessments and resource economic studies to vast engineering undertakings that include preliminary studies, final design, and construction management of multi-billion dollar projects for large urban centers. The firm has provided engineering services in the water resources field for over 60 years in the United States and abroad.

The firm'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. The firm has grown progressively over the years, from the original six-person office established by Richard Hazen and Alfred W. Sawyer in 1951, to its present staff of more than 1,000 professional and support personnel, many of whom have been with the firm for 15-20 years. Hazen has a multidisciplinary staff that maintains substantial expertise and experience in areas of water resources and stormwater design, as well as wastewater collection system evaluation and design, water distribution system evaluation and design, hydraulics, wastewater treatment process evaluation and design, instrumentation, energy management, etc., as well as the related design disciplines in civil, structural, mechanical, and electrical engineering; and computer applications for engineering analysis and development of engineering documents.

**This project will be managed from our Coral Gables office.** Since 1991, our dedicated staff has collaborated to form a successful relationship with the City to address planning, infrastructure and regulatory compliance concerns in a timely and effective manner. Our knowledge of the City's infrastructure allows us to understand complex projects quickly and offer performance at an unparalleled pace. This ability "to hit the ground running" translates to cost savings and prompt resolutions to challenges facing the City. Amongst the City's key concerns are regulatory compliance, sustainability, resiliency, and master planning. Our team has already worked with the City on these issues. We have ensured regulatory compliance with regulatory agencies many times over our nearly three decades of service. Whether it be yearly reporting efforts in the form of CMOM and Annual Reports, cyclical efforts such as the SSES Phase I, II, and Phase III Reports, Hydraulic Model Calibration Report on 10- and 5-year reoccurring cycles or one-time submittals such as the Peak Flow Management Study and the Plan of Compliance, our team has demonstrated its capability in addressing all compliance issues. As we move into the future, Hazen is poised to continue to assist the City with its sustainability goals, such as the use of Envision on the Cocoplum 1 PS and FM Improvements project, to providing insight into sea level rise and its impact on City infrastructure via the Assessment of Sea Level Rise on Existing City of Coral Gables Infrastructure and Preliminary Adaptation Plan.

**Project Team Qualification**s

Hazen prides itself on the long-term experience of our key personnel. Through our team's long-standing presence in Coral Gables and throughout Florida, we have established working relationships with the agencies, local governments, and key decision makers which 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's needs. Our full-service team capabilities mean that we can quickly and cost-effectively address any assignment or challenge.

Our local staff consists of long-term Florida residents and long-time Hazen employees. Hence, our clients are assured of continuity of experienced staff throughout their program. Furthermore, Hazen has some of the leaders in the industry for water, wastewater, and stormwater system design and modeling. This enables the firm to provide its clients with detailed and in-depth analysis of alternatives long before detailed design begins, allowing them to make well informed and cost effective decisions. The firm also has in-house, nationally recognized experts in the specialty fields of Inflow and Infiltration, Environmental Assessments and Hazardous Mitigation Strategies. These experts are available whenever project assignments dictate.

Hazen is qualified to provide the full range of technical expertise required to provide Environmental Engineering Consultant Services to the City of Coral Gables. Our staffing plan stresses short and direct lines of communication between key Hazen staff and the City. Hazen's projects are managed utilizing the strong client service manager approach in concert with a structured support team of Task Leaders. The client service manager is responsible for maintaining full knowledge of all aspects of the project(s). This approach is designed to provide one person answerable to the City at all times. Our project management framework results in direct lines of communication and responsibility and allows for simplified and centralized project coordination. In assembling the team to provide as-needed consulting services to the City of Coral Gables, we have adhered to a basic philosophy of assigning the tasks to the most qualified, experienced staff members. We are confident that our team's organizational structure and qualifications will provide the City with the technical resources required to successfully complete any assignment under this contract on schedule and within budget.

**Quality Assurance/Quality Control**

Providing quality engineering services is a core element of Hazen's business practice, and is inherent to our culture. In support of this commitment and philosophy, we have developed a Company-wide Quality Assurance Policy Manual to provide guidance to staff during execution of every project. Hazen has earned a reputation for exceptional technical work and outstanding quality deliverables. This has been accomplished largely by:

- Our staff providing strong technical leadership.
- Engineers at each level paying close attention to the details.
- Milestone QC reviews.

All of these key factors are integral to the approach presented in the Quality Assurance Policy Manual. The manual is provided to all Hazen employees. Every project is required to have a QC Plan, and execution and adherence to the plan is strictly enforced. Our firm has a Chief Quality Officer (who is a senior owner 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.

## I. AUTHORIZED REPRESENTATIVE

**The foregoing is a statement of facts.**

| 31. SIGNATURE | 32. DATE |
|---|---|
| | **May 22, 2019** |

33. NAME AND TITLE

**Robert Taylor, Jr., PE, Vice President**

# ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ 2019-015

## 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. DUNS NUMBER: 064966138 |
| 2b. STREET: 999 Ponce de Leon Boulevard, Penthouse 1150 | | 5. OWNERSHIP | |
| 2c. CITY: Coral Gables | 2d. STATE: FL / 2e. ZIP CODE: 33134 | a. TYPE: Employee Owned | |
| 6a. POINT OF CONTACT NAME AND TITLE: Jayson J. 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. 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 | **110** | **01** |
| 06 | Architect | **06** | |
| 07 | Biologist | **02** | |
| 08 | CADD Technician | **85** | |
| 10 | Chemical Engineer | **26** | **01** |
| 12 | Civil Engineer | **158** | **05** |
| 15 | Construction Inspector | **18** | |
| 16 | Construction Manager | **69** | **01** |
| 18 | Cost Engineer/Estimator | **02** | |
| 20 | Economist | **04** | |
| 21 | Electrical Engineer | **34** | |
| 23 | Environmental Engineer | **357** | **04** |
| 24 | Environmental Scientist | **17** | **01** |
| 30 | Geologist | **01** | |
| 42 | Mechanical Engineer | **37** | **01** |
| 47 | Planner: Urban/Regional | **02** | |
| 57 | Structural Engineer | **26** | **01** |
| | Control and Info. System Engineers | **11** | |
| | O&M Specialists | **05** | |
| | Technicians/Field Technicians | **55** | **03** |
| | | | |
| | **Total** | **1025** | **18** |

### 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 | 8 |
| C18 | Cost Estimating | 4 |
| D02 | Dams (Earth, Rock) | 6 |
| D04 | Design-Build | 6 |
| E03 | Electrical Studies & Design | 5 |
| E07 | Energy Conservation | 4 |
| E09 | Environmental Impact Studies | 5 |
| F20 | Financial/Rate Studies | 5 |
| H04 | HVAC | 4 |
| I03 | Industrial Waste Treatment | 3 |
| P05 | Planning (Community) | 4 |
| P06 | Planning (Site) | 4 |
| P07 | Plumbing and Piping Design | 6 |
| S04 | Sewage Collection | 10 |
| S07 | Solid Wastes | 2 |
| S10 | Surveying; Platting; Mapping | 3 |
| S11 | Sustainable Design | 5 |
| S13 | Stormwater Handling & Facilities | 7 |
| S20 | Start-Up/Operations | 5 |
| T02 | Testing & Inspection Services | 3 |
| W02 | Water Resources | 4 |
| W03 | Water Supply | 9 |

### 11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

*(Insert revenue index number shown at right)*

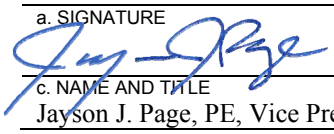
| | |
|---|---|
| a. Federal Work | 3 |
| b. Non-Federal Work | 10 |
| **c. Total Work** | 10 |

### 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 20, 2019

c. NAME AND TITLE: Jayson J. Page, PE, Vice President

# ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ 2019-015

## 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. DUNS NUMBER: 064966138 |
| 2b. STREET: 4000 Hollywood Boulevard, 750N | | | 5. OWNERSHIP |
| 2c. CITY: Hollywood | 2d. STATE: FL | 2e. ZIP CODE: 33021 | a. TYPE: Employee Owned |
| 6a. POINT OF CONTACT NAME AND TITLE: Patrick A. Davis, PE, Vice President | | | b. SMALL BUSINESS STATUS |
| 6b. TELEPHONE NUMBER: (954) 987-0066 | 6c. E-MAIL ADDRESS: pdavis@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. 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 | **110** | **09** |
| 06 | Architect | **06** | |
| 07 | Biologist | **02** | |
| 08 | CADD Technician | **85** | **02** |
| 10 | Chemical Engineer | **26** | **01** |
| 12 | Civil Engineer | **158** | **04** |
| 15 | Construction Inspector | **18** | **01** |
| 16 | Construction Manager | **69** | **02** |
| 18 | Cost Engineer/Estimator | **02** | |
| 20 | Economist | **04** | **01** |
| 21 | Electrical Engineer | **34** | **01** |
| 23 | Environmental Engineer | **357** | **25** |
| 24 | Environmental Scientist | **17** | **02** |
| 30 | Geologist | **01** | |
| 42 | Mechanical Engineer | **37** | **01** |
| 47 | Planner: Urban/Regional | **02** | |
| 57 | Structural Engineer | **26** | **01** |
| | Control and Info. System Engineers | **11** | **01** |
| | O&M Specialists | **05** | |
| | Technicians/Field Technicians | **55** | **06** |
| | | | |
| | **Total** | **1025** | **57** |

### 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 | 8 |
| C18 | Cost Estimating | 4 |
| D02 | Dams (Earth, Rock) | 6 |
| D04 | Design-Build | 6 |
| E03 | Electrical Studies & Design | 5 |
| E07 | Energy Conservation | 4 |
| E09 | Environmental Impact Studies | 5 |
| F20 | Financial/Rate Studies | 5 |
| H04 | HVAC | 4 |
| I03 | Industrial Waste Treatment | 3 |
| P05 | Planning (Community) | 4 |
| P06 | Planning (Site) | 4 |
| P07 | Plumbing and Piping Design | 6 |
| S04 | Sewage Collection | 10 |
| S07 | Solid Wastes | 2 |
| S10 | Surveying; Platting; Mapping | 3 |
| S11 | Sustainable Design | 5 |
| S13 | Stormwater Handling & Facilities | 7 |
| S20 | Start-Up/Operations | 5 |
| T02 | Testing & Inspection Services | 3 |
| W02 | Water Resources | 4 |
| W03 | Water Supply | 9 |

### 11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

*(Insert revenue index number shown at right)*

| | |
|---|---|
| a. Federal Work | 3 |
| b. Non-Federal Work | 10 |
| **c. Total Work** | 10 |

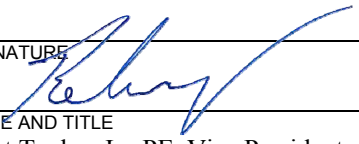
### PROFESSIONAL SERVICES REVENUE INDEX NUMBER

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 20, 2019

c. NAME AND TITLE: Robert Taylor, Jr., PE, Vice President

# ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ 2019-015

## 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. DUNS NUMBER: 064966138 |
| 2b. STREET: 10002 Princess Palm Avenue, Suite 200 | | | 5. OWNERSHIP |
| 2c. CITY: Tampa | 2d. STATE: FL | 2e. ZIP CODE: 33619 | a. TYPE: Employee Owned |
| 6a. POINT OF CONTACT NAME AND TITLE: Andre Dieffenthaller, PE, Vice President | | | b. SMALL BUSINESS STATUS |
| 6b. TELEPHONE NUMBER: (813) 630-4498 | 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. 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 | **110** | **03** |
| 06 | Architect | **06** | |
| 07 | Biologist | **02** | |
| 08 | CADD Technician | **85** | **03** |
| 10 | Chemical Engineer | **26** | **01** |
| 12 | Civil Engineer | **158** | **04** |
| 15 | Construction Inspector | **18** | |
| 16 | Construction Manager | **69** | |
| 18 | Cost Engineer/Estimator | **02** | |
| 20 | Economist | **04** | **02** |
| 21 | Electrical Engineer | **34** | |
| 23 | Environmental Engineer | **357** | **05** |
| 24 | Environmental Scientist | **17** | **02** |
| 30 | Geologist | **01** | |
| 42 | Mechanical Engineer | **37** | **01** |
| 47 | Planner: Urban/Regional | **02** | |
| 57 | Structural Engineer | **26** | |
| | Control and Info. System | **11** | |
| | O&M Specialists | **05** | |
| | Technicians/Field Technicians | **55** | |
| | | | |
| | **Total** | **1025** | **21** |

### 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 | 8 |
| C18 | Cost Estimating | 4 |
| D02 | Dams (Earth, Rock) | 6 |
| D04 | Design-Build | 6 |
| E03 | Electrical Studies & | 5 |
| E07 | Energy Conservation | 4 |
| E09 | Environmental Impact | 5 |
| F20 | Financial/Rate Studies | 5 |
| H04 | HVAC | 4 |
| I03 | Industrial Waste Treatment | 3 |
| P05 | Planning (Community) | 4 |
| P06 | Planning (Site) | 4 |
| P07 | Plumbing and Piping | 6 |
| S04 | Sewage Collection | 10 |
| S07 | Solid Wastes | 2 |
| S10 | Surveying; Platting; | 3 |
| S11 | Sustainable Design | 5 |
| S13 | Stormwater Handling & | 7 |
| S20 | Start-Up/Operations | 5 |
| T02 | Testing & Inspection | 3 |
| W02 | Water Resources | 4 |
| W03 | Water Supply | 9 |

### 11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

*(Insert revenue index number shown at right)*

| | |
|---|---|
| a. Federal Work | 3 |
| 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 20, 2019

c. NAME AND TITLE: Andre Dieffenthaller, PE, Vice President

# ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ 2019-015

## 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. DUNS NUMBER: 064966138 |
| 2b. STREET: 2101 NW Corporate Boulevard, Suite 301 | | 5. OWNERSHIP | |
| 2c. CITY: Boca Raton | 2d. STATE: FL / 2e. ZIP CODE: 33431 | a. TYPE: Employee Owned | |
| 6a. POINT OF CONTACT NAME AND TITLE: Albert Muniz, PE, Vice President | | b. SMALL BUSINESS STATUS | |
| 6b. TELEPHONE NUMBER: (561) 997-8070 | 6c. E-MAIL ADDRESS: amuniz@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. 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 | **110** | **02** |
| 06 | Architect | **06** | |
| 07 | Biologist | **02** | |
| 08 | CADD Technician | **85** | |
| 10 | Chemical Engineer | **26** | |
| 12 | Civil Engineer | **158** | |
| 15 | Construction Inspector | **18** | |
| 16 | Construction Manager | **69** | |
| 18 | Cost Engineer/Estimator | **02** | |
| 20 | Economist | **04** | |
| 21 | Electrical Engineer | **34** | |
| 23 | Environmental Engineer | **357** | **09** |
| 24 | Environmental Scientist | **17** | |
| 30 | Geologist | **01** | |
| 42 | Mechanical Engineer | **37** | |
| 47 | Planner: Urban/Regional | **02** | |
| 57 | Structural Engineer | **26** | **02** |
| | Control and Info. System | **11** | **02** |
| | O&M Specialists | **05** | |
| | Technicians/Field Technicians | **55** | |
| | | | |
| | **Total** | **1025** | **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)* |
|---|---|---|
| C15 | Construction Management | 8 |
| C18 | Cost Estimating | 4 |
| D02 | Dams (Earth, Rock) | 6 |
| D04 | Design-Build | 6 |
| E03 | Electrical Studies & Design | 5 |
| E07 | Energy Conservation | 4 |
| E09 | Environmental Impact | 5 |
| F20 | Financial/Rate Studies | 5 |
| H04 | HVAC | 4 |
| I03 | Industrial Waste Treatment | 3 |
| P05 | Planning (Community) | 4 |
| P06 | Planning (Site) | 4 |
| P07 | Plumbing and Piping Design | 6 |
| S04 | Sewage Collection | 10 |
| S07 | Solid Wastes | 2 |
| S10 | Surveying; Platting; | 3 |
| S11 | Sustainable Design | 5 |
| S13 | Stormwater Handling & | 7 |
| S20 | Start-Up/Operations | 5 |
| T02 | Testing & Inspection | 3 |
| W02 | Water Resources | 4 |
| W03 | Water Supply | 9 |

### 11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

*(Insert revenue index number shown at right)*

| | |
|---|---|
| a. Federal Work | 3 |
| 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: Albert Muniz

b. DATE: May 20, 2019

c. NAME AND TITLE: Albert Muniz, PE, Vice President

# ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ 2019-015

## PART II - GENERAL QUALIFICATIONS

*(If a firm has branch offices, complete for each specific branch office seeking work.)*

| | |
|---|---|
| 2a. FIRM (*or Branch Office*) NAME | NV5 Global, Inc. |
| 2b. STREET | 14486 Commerce Way |
| 2c. CITY | Miami Lakes |
| 2d. STATE | FL |
| 2e. ZIP CODE | 33016 |
| 3. YEAR ESTABLISHED | 2010 |
| 4. UNIQUE ENTITY IDENTIFIER | 078482872 |
| 5. OWNERSHIP a. TYPE | Corporation |
| b. SMALL BUSINESS STATUS | No |
| 6a. POINT OF CONTACT NAME AND TITLE | Eric J. Stern, PE - Vice President/Principal |
| 6b. TELEPHONE NUMBER | 305.666.3563 |
| 6c. E-MAIL ADDRESS | eric.stern@nv5.com |
| 7. NAME OF FIRM *(If Block 2a is a Branch Office)* | N/A |

| 8a. FORMER FIRM NAME(S) *(If any)* | 8b. YEAR ESTABLISHED | 8c. UNIQUE ENTITY IDENTIFIER |
|---|---|---|
| NV5 Holdings Inc. | 2009 | 07848872 |

### 9. EMPLOYEES BY DISCIPLINE

| a. Function Code | b. Discipline | c. Number of Employees (1) FIRM | (2) BRANCH |
|---|---|---|---|
| 2 | Administrative | 565 | |
| 6 | Architect | 26 | |
| 8 | CADD Technician | 177 | |
| 12 | Civil Engineer | 189 | |
| 13 | Communications Engineer | 3 | |
| 15 | Construction Inspector | 229 | |
| 16 | Construction Manager | 48 | |
| 21 | Electrical Engineer | 72 | |
| 23 | Environment Engineer | 17 | |
| 24 | Environmental Scientist | 70 | |
| 25 | Fire Protection Engineer | 15 | |
| 30 | Geologist | 12 | |
| 38 | Land Surveyor | 110 | |
| 42 | Mechanical Engineer | 78 | |
| 47 | Planner: Urban/Regional | 18 | |
| 48 | Project Manager | 201 | |
| 50 | Risk Assessor | 4 | |
| 51 | Safety/Occupational Health Eng. | 7 | |
| 57 | Structural Engineer | 18 | |
| 58 | Technician/Analyst | 243 | |
| | Other Employees | 109 | |
| | **Total** | 2,211 | |

### 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)* |
|---|---|---|
| A06 | Airports, Terminals and Hangars; Fr | 8 |
| C10 | Commercial Building; Shopping Ctr | 7 |
| C15 | Construction Management | 10 |
| E02 | Educational Facilities; Classrooms | 8 |
| E09 | Environmental Impact Studies/Asse | 8 |
| F05 | Forensic Engineering | 6 |
| H03 | Hazardous, Toxic, Radioactive Wa | 9 |
| H07 | Highways, Streets, Airfield Paving | 7 |
| H07 | Hospital & Medical Facilities | 8 |
| H10 | Hotels; Motels | 7 |
| L02 | Land Surveying | 10 |
| L05 | Lighting (Interior) | 5 |
| O01 | Office Buildings | 6 |
| P07 | Plumbing and Piping Design | 7 |
| P12 | Power Generation, Transmission, D | 10 |
| S04 | Sewage Collection, Treatment and | 7 |
| S05 | Soils & Geologic Studies; Foundati | 9 |
| S09 | Structural Design, Special Structure | 5 |
| T02 | Testing & Inspection Services | 8 |
| T03 | Traffic & Transportation Eng | 7 |
| U03 | Utilities (Gas & Steam) | 10 |
| W03 | Water Supply; Treatment and Distr | 8 |

### 11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

*(Insert revenue index number shown at right)*

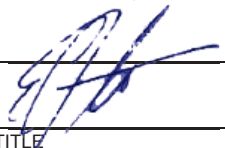
| | |
|---|---|
| a. Federal Work | 9 |
| b. Non-Federal Work | 10 |
| **c. Total Work** | 10 |

### 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: 5/16/2019

c. NAME AND TITLE: Eric J. Stern, PE - Vice President/Principal

# ARCHITECT - ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*: RFQ 2019-015

## PART II - GENERAL QUALIFICATIONS

*(If a firm has branch offices, complete for each specific branch office seeking work.)*

| | | | |
|---|---|---|---|
| 2a. FIRM (OR BRANCH OFFICE) NAME: Pulice Land Surveyors, Inc. | | | 3. YEAR ESTABLISHED: 1984 / 4. DUNS NUMBER: |
| 2b. STREET: 5381 Nob Hill Rd. | | | 5. OWNERSHIP |
| 2c. CITY: Sunrise | 2d. STATE: FL | 2e. ZIP CODE: 33322 | a. TYPE: Type C Corporation |
| 6a. POINT OF CONTACT NAME AND TITLE: John Pulice, PSM | | | b. SMALL BUSINESS STATUS: None |
| 6b. TELEPHONE NUMBER: 954-572-1777 | 6c. E-MAIL ADDRESS: john@pulicelandsurveyors.com | | 7. NAME OF FIRM *(If block 2a is a branch office)*: same |
| 8a. FORMER FIRM NAME(S) *(If any)* | | | 8b. YR. ESTABLISHED / 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 | 3 | |
| 08 | CADD Technician | 3 | |
| 16 | Construction Manager | 1 | |
| | Registered Land Surveyors | 3 | |
| | Field Technicians | 11 | |
| | Planners | 3 | |
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| | **Total** | **24** | |

### 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)* |
|---|---|---|
| S10 | Surveying, Platting, Mapping | 8 |
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### 11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

*(Insert revenue index number shown at right)*

| | |
|---|---|
| a. Federal Work | |
| b. Non-Federal Work | 7 |
| **c. Total Work** | 7 |

### 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 29, 2019

c. NAME AND TITLE: **John F. Pulice, PSM - President**

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Section No. II

# Experience and Qualifications

*Hazen has served as a general/continuing services consultant for civil, stormwater, wastewater, and environmental engineering services to the City of Coral Gables for the last 28 years.*

Hazen has provided complete in-house engineering services in Florida since 1968. Our staff members have extensive expertise in water, wastewater, stormwater and reclaimed water. Our Florida staff has been involved in the implementation of more than $2 billion in water-related projects in Florida over the past 10 years. These Florida projects include planning and general civil engineering design services; water and sanitary sewer systems; environmental assessments; stormwater systems; hazard mitigation strategies; construction management; resiliency; asset management; hydraulic modeling; lift station/pipeline design; I/I reduction; permitting; electrical/instrumentation; structural engineering; and experience working with Envision and LEED Certifications.

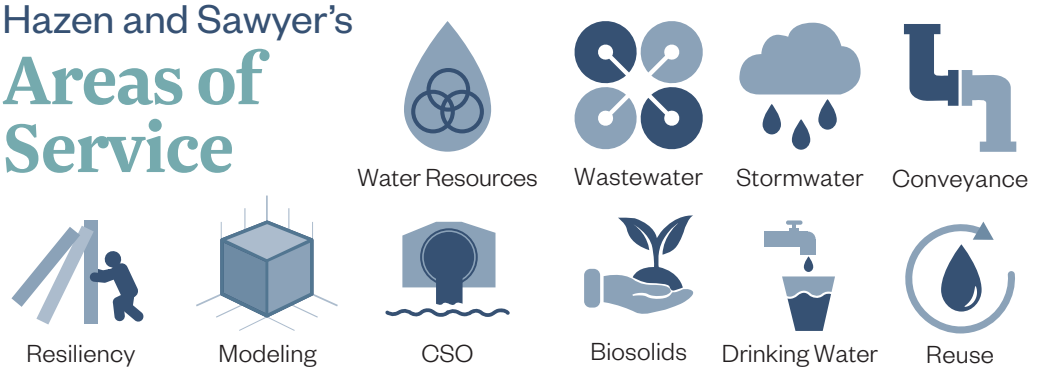
**Hazen's exclusive focus** is water and wastewater engineering and supporting disciplines, offering comprehensive capabilities from planning, permitting, finance, asset management, design, construction, startup, and operations.

These comprehensive capabilities allow Hazen to meet the City's requirements for utility engineering while **providing superior service.**

## Company History

Hazen's roots go back over 100 years to the accomplishments of Allen Hazen, one of the pioneers of modern water engineering and co-developer of the Hazen-Williams formula for fluid flow in pipes in 1903. Hazen and Sawyer 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.

## Hazen and Sawyer's Areas of Service




- Energy Management
- Economic and Financial Services
- Hydraulic Modeling
- Environmental Planning and Permitting
- PM/CM
- Sustainability
- Asset Management
- Alternative Delivery
- Applied Research
- CFD Modeling
- Cost Estimating
- Disinfection
- Groundwater Treatment
- Integrated Planning
- Membranes

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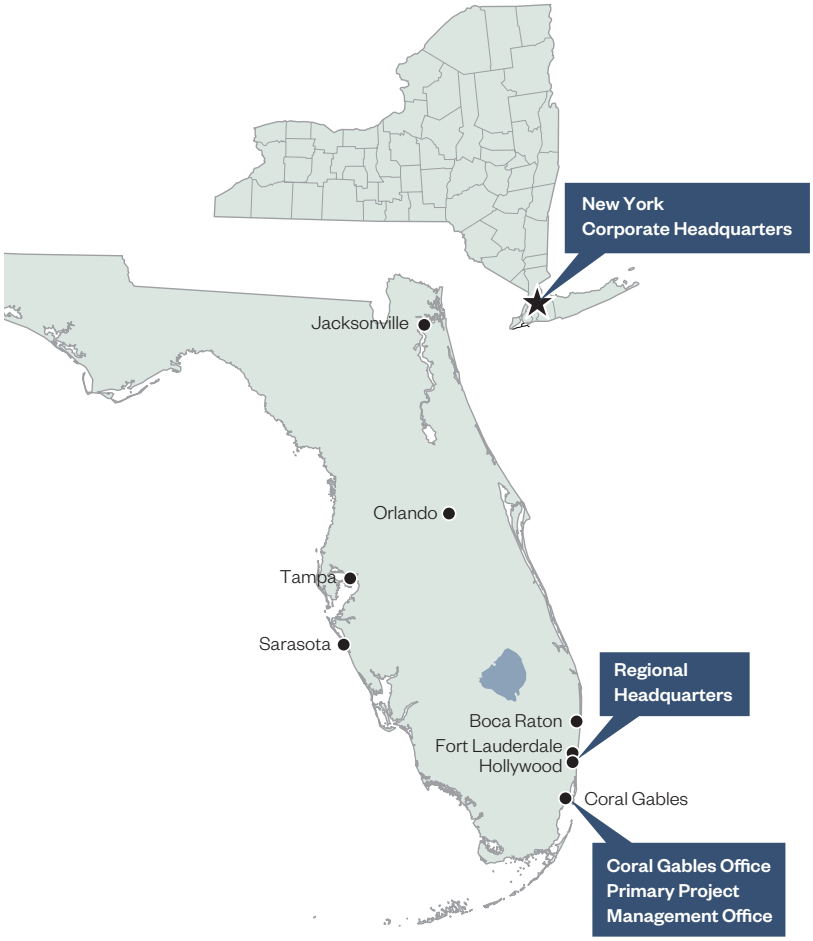
Most of our team members are long-time Florida residents and offer considerable knowledge of Florida's current and historic issues with water, wastewater, stormwater, and the natural environment. The firm is owned entirely by its employees, many of whom have been with the firm for 15-20 years.

**Proven Responsiveness**

Over the past three decades, the City has entrusted Hazen with their most complex and time-sensitive projects. **Hazen has been able to complete the projects in a timely manner, resulting in continued regulatory compliance.**




## Years in Business

Established in 1951, Hazen has provided utility engineering services for 68 years in the United States and abroad, and in Florida since 1968.

We have maintained an office in Coral Gables for the past 21 years.

## Firm Size/Number of Employees

Approximately 1,130 employees firm-wide

## Office Location where Work will be Performed

Coral Gables will be the primary office for this contract, with support from our Hollywood and Tampa offices.

## Licenses and Credentials

Licenses are included in Section 1 - Minimum Qualification Requirements

## Standard Form 330

Hazen's Standard Form 330 is included in Section I.

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## Firm's Qualifications

The Hazen team offers award-winning national expertise through local specialized engineers who are experienced with the City's practices and understand the City's needs. Our firm's capability to effectively meet the City's needs is reflected in the longevity of our partnership and our institutional knowledge of the City's infrastructure.

Hazen's engineering excellence ensures infrastructure investments are timely and cost-effective, providing large capital cost savings and annual cost savings where appropriate without impacting the City's established level of service.

Hazen has a multi-disciplinary staff that maintains substantial expertise and experience in the areas of water resources and stormwater design, as well as wastewater treatment process evaluation and design, wastewater collection system evaluation and design, water distribution system evaluation and design, hydraulics, instrumentation, energy management, etc., as well as the related design disciplines in civil, structural, mechanical, and electrical engineering; and computer applications for engineering analysis and development of engineering documents.

Since 1991, **Hazen has effectively met the City's needs.**

Mr. Kish is a dedicated Project Manager who understands the issues facing South Florida utilities and has worked with the City of Coral Gables for over 22 years. He has developed an excellent reputation for serving our clients in a **responsive and cost-effective** manner.

Our institutional knowledge of the City's system means we are **ready to continue collaborating** as an extension of the City. We have built a strong relationship with City staff and area ready to assist as they go forward in the design of future projects.

**PROVEN PROJECT MANAGER**
Christopher Kish, PE

**WE UNDERSTAND YOUR SYSTEM**

**STRONG RELATIONSHIP WITH CITY STAFF**

**LOCAL LEADERSHIP**

We have been privileged to work with the City since the 1990s, and we understand your procedures as well as the intricacies of your system. All members of the Hazen team have direct experience working with each other and a proven track record in completing projects **on time and within budget.**

Our team is **easily accessible and ready to help the City meet its schedule goals**. Our proposed project management team and supporting staff includes consultants with local expertise, proven technical capability, and a successful track record.

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Our key staff have spent considerable time in Coral Gables and understand City procedures as well as federal and state construction requirements. We wish to highlight certain characteristics of the firm which we believe will ensure a solid and continued working relationship with the City and an excellent result.

**Our Florida staff has been involved in the implementation of more than $2 billion in water-related projects** in Florida over the past 10 years.

## The Benefits of Working with Hazen:

- **Hazen is client-service oriented.** While we are an international firm, we have remarkably little bureaucracy. When a client needs something accomplished, our focus is on meeting that need as soon as possible. We believe this is a hallmark of our service and we are proud of our record. As one company with a singular purpose, we have the ability to bring the best most experienced resources to meet your needs.
- **Continuity of staff.** Hazen does not change proposed project managers. Mr. Kish has acted as project manager on a previous contract with the City of Coral Gables. As evidenced by our past work, you can be assured that the key individuals assigned to the various aspects of projects assigned under this contract will stay on the job through completion.
- **Our local staff have worked together, as a team, for a long time.** Many of our key staff members have worked together for well over a decade (in fact, several for over 20 years). This continuity results in value to our clients. Teamwork and long term local experience significantly improve project performance as measured by schedule, cost control and quality.
- **We know all facets of the local utility business.** Our key staff have spent the majority of their careers in South Florida. This enables us to know the regulators, contractors, manufacturers and other outside entities which can affect project success.
- **We offer specific expertise in all aspects of this assignment.** Hazen specializes solely in water resources and wastewater engineering. It is the core business, and only business, of the firm. We offer local, national and international water and wastewater experience. Our experience includes water, wastewater and stormwater hydraulic modeling/ master planning, conveyance system and collection system improvements/rehabilitation, sustainability as well as resiliency expertise. Our wastewater experience includes major participation in almost every large wastewater system project in South Florida.
- **We believe the City and Hazen subscribe to a similar philosophy of making the right investment at the right time.** We have long advocated maximization of existing infrastructure and a go-slow approach if regulatory uncertainty could render an investment obsolete in a short period of time. Our close tracking of regulatory agency initiatives allows us to accurately advise our clients on such investment decisions.

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## Organizational Chart

Our organizational chart below stresses short and direct lines of communication among Hazen and City staff. Brief descriptions highlighting the qualifications for key personnel are provided on the next page. Resumes detailing relevant experience for all team members are included in Subtab 330, Section 1.

CORAL GABLES
THE CITY BEAUTIFUL

**SUBCONSULTANTS**
NV5 Global, Inc.
Pulice Land Surveyors

**Project Director**
Jayson Page, PE

**QA/QC**
Robert Taylor, Jr., PE

**Project Manager**
Christopher Kish, PE, ENV SP

**Water and Sanitary Systems**
Christopher Kish, PE, ENV SP
Hannah Borders, EI

**Environmental Assessments**
Ethan Heijn, PE
Beth Waters, PE, ENV SP

**Stormwater Systems**
Robert Taylor, Jr., PE
Lucia Medina, PE

**Hazard Mitigation Strategies**
Ethan Heijn, PE*
Beth Waters, PE, ENV SP

**Construction Management**
Beth Waters, PE, ENV SP
Michael Vinas

**Sustainability**
Evan Bowles, PE, ENV SP*
David Hernandez, PE, ENV SP

**Resiliency**
Jayson Page, PE
Craig Wells, PE, ENV SP

**SUPPORT SERVICES**

**Modeling**
Guillermo Regalado, PE
Tiezheng Wang, PhD, PE

**Lift Station/Pipeline Design**
Christopher Kish, PE, ENV SP
Hannah Borders, EI

**Geotechnical**
NV5 Global, Inc.

**Survey**
Pulice Land Surveyors

**I/I Reduction**
Ethan Heijn, PE*
Antonio Torres, PE

**Permitting**
Marta Alonso, PE, ENV SP
Hannah Borders, EI

**Paving and Drainage**
George Brown, PE
Jennifer McMahon, PE

**Electrical**
John Burke, PE
James Broad

**Instrumentation**
Evan Curtis, PE
Keith Dinnen, PE

**Structural**
Orlando Castro, PE, DBIA

**HVAC/Plumbing**
Bernard Steiger, PE

* Registered PE in a state other than Florida

Trusted Partnership

**Over the past 28 years, our staff has become an extension of the City,** allowing us to successfully address planning, infrastructure, and regulatory compliance in a timely/effective manner.

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# Christopher Kish, PE, ENV SP

Project Manager

*Mr. Kish has 25 years of experience in the project management, planning, design, QA/QC, permitting, bidding/award, and construction oversight of water, wastewater, and stormwater infrastructure projects throughout South Florida.*

### Education

BS, Florida International University, Civil Engineering, 1994

### Certification/License

Professional Engineer: FL

Envision™ Sustainability Professional (ENV SP)

### Areas of Expertise

- Development of asset management programs
- Stormwater pump stations
- I/I rehabilitation programs
- SSES
- Directed design of pump station improvements for all of MDWASD's Volume Sewer Customers (VSC)
- Pipeline design
- Construction management
- Hydraulic analysis
- Master planning
- Water and wastewater plant mechanical design
- Significant pump station design expertise

### Experience

- 25 total years
- 25 years with Hazen

### Professional Activities

American Water Works Association

He has also served as Resident Construction-Phase Engineer on many of these projects. He is experienced in supervising day-to-day construction activities and making engineering decisions on behalf of the engineering team to expedite the resolution of any issues that may arise. He has managed multiple projects for the City of Coral Gables over the last 25 years.

**City of Coral Gables Environmental Engineer Consultant, FL**

As Project Manager, Mr. Kish has provided engineering services to the City of Coral Gables since the mid-1990s. Hazen has assisted the City with its water, sewer, and stormwater infrastructure needs for over 25 years. Services have included pump station and force main improvements, stormwater system improvements, sea level rise impact assessments, FDEP Consent Order assistance, sanitary sewer system reliability improvements, telemetry system development/operations, engineering construction management, inflow and inflow reduction, peak flow management study/hydraulic modeling, and Plan of Compliance (POC) and GIS-based sewer atlas.

**City of Coral Gables Cocoplum 1 Pump Station (PS-CC1) and Force Main Upgrade, FL**

As Project Manager, Mr. Kish is responsible for conducting site visits to confirm as-built data, development of the basis of design report, plans/specifications, and permitting as well as bid/award services. The project involves improvements to the Cocoplum 1 Pump Station and discharge force main that requires modifications to the station's mechanical, structural, electrical, and instrumentation systems. Improvements include installation of a new wet well and valve/meter box and associated piping. A new liquid propane powered generator was also installed. The new 12-inch PVC force main from the station to the City's existing transmission main in Old Cutler Road will eliminate the need for PS D to re-pump Cocoplum 1, as it currently does, thus freeing up capacity at station D. Under the City's new sustainability requirements, the project was also evaluated for Envision certification. The project was awarded the "Resilient Project of the Year" in the Green Utility Category by the Resilient Utility Coalition at their Operationalizing Resilience Summit in Miami on January 26, 2018.

### City of Coral Gables Pump Station City No. 2 Upgrades, FL

As Project Manager, Mr. Kish provided design oversight of the station's conversion from its wet/dry well configuration to a submersible configuration. He participated in and provided QA/QC review of the station's evaluation, construction document preparation, permitting, and bidding. The facility is also a regional pump station that re-pumps flow from its own collection basin as well as one upstream pump station.

### City of Hialeah Pump Station Improvement Program, City of Hialeah, FL

In an effort to reduce station runtimes to stay in compliance with regulatory requirements and increase reliability, the City of Hialeah decided to upgrade 12 of its 90 pump stations. As Project Manager, Mr. Kish participated in/oversaw the evaluation, design, and permitting of the pump stations and force mains, and provided bid and award services. The projects are now in construction. Mr. Kish continues to assist on the project by providing QA/QC as it relates to shop drawing review, payment applications, responses to RFI, and change order requests.

### Stormwater Atlas Development Atlas/Hydraulic Modeling, Cities of Coral Gables and Homestead, FL

In compliance with NPDES Year 3 Pollutant Modeling requirements, Mr. Kish directed the development of GIS-based storm sewer atlases for the cities of Coral Gables and Homestead. Initial tasks involved the digitizing of the existing stormwater atlas and the subsequent incorporation of the shape files generated into GIS. Additional tasks involved a gap analysis to collect/verify data necessary to complete the pollutant modeling. Collection of this data involved close coordination with the City to collect any additional as-builts, as well as dispatching personnel to the field to geo-locate numerous outfall via GPS to confirm sizes. The City of Coral Gables stormwater GIS-based atlas was recently utilized recently as part of the City's sea level rise infrastructure impact/preliminary adaption plan report. The infrastructure within the GIS atlas was incorporated into the Advanced ICPR stormwater modeling software to examine how the existing system/proposed improvement would perform as it related to acceptable LOS and to determine the consequence of failure/subsequent improvements.

### Pump Station Improvement Program (PSIP), City of North Miami Beach, FL

Hazen has been assisting the City of North Miami Beach with water, wastewater, and stormwater improvements for over 25 years. Most recently, Hazen provided assistance with the City's PSIP, where Mr. Kish served as the Project Manager. As part of the PSIP, the City coordinated upgrades to 10 pump stations. Hazen was responsible for design and permitting two of the stations on a fast-track basis. Once complete, the City requested that Hazen perform a constructability review of all 10 stations based on knowledge of the City's standards and experience. The City also directed Hazen to provide bidding as well as construction management services for all 10 pump stations.

### GIS-Based Sanitary Sewer Atlases for Multiple Volume Sewer Customers (VSC) within Miami-Dade County, FL

As part of the Miami-Dade County Code, all VSCs discharging wastewater to MDWASD for treatment and disposal were required to develop a GIS-based sanitary sewer atlas incorporating all collection/transmission infrastructure. The GIS atlas was phased over a two-year period. Phase 1 involved the incorporation of all infrastructure data into GIS and the development of a rational database which was due in 2016. Phase 2 involved the incorporation of the links to actual as-built data, which was submitted in 2017. Mr. Kish served as Project Manager/Supervisor for the following municipalities/ entities: Coral Gables: 35 pump stations, 64 miles of gravity main, 1,400 manholes, and 21 miles of force main; Hialeah: 91 pump stations, 460 miles of gravity main and 6,500 manholes, and 40 miles of force main; Homestead: 74 pump stations, 87 miles of gravity main, 2,100 manholes, and 29 miles of force main; Miami Dade Aviation Department (MDAD): 39 pump stations, 12 miles of gravity main, 319 manholes, and 16 miles of force main located throughout the Miami International Airport (MIA).

Mr. Kish and staff coordinated with VSC personnel as it related to various data gaps associated with the preparation of the atlases. All available as-built data was collected, and Hazen staff were dispatched to the field to locate manholes, valves and air release valves via GPS. On behalf of MDAD, Mr. Kish coordinated survey activities necessary to collected gravity manhole/ pipe elevation and sizes as well force main valving locations. The aforementioned atlases were submitted to the local regulatory agency by the dates stipulated in the Code. Deliverables included GIS based shape/ database files as well as KMZ files that allow reviewing atlas components from Google Earth for those VSC staff members not familiar with GIS.

**Plan of Compliance Development for VSC within Miami-Dade County, FL**

The Plan of Compliance (POC) is a mandated Miami-Dade County Code requirement for all VSCs discharging wastewater to MDWASD for treatment and disposal. The POC forms the outline for a Capacity Management and Operation and Maintenance (CMOM) plan for the VSCs to develop over a several year period once approved. The report was comprised of six sections, Sewer Over and Response Plan, Information Management System (IMS) Program, Sewer System Asset Management Plan, PS Operations and Preventive Maintenance Program as well as a Force Main Operations, Preventive Maintenance and Assessment/ Rehabilitation program. Mr. Kish served as the POC project manger for the Cities of Coral Gables, Homestead and MDAD and provided QA/QC oversight for the Cities of Hialeah and North Miami Beach. As part of the various tasks identified, Mr. Kish helped develop a series of standard operating procedures/ protocol as it relates to sanitary sewer overflows as well as gravity sewer, pump stations and transmission main operation and maintenance. Various IMS programs were also evaluated for use and recommendations were made for program selection made based on current/ future City needs. Mr. Kish coordinated with the VSCs as well as regulators concerning the development of the asset management plan, which provided condition assessment of all sewer system components, life cycle analysis, level of service, identification of critical assets and associated life cycle costs. He also evaluated potential sulfide and corrosion control options for the force mains, developed an inspection plan and a FM criticality and prioritization program. An Implementation Schedule was also developed for the POC that specified all initial start dates, and recurring requirements identified by the County Code.

**Homestead Peak Flow Management Study (PFMS), City of Homestead, FL**

As part of the County Code, all Volume Sewer Customers (VSC) to MDWASD were required to prepare a PFMS. The Code mandated that each VSC had to develop a hydraulic model of their system that was capable of examining both pressurized and non-pressurized portions of the system under a 2-year rain event (4.5 inches in 24 hrs), and evaluate how each station performed with one pump out of service. As Project Manager, Mr. Kish assisted with the as-built and field data collection necessary to construct the model and various inputs such as wet/ dry season diurnal hydrographs as well as pump operating control levels. Upon defining what the impact of the storm event was on the system, he assisted with the development of a series of scenarios involving pump/ transmission system modification to allow the system to operate under the specified rain event without excessive surcharging or sanitary sewer overflow. Upon establishing the required system modifications, he assisted with the preparation of costs estimates/ scheduling for the proposed improvements. He coordinated the reports development and provided QA/QC.

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## Key Staff Bios

The Hazen team offers an outstanding and dedicated team with significant experience, local knowledge, and understanding of the City's needs. Our full-service team capabilities mean that we can quickly and cost-effectively address any assignment or challenge. The Hazen team will provide the City with a team with the skills and capabilities to successfully complete any assignment under this contract.

**25** Years of Experience

### Christopher Kish, PE, ENV SP

Project Manager; Water and Sanitary Systems; Lift Station/Pipeline Design

- Project Manager for the City of Coral Gables for over 22 years.
- Has worked closely with the City to spearhead critical planning efforts and implement key projects.
- Implements a highly collaborative approach that reduces costs through close collaboration between our staff and City personnel.
- Over 25 years of experience in the design and construction oversight of water and wastewater infrastructure projects in South Florida.

**21** Years of Experience

### Jayson Page, PE

Project Director; Resiliency

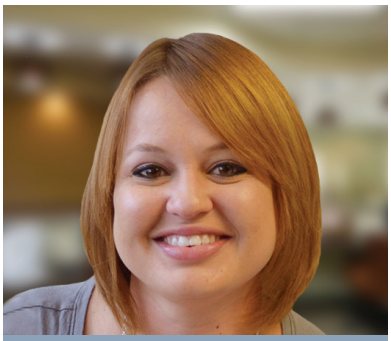
- Committed to the project's success; will ensure the project team has the resources to successfully meet the City's budget, schedule, and goals.
- Has developed sea level rise adaptation strategies and is well-versed in developing risk and hazard mitigation plans.
- Oversaw the team that evaluated the potential impacts of sea level rise on specific existing City of Coral Gables infrastructure.
- Performed a sea level rise assessment for Miami-Dade County's wastewater treatment facilities that included evaluation of potential severe weather impacts due to sea level rise projections.

**34** Years of Experience

### Robert Taylor Jr., PE

QA/QC; Stormwater Systems

- Managed and completed numerous water resource management projects that have included elements of stormwater utility development, utility financing, policy making, administrative development and framework, planning, design, permitting, construction, maintenance and regulatory compliance.
- Has worked with the City of Coral Gables since the early 1990s.
- Currently leads or has led the planning and development of numerous municipal stormwater plans, stormwater structure systems, and stormwater modeling and infrastructure design projects including projects for the Cities of Fort Lauderdale, Coral Gables, Hollywood, Stuart, and Homestead; Town of Jupiter; and St. Lucie County.
- Experience includes significant involvement with resiliency programs, projects, and practices.
- Recent experience with programs aiming to protect critical infrastructure from increasing environmental risks.



**17** Years of Experience

## Beth Waters, PE, ENV SP

Environmental Assessments; Hazard Mitigation Strategies; Construction Management

- Has been involved in the design, construction, and evaluation of numerous stormwater and wastewater projects for various South Florida municipalities.
- Managed the development of standard operating procedures establishing best management practices for the City of Coral Gables.
- Recent relevant experience includes the Miami-Dade Ocean Outfall Legislation Program, which includes considering sea level rise impacts and considering resiliency of the new facilities during the planning phase.

**4** Years of Experience

## Hannah Borders, EI

Water and Sanitary System; Permitting; Lift Station/Pipeline Design

- Experience in pump station analysis, determination of constituents of treated water and waste stream residuals, preparation of permit documents, and impact assessments of existing assets impacted by sea level rise.
- Pump station work includes: collection basin analysis, hydraulic calculations and modeling, pump selection, wet well sizing and cycle time analysis, sea level rise analysis, permit document preparation, and layout drafting.
- Assisted with the design for the pump station upgrade and the new discharge force main for the City of Coral Gables.

**30** Years of Experience

## Guillermo Regalado, PE

Modeling

- Senior Hydraulic Modeler for Hazen's Southeast Region.
- Served as wastewater and water resources modeling team leader and technical director for projects in South Florida, including Miami Beach water and wastewater modeling.
- Led the technical team in charge of the development and calibration of the MDWASD Wastewater Collection and Transmission System model.
- Extensive experience developing and running complex water and wastewater models.

**16** Years of Experience

## Evan Bowles, PE, ENV SP

Sustainability

- Serves as the corporate lead of Hazen's Sustainability Service Group, where he directs sustainable design of resilient wastewater infrastructure.
- Served as the sustainability lead for replacement of an existing pump station and force main owned and operated by the City of Coral Gables.
- Led and conducted the Envision analysis as part of the effort to validate the findings and recommendations of Miami-Dade WASD's (MDWASD) Ocean Outfall Legislation Compliance Plan.

## Subconsultants

Based on proven technical capability, successful local experience, and demonstrated client commitment, Hazen has augmented our team with subconsultants NV5 Global, Inc., and Pulice Land Surveyors to support the projects that may arise from this contract. Subconsultant bios are provided below.

### NV5 Global, Inc.

14486 Commerce Way
Miami Lakes, Florida 33016
**Role:** Geotechnical

NV5 is a leading provider of professional and technical engineering and consulting solutions to public and private sector clients in the infrastructure, energy, construction, real estate and environmental markets. The Company operates over 100 offices nationwide. NV5 has over 2000+ employees and have provided these services for projects throughout the United States. Geotechnical engineering services include drilling and subsurface exploration, foundation design recommendations, pavement design, and settlement analysis.

### Pulice Land Surveyors, Inc.

5381 Nob Hill Road
Sunrise, Florida 33351
**Role:** Survey

Since 1984, Pulice Land Surveyors, Inc. (PLS) has provided a full range of surveying services to private, commercial, governmental and industrial clients throughout the State of Florida. PLS maintains the highest level of information technology. This includes the latest computer-aided design software in both the field and office. The firm provides services to local municipalities such as the cities of Fort Lauderdale, Sunrise, Tamarac, Davie, Dania Beach, Miramar and Plantation. PLS also provides services for residential and commercial projects throughout Miami-Dade, Broward and Palm Beach Counties. Services include land surveys, including route surveys for development of roadways; wetland delineation and mitigation surveys; and special purpose surveys.

## Hazen's Ongoing Partnership with the City of Coral Gables

Hazen has shared many project successes with our clients over the last 68 years. We will detail those accomplishments throughout this section. It is most important, however, to begin by talking about what we have been able to accomplish with the City of Coral Gables. Hazen has been working with the City Coral Gables since 1991. During our 28-year partnership, Hazen has worked closely with the City to spearhead critical planning efforts and implement key projects. This close working relationship provides our personnel with an in-depth knowledge of the City's needs and a fundamental understanding of the City's perspective.

**Below are some important takeaways that the City should keep in mind from our past performance that are specifically relevant to this General Consulting Contract:**

Hazen has developed an **excellent relationship with regulatory agencies** including FEMA, FDOT, and SFWMD, which can lead to approval of permits and practical solutions.

To meet aggressive schedules, **Hazen has worked closely with City staff** and utilized the necessary tools and staff to make designs happen.

Hazen has gained an intimate understanding of the City's facilities and infrastructure. **Hazen knows your processes, your equipment, your staff, and your utility system.** This will yield valuable results as you look to make future improvements.


Hazen's institutional knowledge of the City, garnered by our personnel over the course of 28 years, **eliminates a learning curve**, thereby saving the City of Coral Gables time and money. Many of our projects have featured a **highly collaborative approach that reduces costs** through close collaboration between our staff and City personnel.

We are proposing many of the same staff who gained this experience with you to be a part of our General Consulting team. These team members include critical staff such as our Project Director, Jayson Page, PE, and Project Manager, Christopher Kish, PE. **The City can count on Hazen to provide continuity of team members throughout this contract.**

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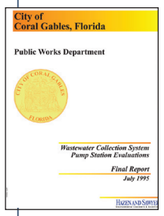
## Hazen and the City of Coral Gables have worked together since 1991.

1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019

**1993**
Wastewater Telemetry System Design




**1994**
Pump Station Evaluation Report

**1995**
Wastewater Telemetry System Goes Online

**1997**
Force Main E Construction

**1997**
Pump Station D Construction and Stormwater

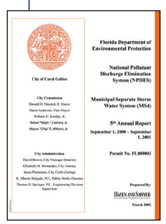

**1998**
Wastewater O&M Manual Submitted to DERM

**1999**
Pump Station F and Venetian Pool Upgrades

**1999**
San Pedro Force Main Construction

**2000**
Granada Boulevard Stormwater Lining

**2001**
North Gables Stormwater Improvements




**2001**
NPDES Reporting Assistance

**2002**
SSES Phase I & II Submitted to DERM

**2002**
Pump Station City No. 5 Construction

**2003**
Granada Boulevard 24" Aerial Crossing Construction

**2004**
NPDES Reporting Assistance

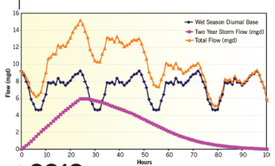
**2005**
Old Cutler Road FM Design

**2006**
Old Cutler Phase I Construction

**2007**
SSES Consent Agreement Assistance

**2008**
Pump Station A DERM NOV and FDEP Consent Order Meeting

**2009**
Pump Station A Design



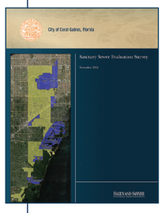

**2010**
PFMS Submitted to DERM

**2010**
Old Cutler Phase IV Construction

**2010**
Pump Station E, Bella Vista 1 and 2, Ponce Road Force Main Design

**2011**
Pump Station A Construction

**2011**
Ponce Road Force Main Construction

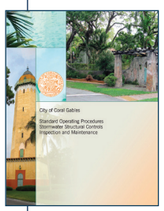



**2012**
SSES Cycle 2 Phase I & II Reports

**2012**
Smoke Testing

**2013**
Sewer / Stormwater Disconnect Plan

**2013**
PS City 4B & Police Design




**2013**
NPDES MS4 Standard Operating Procedures

**2014**
PS City 4B & Construction

**2014**
PS D Forcemain Design


**2014**
NPDES MS4 Year 3 Seasonal Pollutant Load Modeling

**2015**
Coco Plum I PS Design

**2015**
City 2 PS Construction

**2015**
Commmenced Work on Plan of Compliance

**2015**
PS D Forcemain Construction

**2015**
GIS Based Sewer Atlas

**2015**
NPDES MS4 Annual Report

**2016**
GIS Sewer Atlas with as-builts

**2016**
Sanitary Sewer and CMOM Annual Reports

**2016**
Plan of Compliance

**2016**
Cocoplum Phase 1 Stormwater

**2016**
SLR Impacts/ Adaptation Plan

**2017**
Sanitary Sewer and CMOM Annual Reports

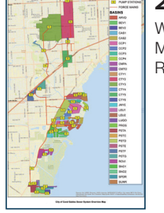
**2017**
Cocoplum 1 PS and FM

**2018**
Sanitary Sewer and CMOM Annual Reports

**2018**
City 5 Improvements

**2018**
City 2 Generator Exhaust Modifications

**2019**
Sanitary Sewer and CMOM Annual Reports



**2019**
WW Hydraulic Model Calibration Report

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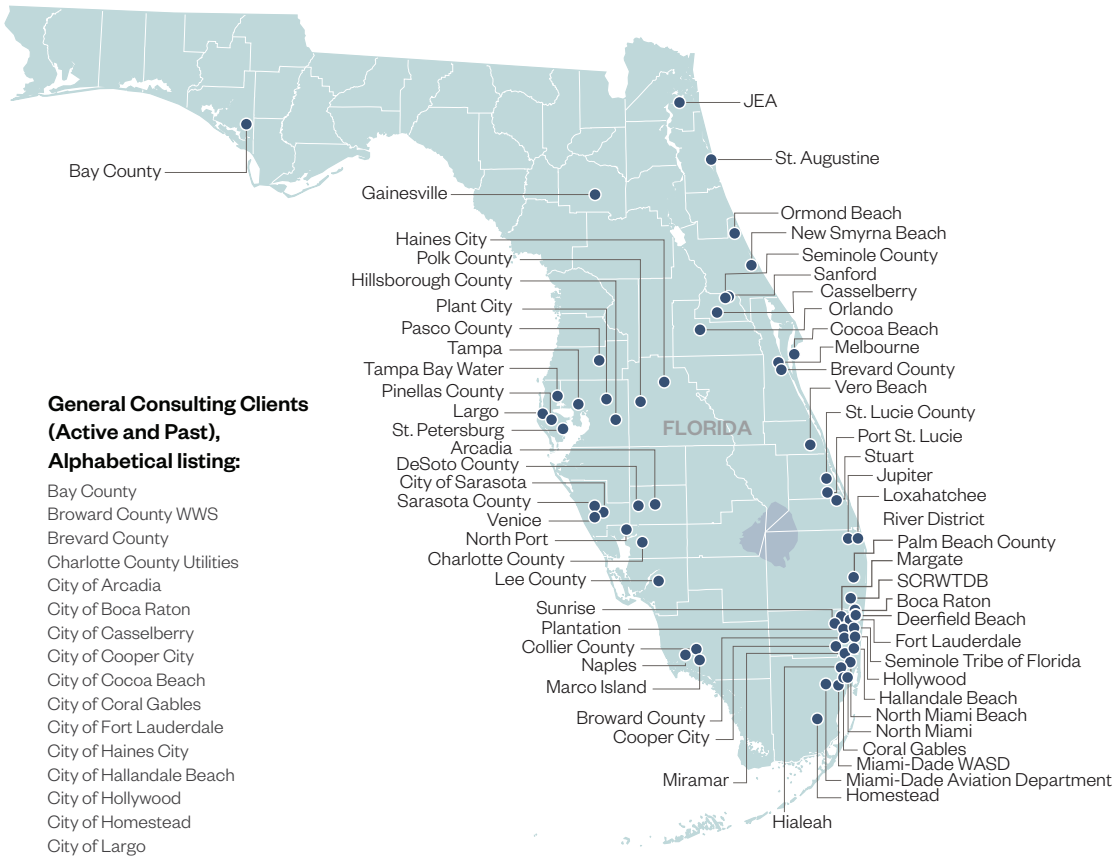
## Relevant Experience

Hazen offers the City of Coral Gables a combination of experience, resources, and expertise ideally suited to this project. This section provides detailed project sheets which represent Hazen's experience and past performance on projects similar to those the City of Coral Gables will require. A general overview of our experience is provided as follows.

## Planning and General Civil Engineering Design Services

Hazen serves as the General Consulting Engineer for many local utilities. In Florida, we currently serve over 50 water and wastewater clients as general consultants. Our general consulting assignments include water, wastewater, and stormwater master planning experience. We are also providing planning, design, permitting, construction, sustainability and resiliency, start-up, and troubleshooting of conveyance systems, along with the refurbishment and replacement of water, stormwater, and wastewater infrastructure.




**General Consulting Clients (Active and Past), Alphabetical listing:**

Bay County
Broward County WWS
Brevard County
Charlotte County Utilities
City of Arcadia
City of Boca Raton
City of Casselberry
City of Cooper City
City of Cocoa Beach
City of Coral Gables
City of Fort Lauderdale
City of Haines City
City of Hallandale Beach
City of Hollywood
City of Homestead
City of Largo
City of Marco Island
City of Margate
City of Melbourne
City of Miramar
City of Naples
City of North Miami
City of North Miami Beach
City of North Port
City of Orlando
City of Ormond Beach
City of Plant City
City of Plantation
City of Port St. Lucie
City of Sanford
City of Sarasota
City of St. Petersburg
City of Stuart
City of Sunrise
City of Tampa
City of Venice
City of Vero Beach
Collier County
Desoto County
Gainesville Regional Utilities
Hillsborough County
Jacksonville Electric Authority (JEA)
Lee County Utilities
Loxahatchee River District
Miami-Dade Water and Sewer Department
Miami-Dade Aviation Department
Palm Beach County Water Utilities Department
Pasco County Utilities
Pinellas County
Polk County Utilities
St. Augustine
St. Lucie County
Sarasota County
Seminole County
Seminole Tribe of Florida
South Central Regional Wastewater Treatment and Disposal Board (SCRWTDB)
Tampa Bay Water
Town of Jupiter
Utilities Commission, City of New Smyrna Beach

## Familiarity with Permitting Agencies and Procedures

All of our team members possess technical strength coupled with an understanding of the varying environmental regulatory issues that the City has to contend with. This familiarity stems from Hazen's 50-plus-years of providing engineering services to municipalities within South Florida. Over this time, we have developed excellent relationships with the local regulatory agencies and have an extensive understanding of their regulatory practices. As a result, we are able to expedite the permitting process through various regulatory agencies including the Miami-Dade Department of Environmental Resource Management (DERM), Miami-Dade Water and Sewer Department (MDWASD), Miami-Dade County Public Works, FEMA, Florida Department of Transportation (FDOT), South Florida Water Management District (SFWMD), and the Florida Department of Environmental of Environmental Protection (FDEP). **This ability to quickly secure permits from the various regulatory agencies, which have jurisdiction over the City, allows for the rapid implementation of improvements.**

**We have developed excellent relationships with the local regulatory agencies** and have an extensive understanding of their regulatory practices.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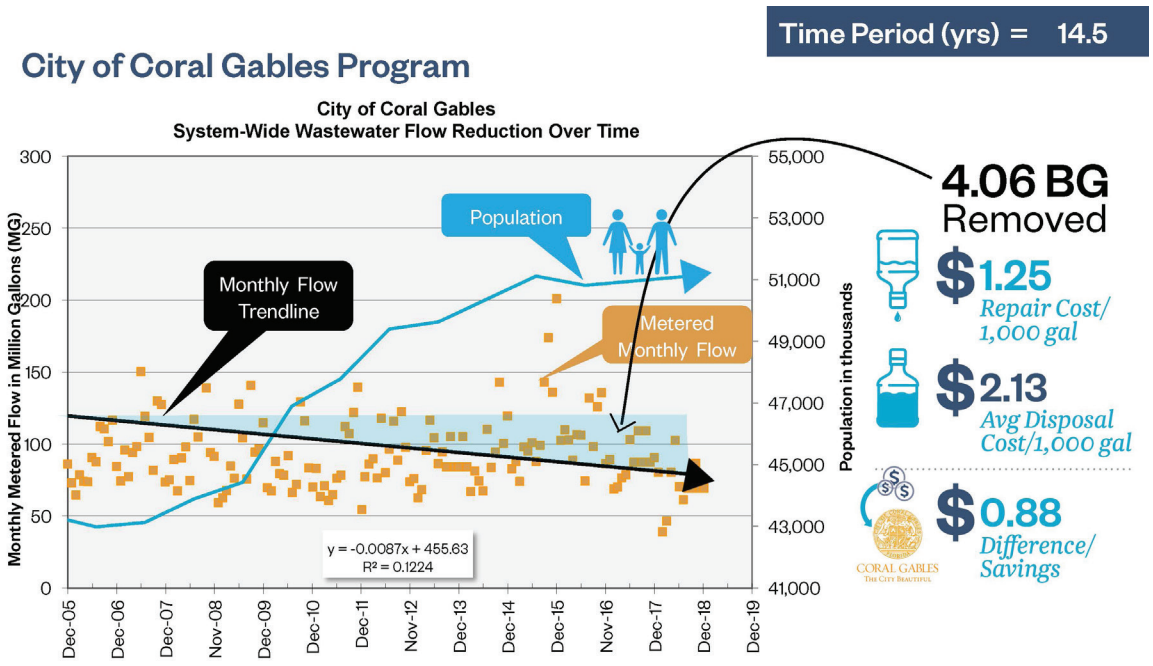
## Infiltration/Inflow (I/I) and Sewer System Evaluation Surveys (SSES)

Inflow and infiltration involves the entrance of rainwater and groundwater into the sanitary sewer system. This adversely impacts a utility by increasing pumping and transmission costs and, decreasing system capacity. Due to South Florida's topography and groundwater conditions, infiltration is a major issue affecting many utilities. As a result, Miami-Dade County requires that the City of Coral Gables, as a Volume Sewer Customer (VSC), perform a Sanitary Sewer Evaluation Survey (SSES) of its entire collection system on a reccurring 10-year cycle. Miami-Dade RER is responsible for the oversight of the VSC SSES program and has established guidelines with minimum requirements necessary to comply with the ordinance. It has divided the program implementation into three phases:

Hazen was retained by the City of Coral Gables, to conduct the SSES Phase I and II. The initial SSES cycle had required completion dates of November 12, 2002 for Phases I and II and November 12, 2006 for Phase III.

In Phase I, the objective was to determine which basins exceeded the 5,000-gpdim I/I threshold. Phase II of the study utilized the prioritization developed in Phase I, and identified I/I sources, specific leaks, estimated leakage rates, recommended repair technologies, and the cost of the repairs.

Since that time, Hazen has assisted the City of Coral Gables with the second cycle SSES Phase I and II reports. These documents were submitted on November 12, 2012. Since the implementation of the first cycle, some of the guidelines have changed. In 2002, smoke testing was required in only those basins which exceeded the 5,000-gpdim threshold. As part of the 2012 submittal to DERM, all collection basins within the City's sanitary sewer were be smoke tested. The November 2016 Phase III report outlined the repair activities that were conducted to bring out of compliance collection basins in line with mandated 5,000 gpdim requirement. The repair activities conducted allowed the all basins to be in compliance with County Code. As a result, none of the City's PS collection basins were placed into moratorium. Hazen is committed to offering the City the same proven team that has implemented numerous successful inflow and infiltration reduction programs throughout South Florida. Our staff have assisted numerous other clients, including Miami-Dade Water and Sewer Department, the City of Hialeah, Broward County, and others with large multi-year inflow and infiltration programs.

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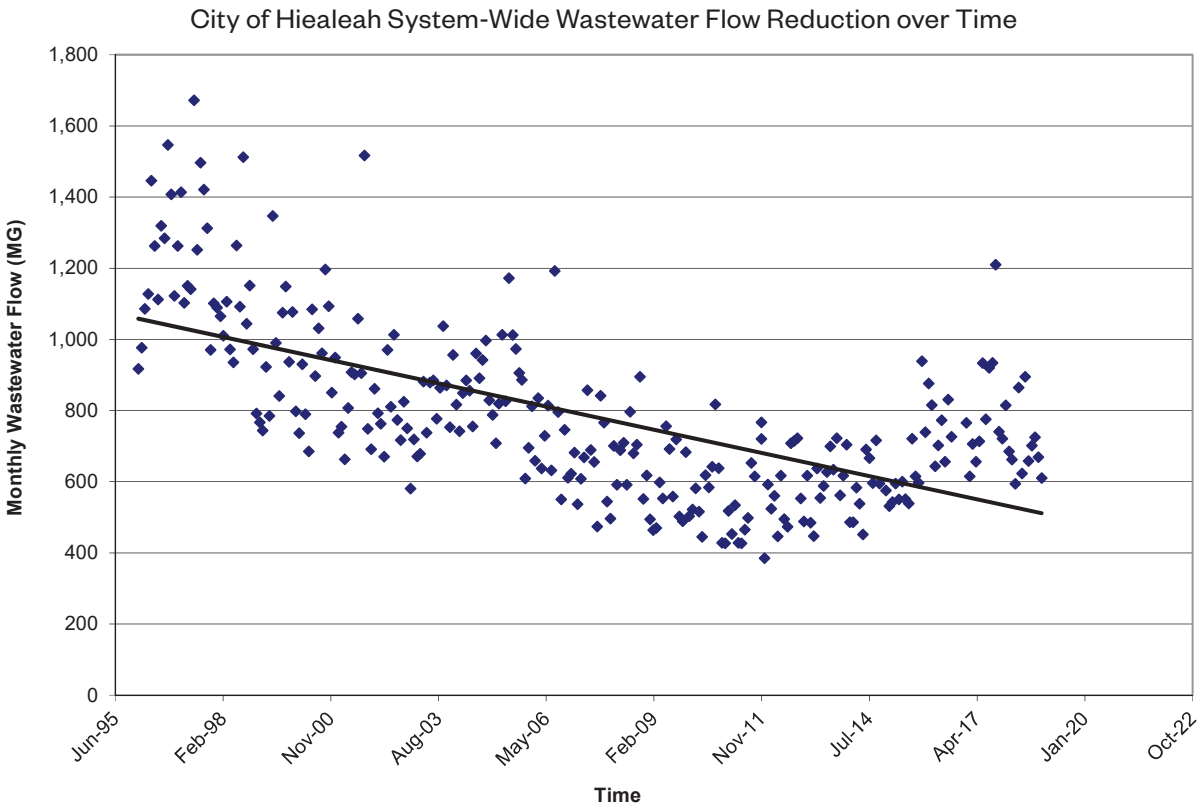
Emphasis has shifted in many local utilities to rehabilitate existing collection systems to reduce excess leakage caused by broken pipes or fittings or stormwater entering the system. Excessive I/I causes an economic burden. Rainwater and groundwater, which normally do not require treatment, enters the collection system and increases the amount of wastewater flow, which must be collected and treated. Increased flows translate into higher pumping and treatment costs and the unnecessary utilization of available treatment and transmission capacity, and in the worst case, can lead to sanitary sewer overflows (SSO).

Hazen is currently providing I/I and sewer rehabilitation program management services to several utilities across Florida, including the City of Coral Gables, Homestead, Hialeah, Pinellas County, City of Arcadia, and Miami-Dade County. Hazen staff is knowledgeable of each step of the I/I flow reduction program, sewer system evaluation survey (SSES), and sewer rehabilitation.

Since the implementation of the City of Coral Gables Inflow and Infiltration Reduction program, flows to Miami-Dade Water and Sewer Department have been reduced by over 46 million gallons per month. This equates to **approximately $1.3 million in annual savings to the City of Coral Gables.**




**Hazen has assisted the City of Hialeah with its sewer condition assessment and rehabilitation program for many years, and has performed activities required to identify all of the key steps in the inflow and infiltration including: Manhole inspection, smoke testing, night flow isolation, flow and rainfall monitoring, wet weather hydraulic modeling, video inspection review, repair alternatives analysis, cost estimating and repair prioritization.**

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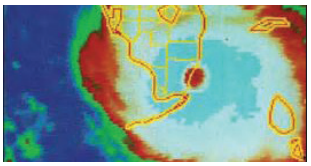
## Environmental Engineering and Hazard Mitigation Strategies

Hazen is a nationally recognized environmental engineering firm built on a strong foundation of technical and professional excellence. The Hazen team offers the City of Coral Gables a team of engineers and scientists who are experts in all key functions of flood protection projects including hydrologic and hydraulic analysis, levee design, and internal drainage analysis along with associated support services including natural resource permitting, floodplain management, and encroachment permitting. This comprehensive expertise ensures effective and efficient project execution.

### Project Spotlight - Hazard Mitigation

**Hazard Mitigation Hurricane Preparedness**

Broward County, FL



Hazen implemented strategies to help Broward County mitigate hurricane-related damage to its wastewater collection, treatment and disposal system. Under the $5 million project, the County retained Hazen to perform a structural analysis of its facilities to identify vulnerable elements of its wastewater collection and treatment systems and design improvements to them. The goal of the program was to identify buildings and structures that would fail under hurricanes of varying intensities and develop strategies to rehabilitate critical elements of the system. The need to bring the system back on line immediately after a storm was considered the most important aspect of a preparedness plan. Therefore, critical elements like master lift stations, effluent pumping stations, emergency generator building and the operations building was selected to be hardened for storm resistance. Buildings / structures were improved to resist wind speeds up to 130-150 MPH. Hazen's experts in the environmental field along with its wind engineers ensured the success of Broward County's Hurricane Preparedness Plan for its wastewater facilities.

### Project Spotlight - Hazard Mitigation

**Bay Park Sewage Treatment Plant Floodwalls**

Nassau County, NY

In 2012, the Bay Park Sewage Treatment Plant (BPSTP) was severely flooded due to Superstorm Sandy. In response, Nassau County initiated design and construction of mitigation measures to protect the facility from future storm events and flood surges. As part of the project team, Hazen provided QA/QC, designed the stormwater system (preliminary 30% and all modeling), and designed the gates and the stormwater overflow structures. As a result of sealing the facility below the critical floodwall elevation, an innovative approach was required to address the risk of localized flooding within the facility.

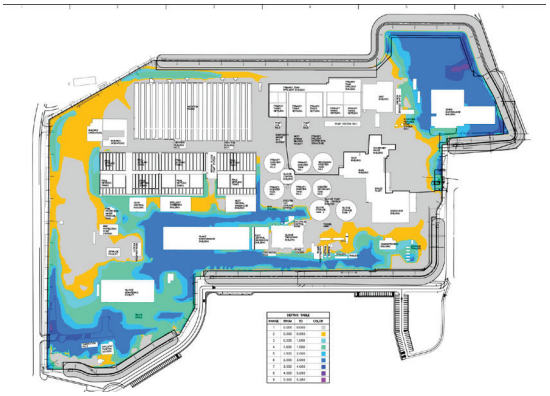


**Figure of stormwater inundation map during a 100-year storm**

The results of the modeling served as the basis of design for conveyance of the 10-yr storm via the two stormwater pumping stations, with less than 15 inches of flooding during both the 10-yr and 100-yr storms.

**This project included preparation and successful negotiation of an $810 million FEMA Alternative Procedures 428 grant – the largest ever of its kind.**

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## Stormwater Systems

Hazen has implemented over $2 billion in local public works infrastructure projects over the past 10 years, including a significant volume of stormwater management improvements. Services provided under these contracts include master planning, water quality improvements, and general drainage improvements. Hazen understands the importance of leveraging existing stormwater infrastructure to aid in the improvement of the system to address the dynamic flood management, coastal resiliency, and water quality challenges municipalities continue to face in South Florida.

Hazen has extensive stormwater master planning/sustainability experience with municipalities such as the Cities of Fort Lauderdale, Coral Gables, Hialeah, and Town of Jupiter. Efforts include numerous completed projects related to stormwater management design and permitting; stormwater utility development, implementation, and operations; and regulatory assistance, including NPDES programs and projects. Much of our experience is related to Clean Water Act resultant programs and retrofitting existing drainage/stormwater management systems to improve flood control and meet water quality objectives. This experience helps demonstrates our vast understanding of the potential climate change impacts in Southeast Florida. Our adaptation strategies for the evolving South Florida hydrologic environment concentrate on maintaining the high level of flood protection to our communities at a sustainable investment rate.

We have also been involved in the design, permitting, and construction administration of all types of stormwater management infrastructure—from storm sewers and pumping stations to created wetlands and innovative BMPs.

### Project Spotlight - Stormwater Systems

**Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services**

Fort Lauderdale, FL


Hazen was selected in 2016 as the Program Manager for delivery of a new stormwater master plan and implementation of designs to address chronic flooding, other stormwater management challenges, and sea level rise (SLR) adaptation.

The City covers approximately 23,000 acres of highly-urbanized neighborhoods, with much of its coastal land area lying within the floodplain and numerous rivers and tributaries running throughout the City. The scope of work includes data collection; City-wide hydraulic/hydrological stormwater modeling, including consideration of climate change impacts; a revised stormwater master plan with prioritized capital improvements; design, permitting, and construction services for stormwater capital improvement projects resulting from the revised stormwater master plan; watershed planning; community outreach services; and construction management services.

The project team evaluated long-range solutions that perform effectively over a broad range of climatological and other uncertain future conditions. Concurrent with the planning process, the City identified seven neighborhoods with immediate needs relative to chronic stormwater and/or tidal flooding for accelerated design implementation.

The program is expected to result in a re-prioritized capital improvement plan to address key neighborhoods and climate change adaptation action areas. Further modeling and project development associated with improvements beyond the original seven neighborhoods are anticipated to continue through 2021.

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## Paving and Drainage Assessments and Design

Hazen's extensive experience with drainage infrastructure rehabilitation/replacement involves continuous interaction with various roadway regulatory agencies on a local as well as state level. Hazen has worked with the City's Public Works Department on numerous occasions as well as Miami-Dade County and FDOT as required to assess/permit various wastewater and stormwater projects throughout the City. The Miracle Mile beautification project is one example. Hazen worked closely with City staff and CCTV contractors to assess the state of the drainage system serving this arterial roadway through the center of the City's downtown area. Hazen performed multiple field visits to confirm asset locations and visually evaluate aboveground infrastructure conditions. Concurrently, multiple CCTV videos and logs were reviewed to further judge the structural integrity of the buried stormwater infrastructure. At the conclusion of the evaluation survey, Hazen generated a matrix that detailed the deficiencies noted, criticality, and associated repair costs for City review and action prior to/concurrent with the Miracle Mile beautification project. Similarly, Hazen worked with the FDOT performing many of the aforementioned tasks to assess the state of existing stormwater infrastructure along many of Florida's State Roads and Highways. The assessment and criticality of the repairs sited allowed the FDOT to address the observed deficiencies during/prior to roadway modifications/expansions.

### Project Spotlight - Paving and Drainage

**Engineering Details and Specifications**
Fort Lauderdale, FL

Hazen was selected as the Program Manager for the delivery of a new stormwater master plan and implementation of designs to address chronic flooding. A key part of the program, included prepared engineering design details and specifications related to typical utility infrastructure. In response to severe flooding, the City of Fort Lauderdale, in partnership with Hazen, is working on a program focused on resilient adaptation to climate change and innovative watershed-based solutions to stormwater management.

**A key task of this program was updating and modernizing the City's engineering details for water piping, roads, sidewalks and stormwater as well as creating new standard details for the City relative to erosion and sediment control and green infrastructure. Standard engineering specifications for asphalt, excavation, piping, etc. were also developed for use on the stormwater program.**

### Project Spotlight - Paving and Drainage

**Parkway Infrastructure and Roadway Improvements**
Jupiter, FL

The Town of Jupiter retained Hazen to provide detailed design, permitting, and limited services during construction for the Parkway Infrastructure and Roadway Improvements project. Key features of the design included: 400 feet of 30-inch-diameter ex-filtration trench for improvement of drainage for a 15-acre area to facilitate future development of an approximate 800-space parking garage on the south side of Parkway Street; removal and realignment of Parkway Street to 15 feet south of the original alignment; elevated speed table to calm traffic; stormwater catch basins along north and south side of realigned roadway; new curb and gutters; pavement striping and road sign design; new Americans with Disabilities Act-compliant sidewalks and walkways; outfall weir box structure to control ex-filtration trench; modification of Loxahatchee River District-owned sanitary sewers to accommodate the road realignment; crosswalk designed using pavers to enhance the pedestrian experience.

## Construction Management

Work under each of the service categories will require construction administration and inspection. We want to highlight the important role that this service has and our experience in this area of work. Building today's public works infrastructure is a complex task. Even small projects often consist of multiple contracts. Add in legal requirements, limited workspace, tight budgets, and regulatory-driven schedules, and the challenges quickly multiply.

From full-time on-site inspection through operations and start-up services, our construction management team provides quality assurance/quality control, technical experts, constructability experts, and design-construction liaisons. And because a significant portion of our work involves large projects that provide vital public services, we have developed expertise dealing with critical infrastructure, challenging working conditions, and new technology.

**Serving as Construction Manager on over $5 billion worth of recent projects,** we have managed programs spanning multiple sites and involving dozens of contractors and hundreds of subcontractors.

Hazen regularly provides:

- Cost control and claim avoidance/minimization.
- Scheduling and critical path analyses.
- Resident engineering and inspection.
- Control systems integration and troubleshooting.
- Assistance with startup, training, operations and maintenance.
- Program management services.

## Project Spotlight - Construction Services

### South District Wastewater Treatment Plant HLD Program Construction Management

Miami-Dade County, FL

Hazen provided MDWASD construction management services on the largest High-Level Disinfection project in the U.S. Hazen was responsible for the general project administration of each of the design projects and provided assistance on all MDWASD design projects. As part of this task, Hazen was required to interact with multiple consultants designated by the MDWASD as well as their design staff. Construction project schedules were developed and tracked to confirm that each construction contract was on schedule to meet the completion milestones. Failure to complete construction by the dates outlined in the Consent Order between MDWASD and the Florida Department Environmental Protection (FDEP) would result in fines. No fines were levied against the County as part of the HLD project.

**The facility met all FDEP Consent Order requirements and was completed 16 months ahead of schedule and 10 percent under budget.**

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## Resiliency

Hazen has performed numerous assessments of the vulnerability/resiliency of our clients' facilities, and has provided corresponding recommendations to mitigate potential hazards. For example, Hazen conducted an analytical study to determine the potential effects of sea level rise and storm surge impacts at Miami-Dade Water and Sewer Department's (MDWASD) wastewater treatment facilities. Regional planning models have showed that sea level in South Florida is expected to increase 9 to 24 inches by 2060. In response, we evaluated several potential severe weather impacts and estimated the overall risk for each plan in the study. Adaptation strategies were also considered for all of the wastewater treatment plants.

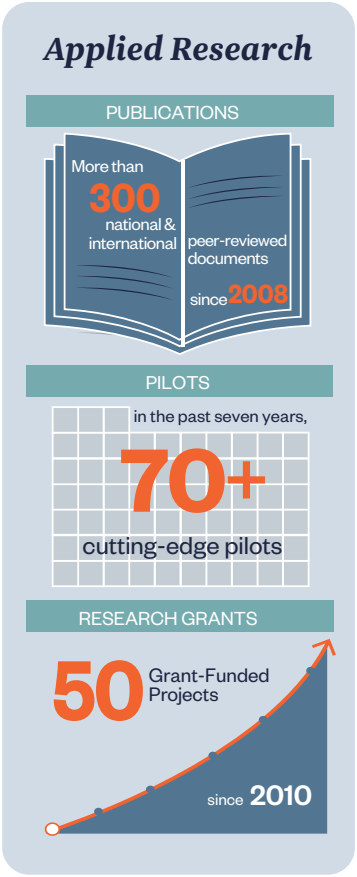
The Hazen team has performed a range of risk and resiliency assessments for coastal cities. We pride ourselves on producing comprehensive, implementable resiliency plans informed by past planning efforts and extensive implementation experience. The team also embraces strong stakeholder and community involvement in identifying acceptable levels of risk, and consistently provides portfolios of innovative, holistic, and flexible adaptation options which balance cost and risk management. For New York City, we assessed the risk and vulnerability of the City's wastewater assets, drawing upon experience with Superstorm Sandy. This information was used to assist the City in the development of a focused, prioritized CIP plan.

**The Hazen team has demonstrated experience in providing consulting services** in the areas of resiliency, sustainability, adaptation strategies,and risk management/mitigation to many public- and private-sector agencies in South Florida and nationally.

## Applied Research Group

A unique feature of Hazen is our Applied Research Group that works to advance projects which address critical questions to the water resources sector. Many of our recent research projects have focused on climate change and resiliency planning that tie innovative applied research to emerging problems. Projects conducted through Hazen's Research group include:

- Developing a Basin-Wide Framework for Drought Forecasting and Planning in the Chesapeake Bay Region, NOAA Climate Program Office
- Vulnerability Assessment and Risk Management Tools for Climate Change, WaterRF
- Water Quality Impacts of Extreme Weather-Related Events, WaterRF
- Analysis of Reservoir Operations Under Climate Change, WaterRF
- Climate Change and Water Quality: Impacts and Adaptation Strategies for New York State Water Utilities, NYSERDA

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## FEMA Experience

The firm has assisted many clients in obtaining grant and loan funds from FEMA and understand the requirements, which enables Hazen to provide assistance in an expedited manner. The firm has also been involved with assisting its clients in developing mitigation measures to fortify their facilities against various types of disasters including flooding, hurricanes, and fire, as well as emergency response plans.

Hazen's experience related to reporting and documentation of storm damage includes work for several South Florida utilities:

- Hazen is assisting the City of St. Augustine in a multi-phase project to obtain funding under FEMA's Standard Operating Procedure of the Cost Estimating Format (CEF) for Large Projects. Following Hurricane Matthew, the City of St. Augustine experienced extreme flooding in October 2016 and as a result, 13 lift stations were damaged, some of which are located in archaeologically sensitive historic downtown.
- **For the City of Hollywood, damage documentation and reporting to FEMA, resulting from the passage of Hurricane Irene, identified $800,000 of fully eligible funding.**
- After Hurricane Andrew, professional engineers and scientists from Hazen inspected facilities of Miami-Dade, the City of Hollywood, and other utilities. **The timely pursuit of FEMA funding, coupled with the documentation obtained by Hazen, enabled the utilities to obtain over $2 million in federal funding to help offset repair costs.**
- Hazen provided a general assessment of the St. Lucie County Stormwater Program, identified operation and maintenance needs as well as priority capital improvement needs. The firm evaluated several funding options and the County decided to go with the County-wide Municipal Services Taxing Unit (MSTU). Hazen assisted with several capital improvement projects from a major stormwater pump station to a regional stormwater attenuation and wetlands mitigation bank. The firm helped with permitting and obtaining grant funding assistance from multiple sources, **including FEMA's Hazard Mitigation Grant Applications for Lakewood Park and Indian River Estates. The work included the collection of data relative to costs, proposed upgrades, and documentation of flooding.**
- In addition to our local FEMA experience, Hazen has provided similar services to its clients nationwide.
- **Wastewater Treatment Plant Flood Recovery Assistance:** The City of Clarksville, TN selected Hazen to provide engineering oversight for recovery efforts at the City's WWTP following the historic flood that occurred May 1 and 2, 2010. This rainfall produced more than 12 inches of rain in Clarksville and more than 13 inches in Nashville and other areas upstream of Clarksville. As flood waters from the Red River rose above its banks and breached the protective levy surrounding Clarksville's WWTP, the entire plant was inundated. The City selected Hazen to be the lead engineer overseeing recovery efforts at the WWTP. Within 10 days of the flood event, primary treatment was back online. A portion of the secondary treatment was brought back online in early September. **Hazen worked with FEMA personnel to complete project worksheets and facilitate reimbursement to City for expenditures.**
- **Passaic Valley Sewerage Commissioners, Design and DSDC for Replacement of Electrical Power Cables:** Hazen was selected by the Passaic Valley Sewerage Commissioners (PVSC) to provide design services for replacing the plant's electrical distribution cables. As with many Northern New Jersey utilities, Hurricane Sandy caused extensive damage to PVSC's physical infrastructure, including damaging much of the electrical backbone of the plant. Although much of the plant's electrical distribution equipment was re-energized immediately as part of the flood recovery effort, the integrity

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of many of the feeder cables were compromised by their exposure to salt water. **Hazen worked with FEMA representatives to facilitate reimbursement for the services of this contract as well as complete the paperwork for approval of this electrical power cable replacement project.**

- The **Bayshore Regional Sewerage Authority (BRSA) Wastewater Treatment Plant (WWTP)** was severely damaged during Superstorm Sandy. The NIRO Incineration System, used for biosolids disposal, and numerous incineration support systems were heavily impacted by flooding. This complex project required careful and timely coordination in order to obtain funding from New Jersey Environmental Infrastructure Trust, **maximize eligibility for FEMA reimbursement,** and align with BRSA's overarching vision for improving future operational reliability.

**We have worked directly with FEMA representatives** to appropriately evaluate, categorize, estimate, complete FEMA project worksheets, and maximize reimbursement for emergency response, restoration, and mitigation work.

## Project Spotlight - FEMA EXPERIENCE

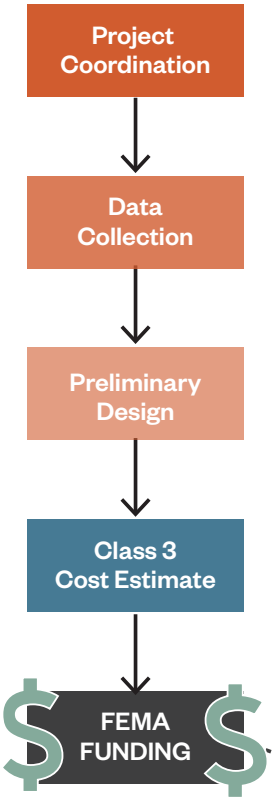
### **Project Management Services for Wastewater Recovery Permanent Repair Projects,** Wantagh, NY

Hazen, in joint venture, is leading the Program Management of emergency and long-term repairs and future storm resilience solutions for the Bay Park Sewage Treatment Plant (STP) for the Nassau County Department of Public Works (DPW). The 70-mgd Bay Park STP was one of the many public infrastructure works that were severely flooded by the storm surge of Superstorm Sandy, resulting in a complete shutdown of operations at the facility for several weeks. After providing emergency construction management in the immediate aftermath of the storm, Hazen was formally selected to provide Program Management services to facilitate the delivery of a wide variety of additional projects required to fully repair and harden the plant against future storm events. **Client work to date has included preparation and successful negotiation of an $810 million FEMA Alternative Procedures 428 grant – the largest ever of its kind.**

## Project Spotlight - FEMA EXPERIENCE

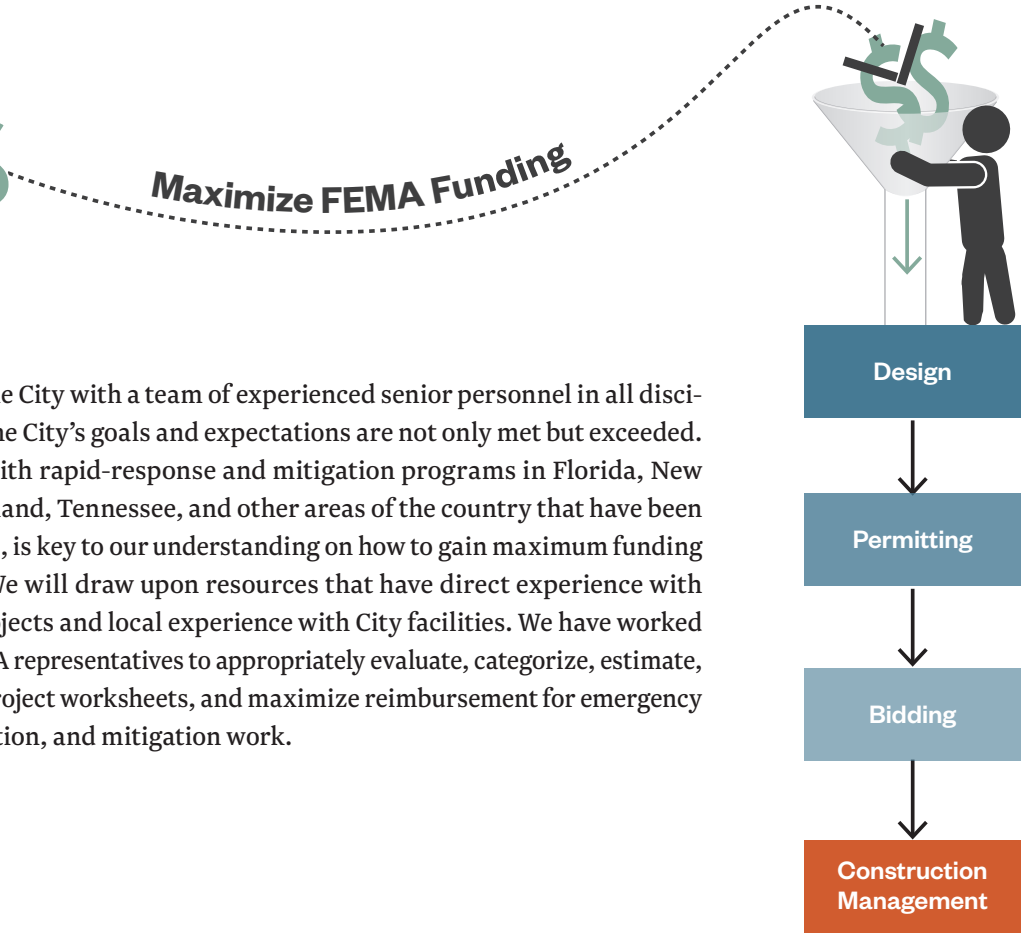
### **Manhattan Pump Station (MPS),** New York City Department of Environmental Protection (NYCDEP), NY

Outside of Florida, one of Hazen's most notable disaster response projects includes the The MPS, which is located adjacent to the East River, experienced a 10-foot storm surge during Hurricane Sandy. Following the loss of utility power, floodwater overtopped the station's first floor. Saltwater rushed into the facility, and the dry side of the station was rapidly submerged by approximately 30- feet of standing water. Critical mechanical and electrical equipment was submerged, including main sewage pumps, valve actuators, power panels, and local control panels . Hazen was contacted in the midst of the storm to provide emergency response and damage assessment services. In the immediate aftermath of the storm, Hazen conducted numerous site walkthroughs and developed a comprehensive damage assessment and recovery plan . **Hazen coordinated with NYCDEP to prioritize repairs to damaged systems. Hazen simultaneously coordinated with FEMA representatives to categorize emergency, restoration, and mitigation measures to facilitate FEMA reimbursement. FEMA funding totaled $24 million, which facilitated reimbursement of approximately 90 percent of the total costs.**




The Hazen team understands the significance of this project and has the unique ability to achieve the City's goals:

- Maximize FEMA funding under the Alternative Procedures Pilot Program for Permanent Work.
- Minimize impact to the community during construction and maximize post-construction value by providing resilient, aesthetically pleasing designs that will blend in with the surroundings and encourage a pedestrian-friendly streetscape.
- Encourage creativity and innovation that will increase the value of the project to all stakeholders and ensure reliable service for the City's customers.
- Ensure quality, an expedited schedule, and maintain cost controls.




We will provide the City with a team of experienced senior personnel in all disciplines to ensure the City's goals and expectations are not only met but exceeded. Our experience with rapid-response and mitigation programs in Florida, New York City, Long Island, Tennessee, and other areas of the country that have been ravaged by storms, is key to our understanding on how to gain maximum funding for this project. We will draw upon resources that have direct experience with FEMA-funded projects and local experience with City facilities. We have worked directly with FEMA representatives to appropriately evaluate, categorize, estimate, complete FEMA project worksheets, and maximize reimbursement for emergency response, restoration, and mitigation work.

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## Asset Management

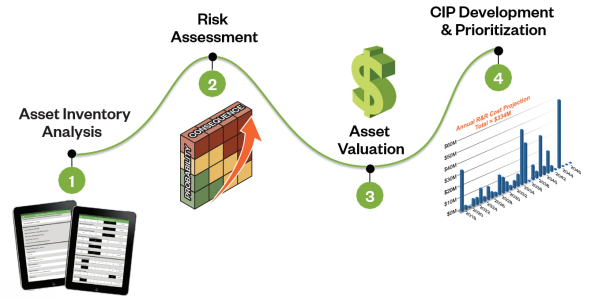
Over the past several years, Hazen has provided asset management services to many utilities including Broward, Hillsborough, and Polk counties. Rising operating costs, aging infrastructure, regulatory pressures, simultaneously ongoing programs, and a customer base that is resistant to rate increases means the City must find ways to extract greater value from their existing assets. Many utilities already implement several of the elements of Asset Management programs – they just may not refer to these tasks collectively as Asset Management. The Hazen team provides an integrated suite of Asset Management services and tools that cover all aspects of the asset's whole life cycle, including safety, operational performance, levels of service, contractual requirements, maintenance requirements, and the asset's whole of life costs for both above and below ground assets.

Our approach to asset management is to provide expertise, tools, technologies and procedures that will empower clients to achieve excellence in assets that requires excessive maintenance. We realize that one size does not fit all so we are flexible in our approach, and can work with utilities to implement a full asset management program, or alternatively provide a service targeted to the specific requirements for that utility.

## Project Spotlight - Asset Management

### **Water and Wastewater Master Plan Update,** Sunrise, FL

Hazen has employed a systematic approach to asset inventory, condition assessment, risk assessment, and prioritization of assets for renewal and replacement, culminating in a prioritized capital improvements plan for the City of Sunrise's water main and force main systems. Using a variety of tools including Model Builder, Power BI, ARCMAP and more, Hazen is developing a complete risk assessment and budget forecast for inspection and replacement of all of the City's force mains and water mains.




## Project Spotlight - Asset Management

### **North Regional WWTP Facility Improvements Facilities Plan,** Broward County, FL

Hazen was selected by Broward County Water and Wastewater Services to provide engineering services for facility improvements for the North Regional Wastewater Treatment Plant. The Security/Risk Assessment phase involved the comprehensive review of Broward County's North Regional Treatment System assets (physical, cyber, and human elements), including the treatment facility, master pump stations, ocean outfall, deep injection wells, and related force mains and infrastructure, with regard to both man-made and natural hazards. Using the process known as Risk and Resilience Management of Water and Wastewater Systems, each potential threat was paired with each critical asset. Mitigation measures were developed for those threat-asset pairs exhibiting the greatest risk to provide increased resilience to the wastewater system as a whole.

## Hydraulic Modeling

Hazen is qualified to assist the City of Coral Gables with hydraulic modeling due to our specific experience with the City and with other similar, local South Florida clients. Our core team has performed process and hydraulic evaluations similar to the described services in this RFQ.

We regularly apply our modeling capabilities to evaluate many types of engineered and natural systems, including sanitary collection systems, storm sewer networks, natural channels and coastal zones, stormwater management BMPs, drinking water aqueducts, reservoir watersheds, and treatment plants of all sizes.

Most often, we employ hydraulic surge analysis, computational fluid dynamics (CFD), sewer system modeling, and water quality modeling to help municipalities:

- Create water and sewer master plans.
- Meet EPA regulatory requirements.
- Eliminate combined sewer overflows (CSO).
- Identify methods to improve water quality.

**Practical experience tying models to the real world is what sets us apart. Our modelers specialize in integrating GIS with models using any commercially available software package and working closely with field engineers, operators, and designers to bridge the gap between models and reality.**

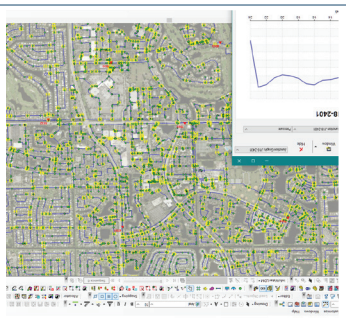
Modeling tools enable planning for potential changes in precipitation, increases in sea level and risk from storm surge on infrastructure. In addition to the existing statistical record typically used to size infrastructure for water quality benefits and flood control, Hazen helps clients stay abreast of the most up-to-date research on climate change, and makes use of these forecasts in sustainable long-term planning. Our suite of modeling programs, which include the InfoWorks series and the U.S. Army Corps of Engineers' HEC models, can help control risks associated with climate change. Our modeling expertise produces designs that minimize the impacts of development and infrastructure on the water environment.

Cutting-edge hydraulic modeling capabilities allow Hazen to better understand the behavior of the systems we design and improve their long-term performance—
**a key to successful and sustainable water engineering.**

### Project Spotlight

**Water Master Plan,** Plantation, FL

Hazen utilized InfoWater for the development and calibration of a new water distribution system hydraulic model. Hazen is responsible for development of a Master Plan that defines short- 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. The Plantation Water Master Plan identifies recommended capital improvements for: 1) water supply; 2) treatment; 3) distribution system quality and 4) distribution system capacity. All elements are proceeding in parallel to expedite delivery.



InfoWater®

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## Lift Station/Pipeline Design

The major capital investment of a utility is in the wastewater collection/transmission systems, water distribution, and stormwater systems. These systems consist of sewers and associated appurtenances, and transmission mains, distribution lines, and services. Hazen has been designing these elements for over six decades in the United States and overseas. Our staff has experience with almost every available pipe material offered in both national and international markets. In addition, our projects within collection and distribution systems frequently include site-related design components such as stormwater systems or sidewalk and road improvements. Our goal is to address these components so they have a positive impact on the surrounding community.

Hazen's engineers have designed numerous potable water mains, reclaimed water mains, wastewater force mains, and gravity sewers. Many of these projects have incorporated open cut, horizontal directional drilling (HDD), microtunneling, and jack and bore techniques. **Hazen has planned and designed over $130 million worth of water and wastewater pipelines in Florida using both open-cut and trenchless technologies.**

We directed two of the largest sewer system rehabilitation projects in Florida (for Miami-Dade County and the Broward Regional service area) and are currently managing a project to conduct a risk-based prioritization and condition assessment of the City of Fort Lauderdale's wastewater force mains to comply with the requirements of a Consent Order with the Florida Department of Environmental Protection. The project consists of 186 City-operated pump stations, five regional repump stations, 137 miles of force main, and 500 miles of gravity sewer. Hazen's experience in water conveyance systems covers the full range of services including initial planning, preliminary and detailed design, permitting, hydraulic modeling including numerous hydraulic studies and network analyses, and construction management. We have supported municipalities in the relocation of utilities for road conflicts, expanded distribution systems to create loops for improving water quality and assisted with the rehab and replacement of gravity sewer, force mains, and water distribution piping.

### Project Spotlight - Lift Station

**City of Hialeah PSIP Engineering Services During Construction**

Hialeah, FL

Hazen was responsible for designing and permitting all of the station improvements for PSIP Phase I, PS 4, 5, 56, 100, 101, 126, PSIP Phase II, PS 131, 133, 140, 141 and PS 106 and 150 as well the Phase I and II Force Main Improvements on a fast track basis to obtain approval from DERM. Proposed improvements replaced mechanical, electrical, structural and instrumentation components in 11 submersible pump stations.

### Project Spotlight - Pipeline Design

**Influent Pump Station Gravity System**

City of Homestead, FL

On a fast track basis, Hazen designed and permitted a 2,500-feet of gravity sewer for the City of Homestead's influent pump station. The new gravity sewer eliminated the need for Pump Stations 1 and 21. Resulting in wastewater flowing by gravity from the western and northern portions of the City to its wastewater treatment plant influent pump station. The new gravity sewer results in considerable energy savings. Hazen provided services during the construction of the project.

## Electrical and I&C Engineering

Hazen provides design and construction oversight of electrical power distribution systems on all of its projects, including low and medium voltage distribution switchgear, standby power systems with paralleling switchgear, motor control centers, variable frequency drives, lighting, grounding and lightning protection systems. Some designs have incorporated intelligent motor control centers networked to plant SCADA systems to allow for power monitoring and system diagnostics capabilities. We also conduct short circuit/protection coordination studies and assist in developing long-term maintenance programs for major electrical equipment.

Hazen is recognized as a leader in Florida in the design and implementation of integrated instrumentation, process control, telemetry and information systems for utility systems in the rapidly advancing field of computer control and data communications.

### Project Spotlight - Electrical and I&C Engineering

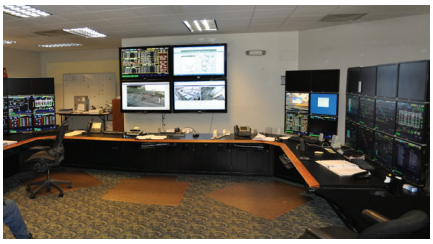
**Water Treatment Facilities Arc Flash Study,** City of Sunrise, FL

Hazen conducted Arc flash analysis of the low voltage electrical distribution system for all of the major water treatment facilities and booster pump stations for the City of Sunrise. The study included field investigations to collect electrical power distribution system information at all locations including three of their major water treatment plants and four booster pump stations. The study also included breaker coordination for all electrical equipment to minimize the arc flash hazard present at any particular piece of electrical equipment. In addition to breaker coordination, arc flash boundaries and arc flash energy were calculated by the use of computer-aided electrical analysis and posted on the equipment.

### Project Spotlight - Electrical and I&C Engineering

**North Regional Wastewater Treatment Plant SCADA System Replacement**
Broward County, FL

Hazen provided software needs assessment, process control system hardware requirements, software functional evaluation, design, permitting, procurement assistance, and construction management services related to the SCADA system replacement project.



**Hazen's extensive experience allows us to assist our clients in maintaining and upgrading their control systems** to provide secure, reliable, and robust control systems in all manner of treatment and pumping controls.

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## Expertise and Experience Working with Envision and LEED Certifications

Hazen has prided ourselves on delivering the most energy efficient and environmentally friendly designs to our clients since 1951. Our history demonstrates our capability to apply green innovations such as resource recovery, biogas-to-energy projects, and Green Infrastructure. Capitalizing on these types of individual opportunities provides a mutual benefit to the environment and the utility's bottom line. Our experience with other discrete environmental accounting tools, such as life-cycle assessment and carbon footprinting, also provides a quantitative means for benchmarking design and technology strategies against one another.

However, the developing paradigm of sustainability has shown us that the whole is truly greater than the sum of its individual parts. Addressing the extents of sustainability, or the triple bottom line, ensures that we decouple our decision-making from direct project costs alone, and begin to consider the social, environmental, and economic impacts of project alternatives. The activities associated with this contract offer a unique opportunity to maximize our impact – early application of sustainable evaluations and practices has far greater impact than implementation of refinements to the "wrong" projects down the road.

### Envision Rating System

Hazen is well versed in the tenants of sustainability, having applied them through every major project phase: planning through operation. While we can readily harness a myriad of tools to evaluate externalities, we have successfully applied the holistic framework of the Envision Sustainability Rating System as a vehicle to address the full spectrum of sustainability for the planning phases of multiple wastewater projects in excess of $5 billion in capital expenses. Introduced in 2012, Envision now provides our industry with a highly applicable, credible, and transparent platform for identifying and quantifying the non-monetary attributes of a project. Hazen is a leader in the pragmatic application of Envision within our industry, and can leverage it as a powerful planning and design tool for the City of Coral Gables. Hazen's work on the City of Coral Gables Cocoplum 1 Pump Station and Force Main Upgrade project has helped to deliver a highly sustainable project in a densely-developed residential area. The project was awarded "Resilient Project of the Year," as highlighted on the next page.

ENVISION™

### What is the purpose of Envision?

- To foster a dramatic and necessary improvement in the sustainability performance and resiliency of physical infrastructure
- To verify and supplement project decision drivers to assess the full spectrum of the triple bottom line across all phases of a project

### Envision's triple bottom line framework and concepts can support projects by focusing on:

- Quality of Life
- Leadership
- Resource Allocation
- Natural World
- Climate and Resilience

### Hazen is a recognized industry leader in sustainability:

- LEED Accredited Professionals (AP)
- ENV SP credentialed staff (Envision Sustainability Professionals)
- Member of USGBC
- Envision Qualified Company
- Award-winning designs

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## Project Spotlight - Envision

**Coral Gables Cocoplum 1 Pump Station and Force Main Upgrade**

City of Coral Gables, FL

The City of Coral Gables' Cocoplum 1 Pump Station and Force Main Upgrade project was awarded the "Resilient Project of the Year" in the Green Utility Category by the Resilient Utility Coalition at their Operationalizing Resilience Summit in Miami on January 26, 2018. Project benefits include enhanced interdepartmental communication and coordination as a result of going through the process and clarity in identification of project benefits for use in community/stakeholder outreach meetings.


## Experience Working with other Disciplines/Coordination

Hazen is experienced in coordinating and bringing both in-house and subconsultant resources to bear on a project that is seamless to our clients. Most of our design and construction management project teams consist of multiple consultants for various reasons, including matching the best resources in our industry with the project's needs, meeting minority requirements, or supplementing our in-house capabilities with additional expert resources. As an international firm, Hazen successfully manages small to large, complex projects across multiple disciplines and offices every day. We effectively manage and work with multiple disciplines, as well as coordinate with other design professionals and consultants with effective upfront planning, coordination, and communication. Effective communication and coordination among disciplines and other design professionals and consultants is essential to ensure that each discipline delivers quality design solutions, thus resulting in a seamlessly integrated design approach. We accomplish this using proven and effective techniques:

- Consistent and clear general requirements in subconsultant agreements, designed to assure standardization and seamless coordination among team members.
- Weekly and monthly production/coordination meetings, as needed.
- Project-specific website management tools.

**Effective communication and coordination** among disciplines and other design professionals and consultants is essential to ensure that each discipline delivers quality design solutions, thus resulting in a seamlessly integrated design approach.

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Section No. III

# Project Understanding, Proposed Approach, and Methodology

*Hazen has provided the City of Coral Gables with engineering services since 1991. Over this time period, we have assisted the City in successfully completing various water, sewer, and stormwater projects.*

## Approach

Our project approach is based on a collaborative mindset, proactive communication, responsiveness, and attention to detail. The combination of our project approach and extensive institutional knowledge of your systems will provide the City with the most advantageous means to capitalize on opportunities, mitigate project risks, and overcome future challenges.

We understand that the City of Coral Gables is a dynamic community which requires **best in class professional services and innovation.**


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# 1 REGULATORY COMPLIANCE

## Water and Sewer Systems

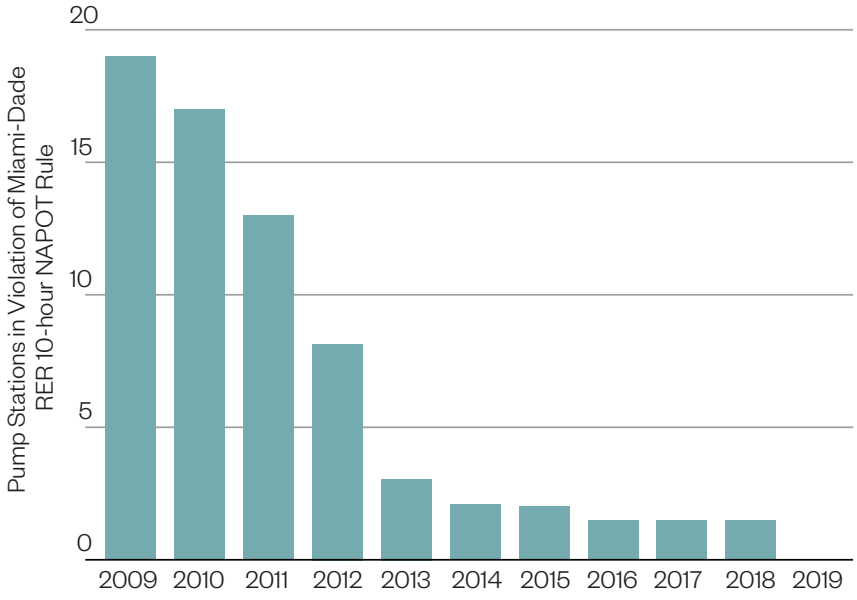
Hazen performs utility related regulatory compliance services for many of our clients. The firm has worked closely with all of the water and wastewater regulatory agencies governing utilities in South Florida over the last four decades. Team members have worked meticulously with local DERM, FDEP and EPA regulatory officials to identify and understand changing regulatory requirements and pending deadlines. Continued utility success relies on timely regulatory approval.

It is our standard practice to hold meetings with each agency to determine the earliest possible stage at how changing regulatory requirements will impact our clients to ensure fines and or moratoriums are imposed. The development of regulatory compliance schedules and technical memorandum that identify individual requirements along with the associated completion status and pending submittal deadlines by our team members have facilitated the City of Coral Gables' planning and budgeting for these activities to assure that proper arrangements were made for the necessary personnel resources and funding. This is demonstrated in the array of regulatory we have assisted the City in meeting over the past two decades.

Close coordination with City staff and DERM concerning pump station and force main improvement since the issuance of the 2008 Consent Order with FDEP has allowed all of the City's pump stations to remain in compliance with the mandated 10-hour runtime criteria.

Development of these Regulatory Compliance Schedules allowed Hazen to **identify existing materials that could be repurposed, as well as scheduling dependencies and overlaps that could be exploited to control the overall cost of the associated work.**

**PUMP STATIONS OUT OF COMPLIANCE WITH MIAMI-DADE RER NAPOT RULE**




**Based on the February 2019 NAPOT no moratoriums are impacting development at this time with 34 pump stations being in OK status and 1 in AC.**

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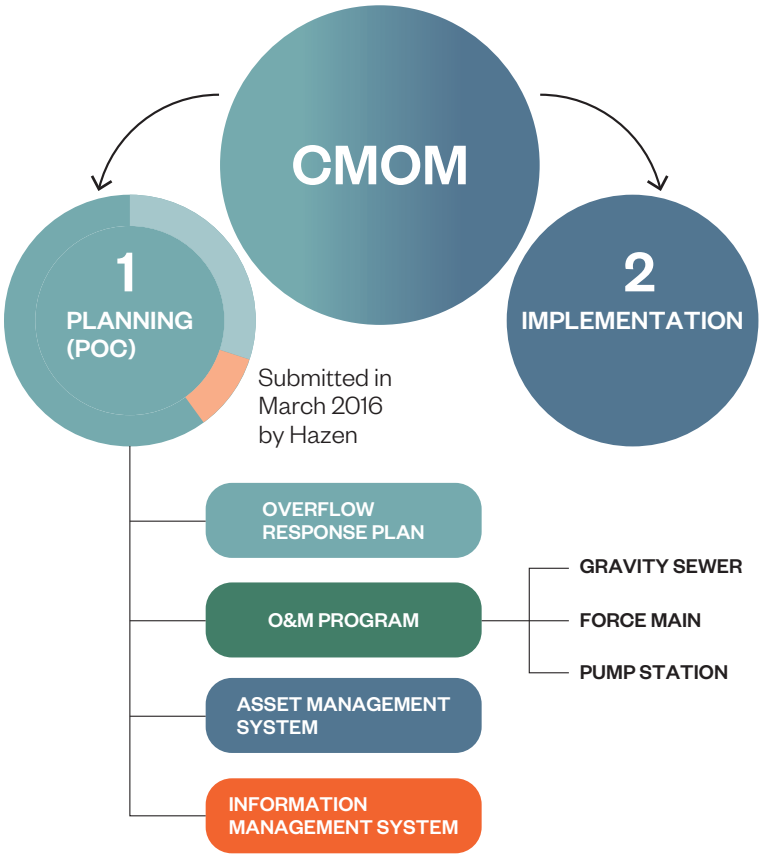
Ongoing regulatory requirements include the approval of the Plan of Compliance (POC), yearly GIS and reporting updates related to wastewater collection/ transmission system upgrades and rehabilitation activities and associated hydraulic modeling efforts. The POC which forms the outline for a Capacity Management and Operation and Maintenance (CMOM) program was submitted in March of 2016 in compliance with County Code Requirements. The City as well as all other Volume Sewer Customers (VSC) are currently waiting on DERM commentary to complete/ implement the plan. Once comments are received and the plan is approved, Hazen will work closely with the City on its implementation.

On a yearly basis Hazen is assisting the City in its submission of the CMOM and Annual Report which allows DERM to monitor rehabilitation/improvement activities as well as assure that the City allocating the necessary funding to operate/improve its wastewater collection/transmission system. The 2018 Annual Report submitted in March of this year was recently approved by DERM.

**AS YOUR POC CONSULTANT WE'VE CLEARLY IDENTIFIED THE STEPS TO ACHIEVE CMOM COMPLIANCE.**
Upon receipt pf DERM commentary, we will assist the City in implementing the POC.




The March 2016 submittal reflected the specific details and conditions noted below and demonstrated how the City would achieve these requirements:

- Sewer overflow response plan
- Information management system program
- Sewer system asset management plan
- Gravity sewer system operation and maintenance program
- Pump station operations and preventative maintenance program
- Force main operations, preventative maintenance and assessment/ rehabilitation program

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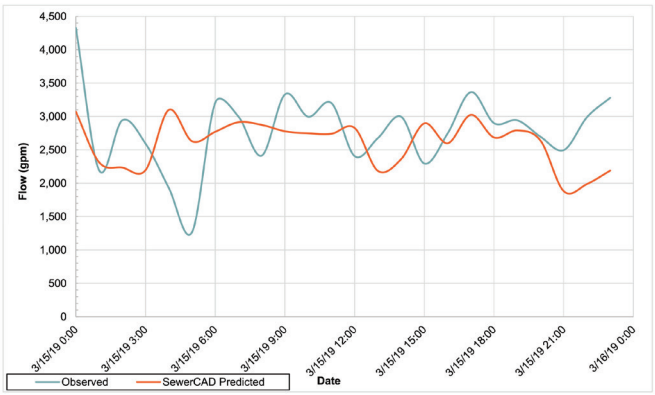
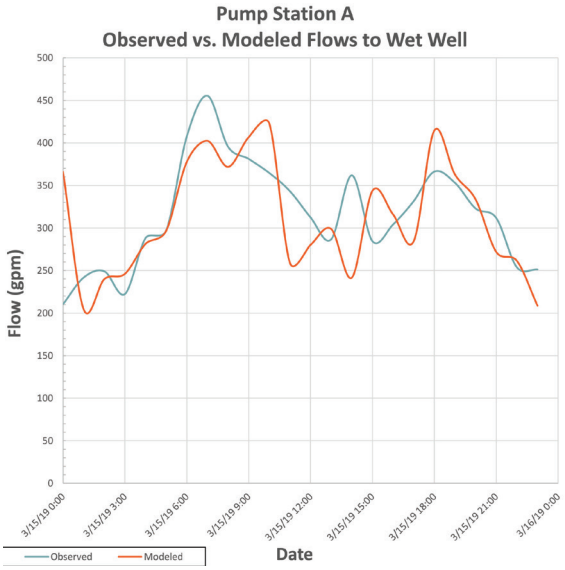
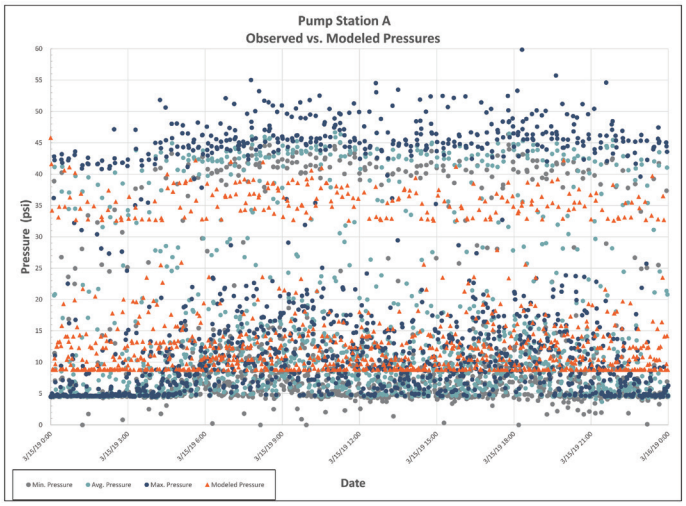
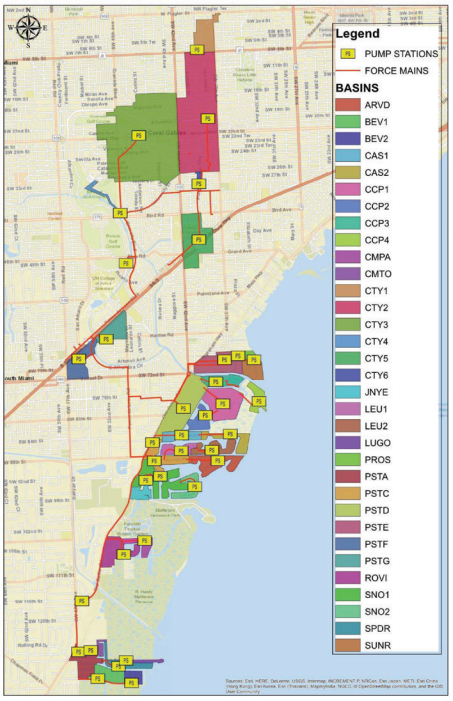
Similarly on a 5-year reoccurring basis, the City is required to calibrate its wastewater hydraulic model. Hazen was tasked with this calibration effort and submitted model calibration report on April 30, 2019. Overall model calibration was within 5 to 10% of actual field calibration activities.




Observed vs. Calibrated Model Hourly Flows to MDWASD Pay Meter #3




City of Coral Gables Sewer System Overview Map

The Cycle 3 SSES Phase 1,2 and 3 reporting requirements will commence in November 2022 with the submittal of the Phase 1 and 2 reporting activities which involve basin prioritization, defining proposed rehabilitation activities as well as smoke testing. As with the Cycle 1 and Cycle 2 SSES reporting activities conducted in 2002 and 2012, Hazen is poised to asst the City in meeting this regulatory requirement as well.

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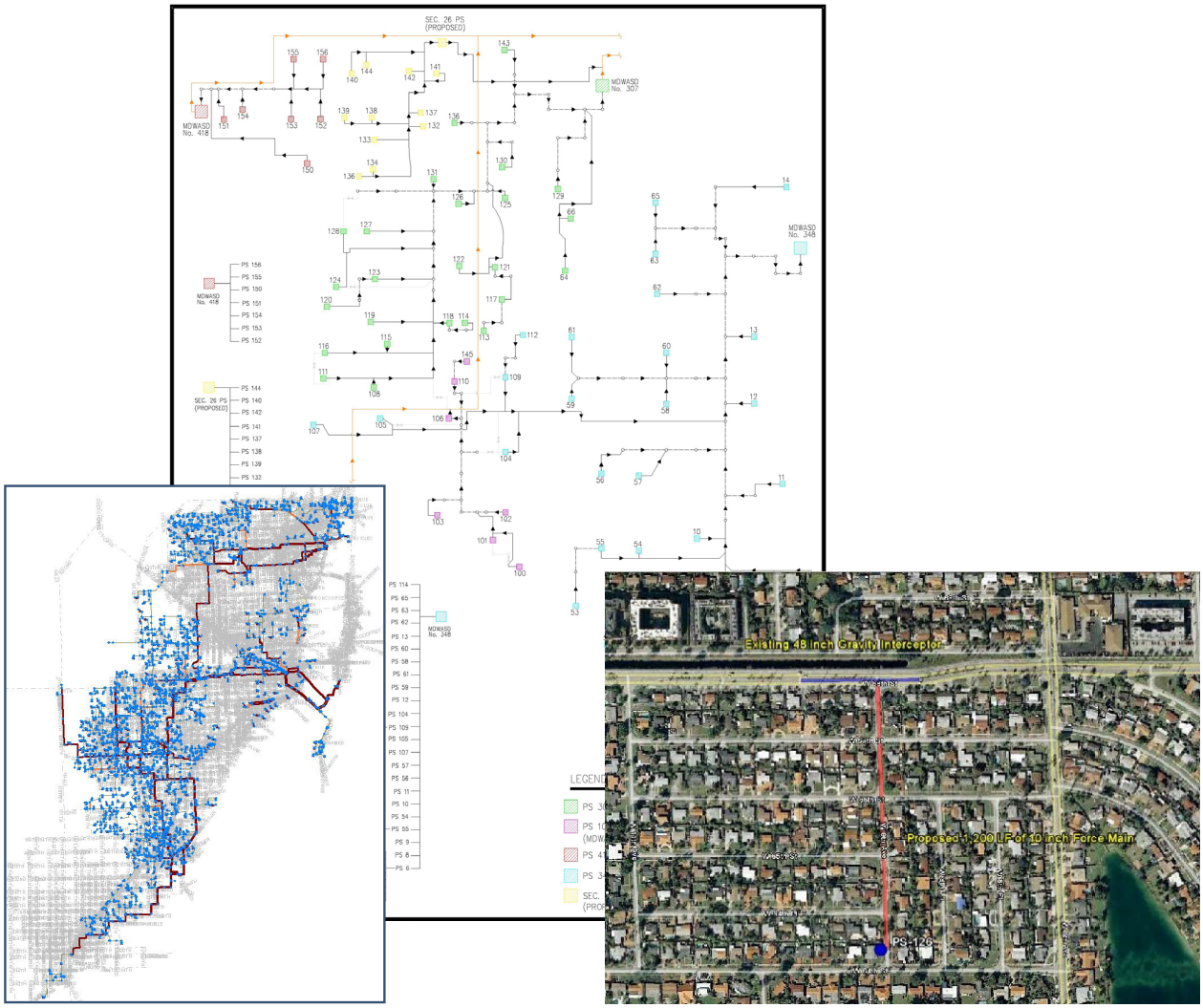
### Other Contracts of Similar Scope

In addition to the regulatory compliance services provided to the City of Coral Gables, Hazen has a long history of aiding the City of Hialeah meet their Sanitary Sewer Evaluation Survey (SSES) Phase I-III regulatory requirements. The City of Hialeah wastewater collection system consists of 91 pump stations, approximately 460 miles of gravity sewer mains and laterals ranging from 4 inches to 60 inches in diameter, and nearly 6,500 manholes. Our team members have assisted Hialeah in meeting the mandated 2002 and 2012 SSES Cycle I and II, Phase 1 and 2 reporting deadlines to remain in compliance with County Code. We continue to work with City staff to address I/I rehabilitation efforts required as part of Consent Order between the City and DERM.

Our collaboration with the City on this regulatory requirement has **removed an estimated 18 million gallons per day of I/I.**

As noted above, the City is a VSC. As such, it must adhere to the Volume Sewer Customer Ordinance (VSCO) which currently requires each utility's hydraulic model to be calibrated on a 5 year reoccurring cycle. To this end, Hazen developed hydraulic model calibration reports for six utilities (including the City of Coral Gables). As part of this calibration effort, Hazen deployed 27 pressure transducers throughout the various to collect pressure data. Hydrographs for a total of 264 pump stations were developed utilizing telemetry data and wet well control elevations. All systems modeled were within 5 to 10% of actual field conditions.

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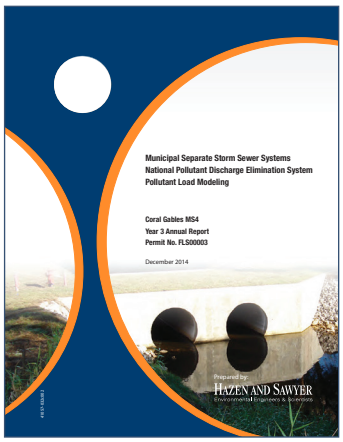



Over the past several years, the City of Coral Gables, with assistance from Hazen, has developed and implemented an exemplary stormwater management program that has been commended by FDEP NPDES Stormwater Permitting Program Staff.

## Stormwater Systems

Regulatory compliance is a critical part of what we do. We have been integrally involved in the development of regulatory compliance reports and the data gathering and keeping processes which inform and help streamline that reporting.

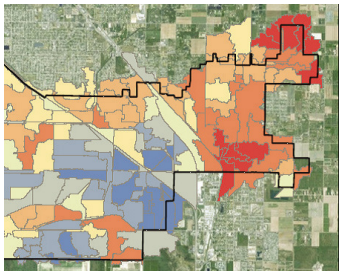
We have been involved with associated reporting and reviews of reports and underpinning data with both FDEP and EPA. In December of 2014 we assisted the City of Coral Gables in achieving compliance with the FDEP's NPDES MS4 Permit requirements associated with seasonal pollutant load modeling. This is just one of many examples of how Hazen is committed to guiding the City through a complex regulatory landscape.

Having worked with numerous municipalities, including the **City of Coral Gables**, on their National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit programs, **we are well-versed in the record keeping, reporting, and auditing associated with these programs.**

Hazen has served as General Stormwater Consultant for the Town of Jupiter for over 15 years designing millions off dollars worth of stormwater infrastructure.

## Other Contracts of Similar Scope

Hazen has extensive experience in assisting stormwater utilities with their regulatory compliance needs. For example, Hazen has served as the General Stormwater Consultant for the Town of Jupiter since 2000, and in this capacity has provided stormwater permitting, and regulatory assistance. Hazen reviewed Town documents containing regulations and policies regarding stormwater management to update and consolidate the Town's code into one comprehensive stormwater management ordinance. Hazen has also assisted the Town with its CRS Program, particularly with Flood Plain Management elements, and has been involved throughout FEMA's remapping of Palm Beach County.

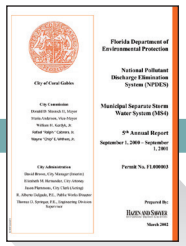


Hazen performed seasonal pollutant load modeling for the City of Homestead as required by the City's NPDES MS4 Permit. This project required the location of outfalls and delineation of drainage basins using LIDAR.

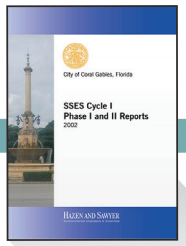
For the City of Homestead, Hazen assisted the City in maintaining compliance with its NPDES MS4 Permit. Under the most recent version of the permit, the City of Homestead was required to perform seasonal pollutant load modeling to quantify the amount of pollutants (BOD, TSS, N, P, etc.) entering the receiving water bodies via stormwater outfalls. Hazen staff physically located existing stormwater outfalls and incorporated the information into GIS. This information was critical in identifying discharge points necessary for further analysis and modeling. To delineate existing stormwater sub-basins, light radar (LIDAR) data was obtained and analyzed in conjunction with GIS. Utilizing land use information, hydrologic runoff factors, soil condition data, and the previously established system characteristics, a pollutant load model was built. On a yearly basis since 2014, we continue to assist the City with the submittal of it annual NPDES Report.

# HAZEN'S REGULATORY WORK FOR THE CITY OF CORAL GABLES

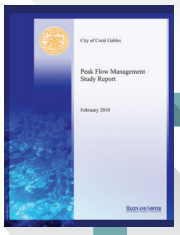

**1998** Sanitary Sewer System Operation and Maintenance Manual




**2001** NPDES MS4 Permit Annual Report (Reports Each Year)

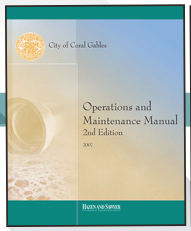


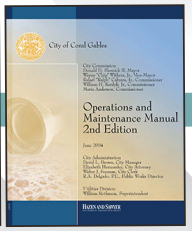

**2002** SSES Cycle I Phase I and II Reports



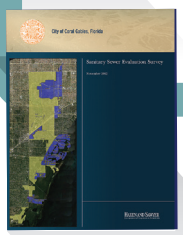

**2010** Peak Flow Management Study

**2007** Sanitary Sewer System Annual Report (Repeats Each Year)



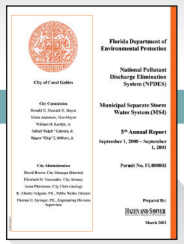




**2004** Updates to Sanitary Sewer O&M Manual




**2012** SSES Cycle 2 Phase I & II Reports


**2013** Smoke Testing Report

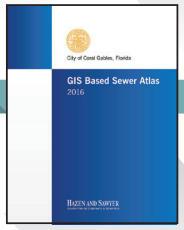


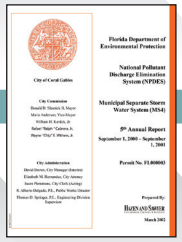

**2013** NPDES MS4 Standard Operating Procedures

**2016** Plan of Compliance


**2016** CMOM and Annual Reports

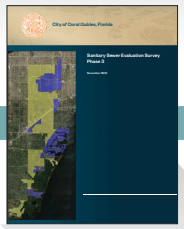
**2016** GIS Based Sewer Atlas

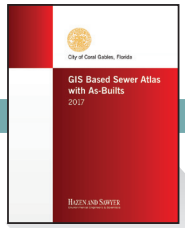



**2014** NPDES MS4 Seasonal Pollutant, Load Modeling

**2016** SSES Cycle 2 Phase III

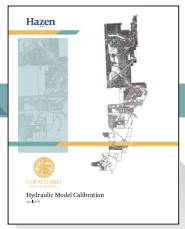



**2017** GIS Based Sewer Atlas with As-Builts

**2017** CMOM and Annual Reports

**2019** Hydraulic Model Calibration




**2019** CMOM and Annual Reports

**2018** CMOM and Annual Reports

CORAL GABLES
THE CITY BEAUTIFUL

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# 2 SUSTAINABILITY

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However, the developing paradigm of sustainability has shown us that the whole is truly greater than the sum of its parts. Addressing the extents of sustainability, or the triple bottom line, ensures that we decouple our decision-making from purely direct project costs, and begin to consider the social, environmental, and economic impacts of project alternatives. The activities associated with this contract offer a unique opportunity to maximize our impact – early application of sustainable evaluations has far greater impact than implementation of refinements to the "wrong" project down the road.

ENVISION™

## What is the purpose of Envision?

- To foster a dramatic and necessary improvement in the sustainability, performance, and resiliency of physical infrastructure
- To verify and supplement project decision drivers to assess the full spectrum of the triple bottom line across all phases of a project

**Evan Bowles, PE, ENV SP, Hazen's Sustainability Service Group lead, is the outgoing chair of the Water Environment Federation's Envision Task Force, which works to develop useful planning and design tools for the wastewater industry.**

## Hazen is a recognized industry leader in sustainability:

- LEED Accredited Professionals
- ENV SP credentialed staff (Envision Sustainability Professionals)
- Member of USGBC
- Envision Qualified Company
- Award-winning designs

### Envision Rating System

Hazen is well versed in the tenants of sustainability, having applied them through every major project phase: planning through operation. While we can readily harness a myriad of tools to evaluate externalities, we have successfully applied the holistic framework of the Envision Sustainability Rating System as a vehicle to address the full spectrum of sustainability for the planning phases of multiple wastewater projects in excess of $5 billion in capital expenses. Introduced in 2012, Envision now provides our industry with a highly applicable, credible, and transparent platform for identifying and quantifying the non-monetary attributes of a project. Hazen is a leader in the pragmatic application of Envision within our industry, and can leverage it as a powerful planning and design tool for the City. The City has embraced sustainability as a goal for all future projects.

We understand the overarching goals of the City's sustainability program: long term sustainability, safe and reliable operation, public acceptance, acceptable life cycle cost, green energy technology, and recoverable energy efficiency. The optimal combination of all these drivers is vital for the development of a successful strategy. However, we also understand that the combination and prioritization of this criteria can prove challenging when engaging the program's stakeholders to formulate a decision. All of your planning goals are intrinsic to Envision's structure, along with many other planning components. Given the full spectrum triple bottom line composition of the system, it can also be leveraged to identify other decision drivers during planning and evaluation, and thus enhance our analysis for a more informed decision-making process. Hazen has extensive experience utilizing Envision in both a prescriptive and non-prescriptive manner, and can adapt its structure to converge upon the best solution for City infrastructure. We believe that our experience, coupled with Envision's credible and transparent framework, can strengthen the groundwork for the City's sustainability program.

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Hazen has been assisting the City with the Envision certification of the Cocoplum 1 PS and FM Improvements project. As part of this project, various sustainability and resiliency considerations have been made in the form of the reuse of insitu soils were applicable, recycled concrete for bedding materials and elevated generator/ control panels to mitigate the potential for damage as a result of flooding. In keeping with the triple bottom line theory, proposed improvements remove all invasive plant species in the work area as well as provide for modes of transportation by including a bike lane as part of the force main pavement restoration process and a new sidewalk to the south of station.

The project has been awarded the Resilient Project of the Year Award (Green Utility/ Facility Category) and will be presented in one of the technical session at the APWA Annual Conference later this year. Construction is anticipated to begin in the fourth quarter of this year. The goal of the project is to obtain a Silver certification from Envision once complete.

## 3 ENGINEERING DESIGN SERVICES

Our project team has provided engineering design services to the City of Coral Gables over the last 28 years. Hazen has designed and implemented countless improvements to the wastewater and stormwater infrastructure. Our team is currently assisting the City with the design and implementation of several projects, including the Cocoplum 1 PS and FM Improvements as well as the City 2 Generator Exhaust Modifications. We propose to utilize the same staff members in their respective roles under this contract. These team members are familiar with the City's existing infrastructure and its condition and have detailed knowledge of the improvements recommended under previous studies. Based upon this institutional knowledge, our team understands where improvement opportunities exist in the City's infrastructure.

Hazen has **28 years** of Coral Gables design experience. **Selection of the Hazen team means more of your money is spent on the assets—not the study**.

Given this knowledge, our team provides key design benefits to the City. These benefits include:

- A reduced learning curve since our team does not require time to learn the infrastructure needs of the City. This experience translates directly into cost savings to the City.
- Detailed knowledge of the challenges faced by City operations and maintenance staff.
- Expertise in hydraulic modeling associated with water distribution systems, wastewater collection and transmission systems, and storm-water systems. This knowledge will allow our team to promptly and cost-effectively assist the City with needed improvements.
- Strong working relationships with the City's operations and maintenance staff that facilitate rapid and efficient design decisions.
- Good working relationship/ understanding of the community needs/ expectations provides design decisions that mitigate complaints during the implementation process.

### Water and Sewer Systems

Hazen has a proven track record in regards to water and sewer engineering design services. Over the past 28 years we have been involved with almost every water/sewer asset owned and operated by the City. The Hazen team is committed to providing the City the same quality service in the future.

Hazen designs have proven robust and reliable. The majority of infrastructure we have designed are currently in operation and in many cases, have been in service for decades. Our intimate knowledge of utility operations allows us to design in a fashion that facilitates the work of City staff.

Following City protocol, a basis of design report (BODR) is developed for each project. Once acceptance of the BODR has occurred, detailed design task work proceeds with bid package preparation, including 60 percent and 90 percent documents and cost estimates. **Detailed reviews by our QA/QC staff ensures an enhanced product.**

## Project Highlights

### Pump Station City Upgrades

PS City 2 is the City's largest pump station, which services the downtown area and business district. In order improve station reliability/ ease of maintenance, Hazen's design converted the stations from a duplex wet/ dry well station to a submersible triplex station lowering that station's profile in the downtown area. As part of the upgrade process, the existing wet/dry wells were reused as a cost saving measure with the upper portion of the of the old wet well being converted to the PS control room. In order to account for future development in the area, the station was designed with a slot for a fourth future pump. The station has been operation since 2016, current NAPOT is less than 1 hr/ day.

### PS D Force Main Replacement

On a fast track basis, Hazen designed a replacement force main for PS D. The existing force main's replacement was mandated by DERM who had placed the PS D and E collection basins in moratorium as a result of multiple failures along the PS D force main. The existing 12-inch cast iron force main was replaced with approximately 4,250 lf C900 PVC from PS D to the Ponce Rd. force main. The replacement force main went into operation in 2015 and all moratoriums were lifted.

### Cocoplum Stormwater Improvements Phase I

The Cocoplum area in the vicinity of Los Pinos Blvd. and Los Pinos Circle had experienced ponding and flooding resulting in residential complaints. Hazen was requested to improve the Level of Service (LOS) by designing improvements in the area. Utilizing LiDAR, in conjunction with ICPR4 model, a series of scenarios were run to determine the impact of various storms and the infrastructure necessary to improve the LOS in the area. Upon completing the design and permitting phase, Hazen provide engineering services during construction to assist with the project's implementation. Since going into operation in 2016, the executed improvements have mitigated localized flooding and significantly reduced residential complaints.

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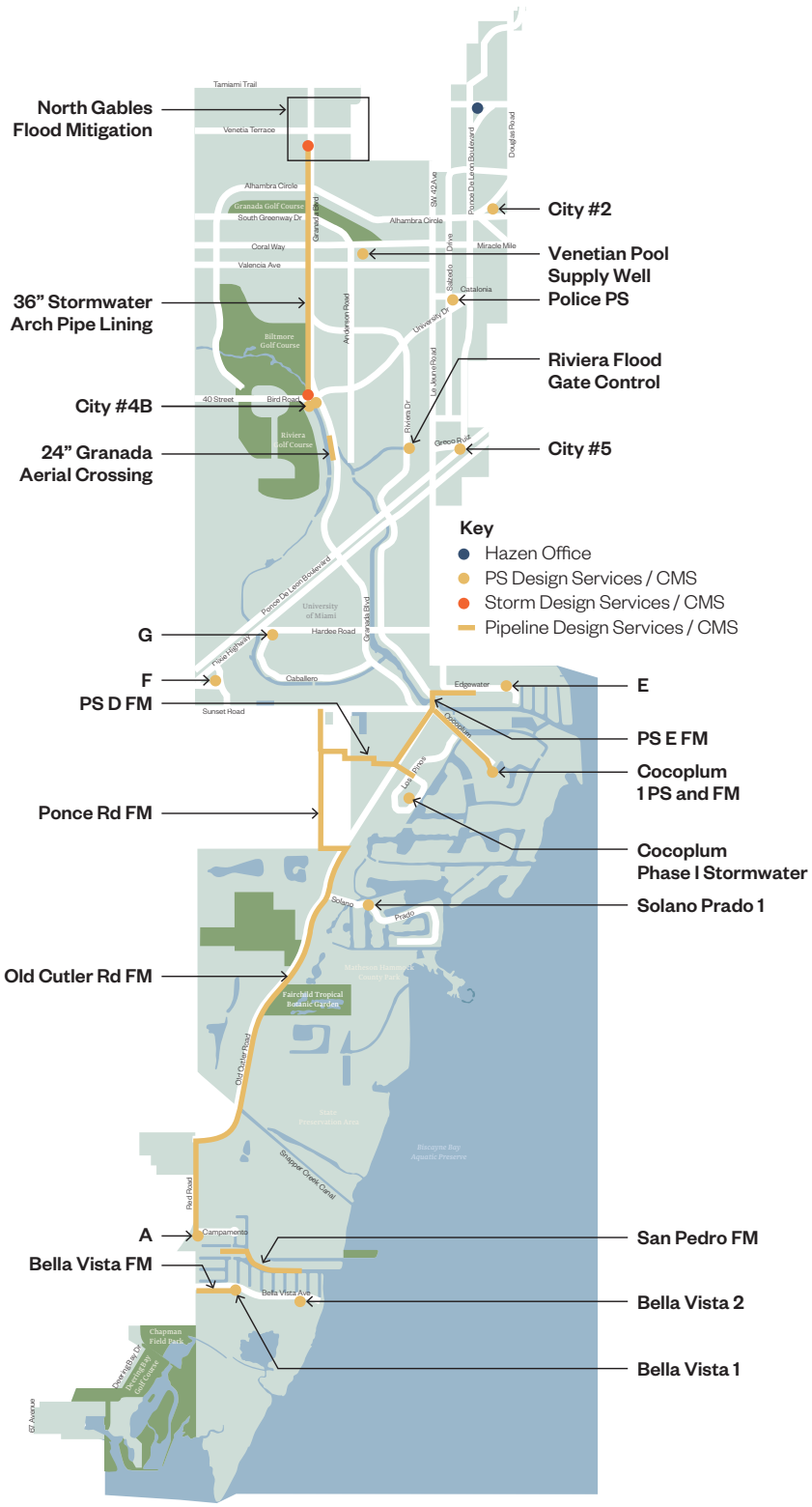
In total, Hazen team members have designed improvements to 14 out of the City's 35 pump stations ranging in capacity from 0.5 to over 6 mgd in residential areas as well as commercial districts. Design improvements to over five miles of force main have also been conducted to increase reliability and capacity throughout the City. Stormwater improvements designed to increase levels of service and mitigate flooding have also been successfully designed and implemented by proposed team members.

**The team members that were involved with these system upgrades exhibited the highest level of performance** as it relates to project completion within time, budgetary, and regulatory constraints. **These same team members** are proposed to continue to assist the City with future evaluations and detailed designs.

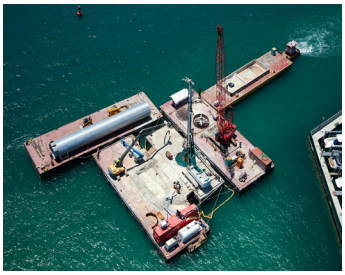


### Other Contracts of Similar Scope

Hazen has also been involved in various Pump Station Improvement Programs (PSIP) throughout Miami Dade County. The team members that have been assigned to continue assisting the City of Coral Gables with its design and engineering services were also involved with activities for other entities and municipalities. The other entities and municipalities Hazen provided design and engineering assistance to include: North Miami Beach, Hialeah, and MDWASD.

Similar to the City of Coral Gables, Hazen developed pump station evaluation reports for the City of North Miami Beach and the City of Hialeah, outlining deficiencies within the system and recommended improvements. Subsequently, Hazen was retained to design, permit, and assist in the implementation of these various improvements which include upgrades to 16 pump stations in the City of North Miami Beach and 23 pump stations in Hialeah ranging in capacity from 0.5 mgd to approximately 21.6 mgd.

Hazen also served as the Engineer of Record for MDWASD's Government Cut Utility project. This design-build project was completed to accommodate the deep dredge project of the Port of Miami to allow new Panamax ships to enter the Port. The project consisted in lowering existing water and sewer utilities before the dredging operation. A 140-foot deep and 1,600-foot-long 24-inch-diameter horizontal directional drill water main was installed from the Port of Miami to Fisher Island. Additionally, a 1,900-foot, 72-inch-diameter microtunnel, carrying a 60-foot force main was constructed. This is the largest design-build project that MDWASD has undertaken to date.



Government Cut Receiving Shaft

Fisher Island launch shaft.


The Government Cut Utility project is the **largest design-build project that MDWASD has undertaken to date.**

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## Stormwater

Hazen has successfully designed and implemented stormwater projects for the City of Coral Gables. Some of our experience on projects include:

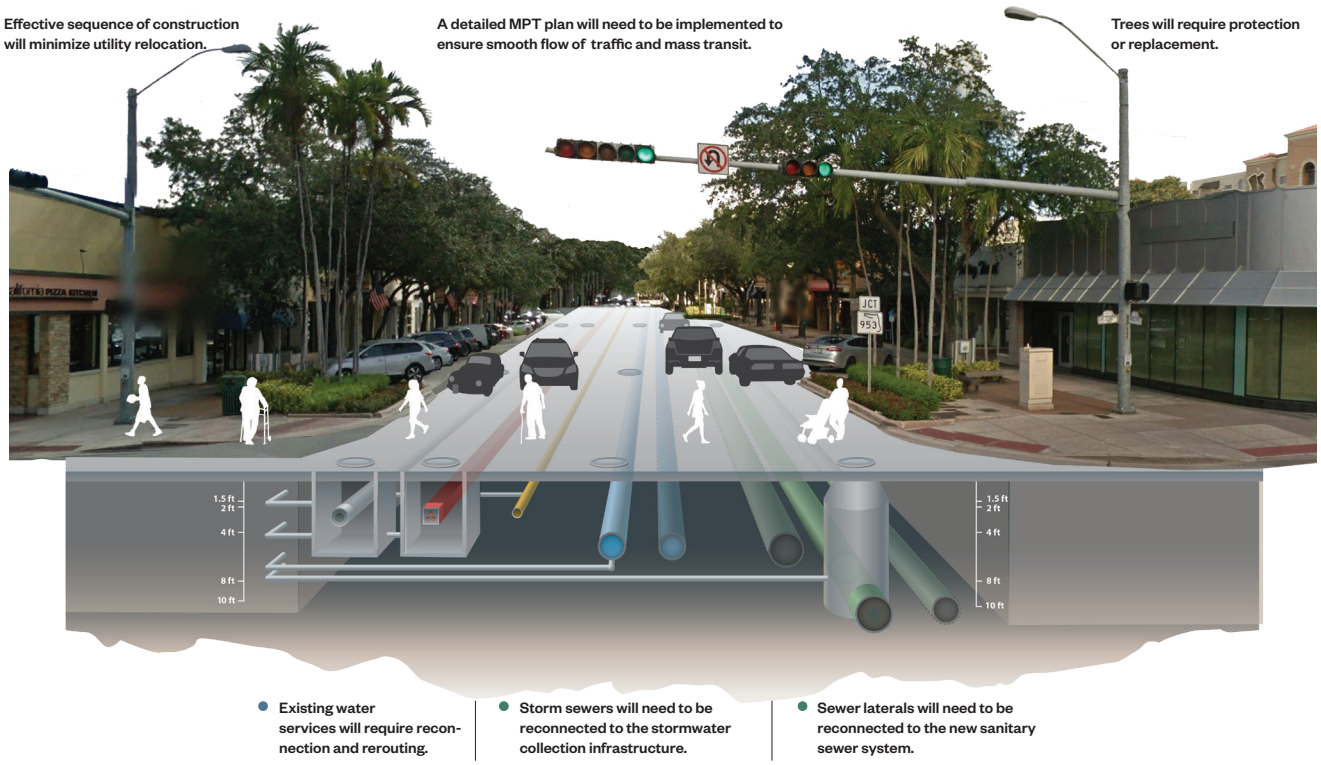
- North Gables Flood Mitigation Project
- Palermo Stormwater Arch Pipe Lining Project
- Stormwater System Telemetry Improvements
- Cocoplum Stormwater Improvement Project

Hazen is extremely familiar with design of drainage and stormwater management systems, particularly those which involve retrofit or betterment of infrastructure in existing developed or redeveloping areas. This is an extremely important distinction from many firms who are more familiar with the design of systems in green fields/new development.

In most mature municipalities, like Coral Gables, space constraints are a reality. Throughout the City there are existing utilities, vehicular and pedestrian traffic, residents and businesses to accommodate when conceptualizing and implementing any project. Our multi-decade commitment to serving local governments has ensured that we are familiar with, plan for, and successfully handle the challenges associated with that reality.

Hazen has provided similar service to our other clients. For FDOT District IV we developed a rehabilitation and lining program to improve stormwater system performance. This report assessed approximately 70,000 lf of storm drain piping ranging in size from 30 to 108-inches in diameter.

Additionally, we have developed multiple Stormwater Pump Station designs for the City of Hollywood involving telemetry system integration as well as piping installation. Hollywood's North Lake Pump Station utilizes 27-inch propeller pumps to discharge storm water through 1,000 lf of RCP for disposal while the Moffit Street Pump Station has a discharge capacity of 30,000 gpm and a 42-inch PCCP discharge force main.

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### Other Contracts of Similar Scope

As an environmental and water resources firm, Hazen has extensive experience with the design of stormwater systems. The systems we design serve to eliminate flooding and improve environmental water quality. Our intimate knowledge of South Florida allows us to propose solutions which are effective and compatible with the local environment.

**Hazen has provided stormwater design services to multiple municipalities** in South Florida and throughout the United States.

For the Town of Jupiter, Hazen performed an evaluation of four existing storm sewer systems in low-lying residential areas on the City's Barrier Island between the Intracoastal Waterway and Atlantic Ocean. Improvements to the systems including pump station upgrades were planned, designed, permitted, and constructed. The new systems provided relief from flooding, for the 5-year storm event, by discharging the storm-water runoff to the Intracoastal Waterway. The team added three new drainage pump stations (7ft3/s, 14 ft3/s, and 21 ft3/s) with vertical axial flow propeller pumps, to operate in parallel with the gravity discharge systems. In addition, the team recommended and designed improvements to the storm sewer collection system. This project also included hydrologic/hydraulic modeling services.

Our clients trust us to provide them with **effective and efficient stormwater solutions.**

In 2014 the South Florida Water Management District (SFWMD) hired Hazen to perform an assessment and preliminary design for the G420 and G422 stormwater pump stations. These pump stations were built and placed in operation in 2004 as part of FEMA's Hazard Grant Mitigation Program and are located north of the C4 canal near the junction of SW 8th Street and 176th Avenue in Miami. Issues with excessive vibration in pump station G420 have been observed since at least 2010 along with excessive sedimentation in the intake bays of both pump stations.

CFD and physical modeling of the intake canal and pump station G420 have been completed. Based on the findings, the following recommendations were made:

- Install turning vanes within intake canal.
- Install retractable baffle at intake to reduce sedimentation within the pump bays.
- Removal of the hydro-cones beneath the pump suction piping.
- The construction documents have been prepared and submitted to the SFWMD and are pending bidding/award at this time.

# 4 UTILITY OPTIMIZATION

It is Hazen's priority to assist the City of Coral Gables in optimizing the operation of its utilities to extract the maximum amount of value for residents and other stakeholders. There a numerous areas where improvements can be made. Of particular note are inflow and infiltration reduction and hydraulic modeling.

**The work performed in Phase I allowed the City to gain a better understanding of the existing conditions** of each sewer basin by determining the general inflow and infiltration (I/I) severity.

### Inflow and Infiltration Reduction

Inflow and infiltration involves the entrance of rainwater and groundwater into the sanitary sewer system. This adversely impacts a utility by increasing pumping and transmission costs and, decreasing system capacity. Due to South Florida's topography and groundwater conditions, infiltration is a major issue affecting many utilities. As a result, Miami-Dade County requires that the City of Coral Gables, as a Volume Sewer Customer (VSC), perform a Sanitary Sewer Evaluation Survey (SSES) of its entire collection system on a reoccurring 10-year cycle. Miami-Dade RER is responsible for the oversight of the VSC SSES program and has established guidelines with minimum requirements necessary to comply with the ordinance. It has divided the program implementation into three phases:

Hazen was retained by the City of Coral Gables, to conduct the SSES Phase I and II. The initial SSES cycle had required completion dates of November 12, 2002 for Phases I and II and November 12, 2006 for Phase III.

In Phase I, the objective was to determine which basins exceeded the 5,000-gpdim I/I threshold. Phase II of the study utilized the prioritization developed in Phase I, and identified I/I sources, specific leaks, estimated leakage rates, recommended repair technologies, and the cost of the repairs.

Since that time, Hazen has assisted the City of Coral Gables with the second cycle SSES Phase I and II reports. These documents were submitted on November 12, 2012. Since the implementation of the first cycle, some of the guidelines have changed. In 2002, smoke testing was required in only those basins which exceeded the 5,000-gpdim threshold. As part of the 2012 submittal to DERM, all collection basins within the City's sanitary sewer were be smoke tested.

Hazen is committed to offering the City the same proven team that has implemented numerous successful inflow and infiltration reduction programs throughout South Florida. Our staff have assisted numerous other clients, including Miami-Dade Water and Sewer Department, the City of Hialeah, Broward County, and others with large multi-year inflow and infiltration programs.

Since the implementation of the City of Coral Gables Inflow and Infiltration Reduction program, flows to Miami-Dade Water and Sewer Department have been reduced by over 47 million gallons per month. **This equates to approximately $1.2 million in annual savings to the City of Coral Gables.**

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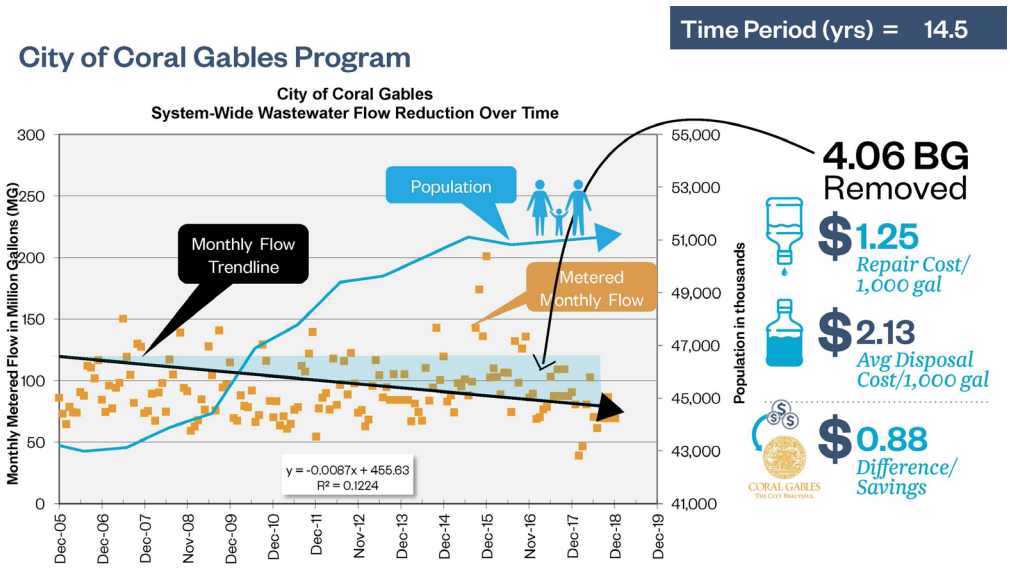
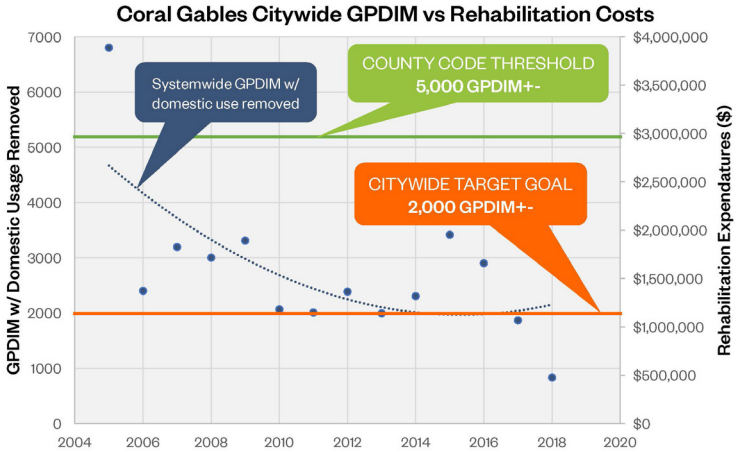
## City of Coral Gables Program




## Coral Gables GPDIM at which further reduction is not necessary.

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**Hazen was responsible for the development, maintenance, and calibration of the wastewater hydraulic model** for the City.

### Modeling

Modeling is an invaluable planning and operations tool. It allows for municipalities to foresee impacts to its systems as a result of proposed improvements or other modifications. Hydraulic modeling can also provide insights into potential operational improvements and helps identify strategies to maximize efficiencies.

Hazen has unparalleled experience with hydraulic modeling of water, sewer, and stormwater systems. The hydraulic computer modeling software utilized was SewerCAD, which is capable of analyzing both pressurized (force main) and non-pressurized (gravity main) systems. The computer model calculates flows and pressures throughout the wastewater transmission network based on characteristics of the actual system that have been input into the model, including: pipe sizes and routings, pump curve characteristics (relationship between flow and pump discharge pressure), elevations of pumping stations and pipe junctions, and pressures at points of connection with MDWASD-owned pipelines. The model was constructed using information from as-built records, field verifications, and other documentation in the City records.

Hazen was also selected to conduct the PFMS of various municipalities throughout Miami-Dade County. In total, the models developed by Hazen (including the City of Coral Gables) analyzed over 260 pump stations and 100 miles of force and gravity mains throughout the six cities .

As part of a separate project, our team members were also tasked with developing the PFMS for the Miami-Dade Water and Sewer Department (MDWASD), in which over 1,000 pumping stations were assessed, evaluated, and improvement recommendations provided.

The City's hydraulic model and its use has become an integral part of determining how proposed developments will impact existing infrastructure, and what modifications are necessary to assure adequate capacity is available for future developments. In order to assure accuracy of the model, it was calibrated to within 5 to 10% of actual field measured conditions in April in compliance with County Code.

## HYDRAULIC MODEL IMPROVEMENTS


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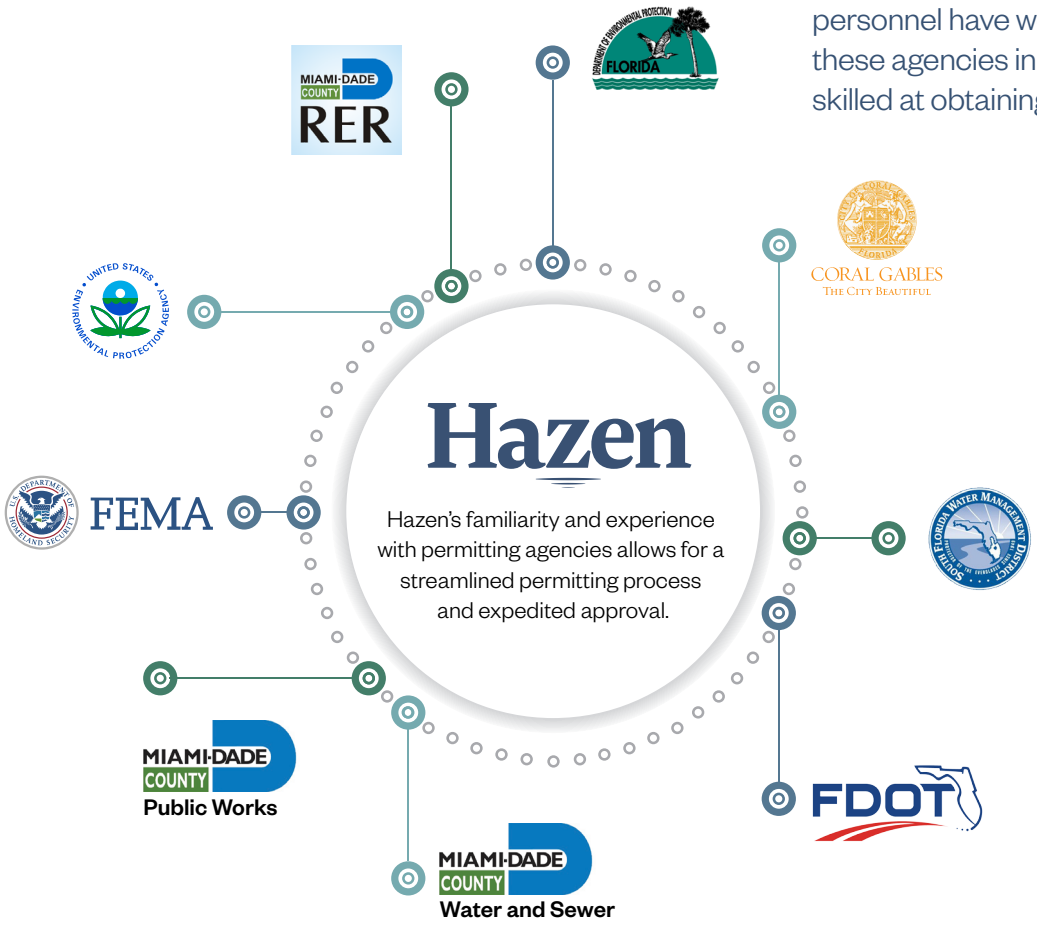
# 5 PERMITTING AND SUPPORT

There are numerous permitting agencies that have jurisdiction over the City of Coral Gables utilities, roadways, waterways, and other assets. Hazen has unparalleled experience in obtaining permits from external agencies as well as internally from City departments. Our staff has successfully implemented countless projects within the City of Coral Gables that have involved mechanical, electrical, and structural improvements, on City of Coral Gables and Miami-Dade County property/right-of-way. Our team has secured permits from MDWASD, Miami-Dade RER, Miami-Dade Public Works, City of Coral Gables Building Department, City of Coral Gables Board of Architects, and many others.

Obtaining all pertinent permits on a project is crucial since any delays in the permitting process can ultimately delay construction of the improvements. 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. Our team is committed to moving the project forward.

**Our project team has a strong professional working relationship with all of the applicable regulatory agencies.** Our project personnel have worked closely with these agencies in the past and are skilled at obtaining permits.

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# 6 MASTER PLANNING

### Water and Sewer Systems

The City of Coral Gables is a growing and vibrant community. A valuable tool for the facilitation of continued growth is proper infrastructure planning. Hazen can continue to serve as the City's trusted advisor by assisting in identifying infrastructure needs over the short, medium and long term futures and prioritize improvements.

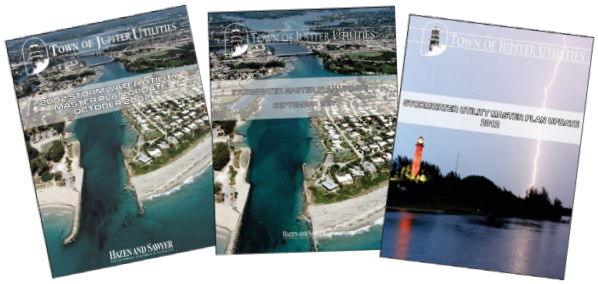
The team of engineers that have been selected to assist the City in meeting infrastructure improvement needs is also well versed in the preparation of comprehensive system-wide water, sewer, and stormwater master planning efforts. We have provided these services to several local municipalities within the South Florida region, including the Miami Dade Aviation Department (MDAD), City of Homestead, North Miami, Hallandale, Fort Lauderdale, and internationally for the City of Quito, Ecuador, Santo Domingo, Dominican Republic, and many others. As part of these efforts, team members have been able to successfully employ various planning tools. As previously discussed, these tools include modeling programs that allow for the construction and calibration of the wastewater collection/transmission system model capable of emulating actual daily operating conditions as well as the impact of future improvements within the system based on population growth and density.

Based our understanding of the City's infrastructure and planning tools at our disposal, Hazen team members can quickly develop water and wastewater master plans for the City of Coral Gables. These plans will provide staff with the foresight required to secure funding to implement the various system improvements thus providing for future residential/commercial expansion while maintaining compliance with regulatory requirements.

**We have projected the impact of future growth within these municipalities and have recommended capital improvement programs** for the near, medium and long-term futures.

### Stormwater

Hazen applies a similar philosophy to stormwater master planning. We have utilized this approach successfully with several of our municipal clients. For example, Hazen was tasked with development of the Town of Jupiter's Stormwater Master Plan in 2002. Subsequently we prepared updates in 2002, 2007, 2012 and 2017. With periodic updates, key issues can be focused upon, helpful updates on projects/programs can be communicated to elected officials and the public, and expenditures can be limited to just those required/beneficial.



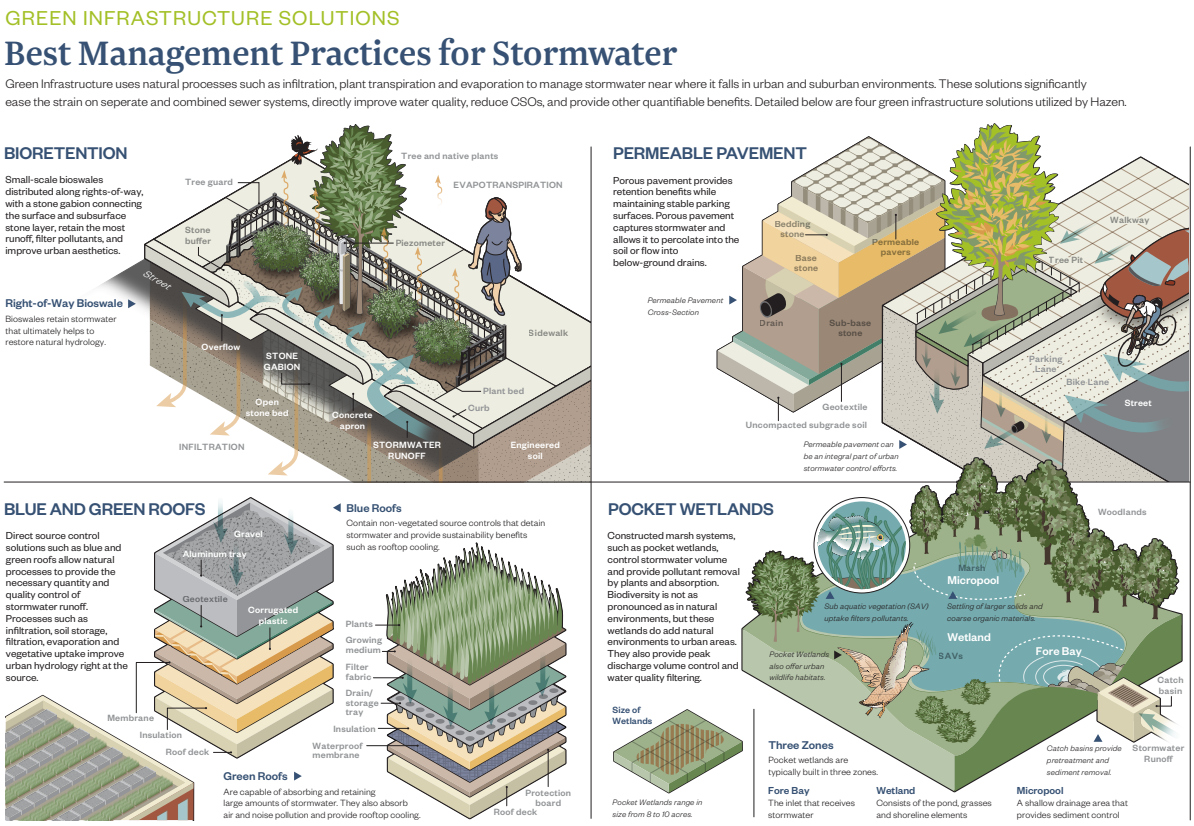

Master Planning can help devise **strategies for implementation which allow the City to achieve its goals quickly** given determined fiscal constraints.

Hazen and Sawyer

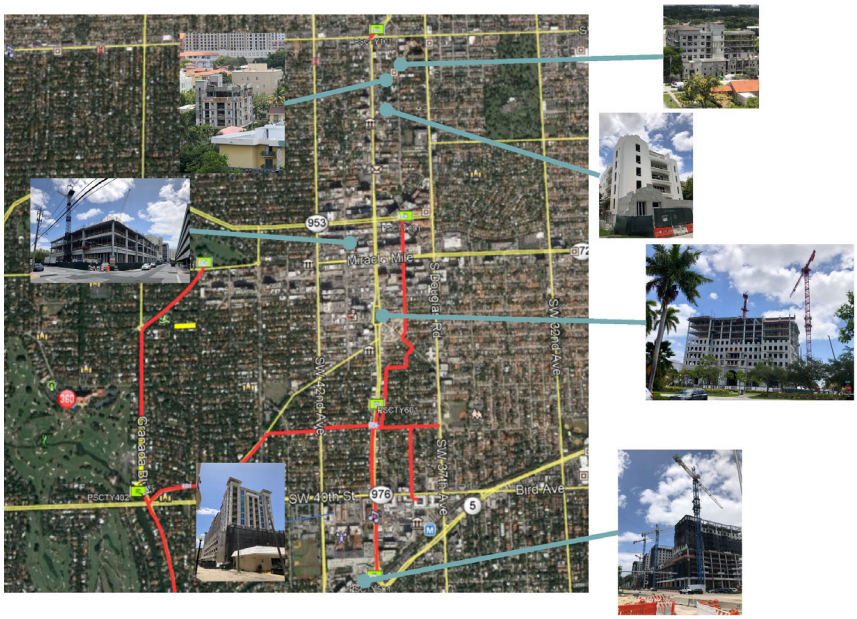
The City of Fort Lauderdale selected Hazen in 2016 as the Program Manager for delivery of a new stormwater master plan and implementation of designs to address chronic flooding, other stormwater management challenges, and sea level rise (SLR) adaptation. The City covers approximately 23,000 acres of highly-urbanized neighborhoods, with much of its coastal land area lying within the floodplain and numerous rivers and tributaries running throughout the City. The scope of work includes data collection; City-wide hydraulic/hydrological stormwater modeling, including consideration of climate change impacts; a revised stormwater master plan with prioritized capital improvements; design, permitting, and construction services for stormwater capital improvement projects resulting from the revised stormwater master plan; watershed planning; community outreach services; and construction management services. Tasks recently completed include:

- Collection of high resolution LiDAR data for entire City
- Field collection of stormwater infrastructure data for geodatabase and modeling development
- Development of a Citywide geodatabase incorporating historical information, as-built data and field survey information into GIS
- Standard construction details and specifications (including Green Infrastructure)
- Comprehensive City-wide hydrologic/hydraulic modeling
- Design for seven priority neighborhoods. In total, for the seven neighborhoods, over 1,000 drawings have been prepared, along with specifications and an Opinion of Probable Construction Cost.

As part of the Fort Lauderdale Stormwater Master Plan, one of Hazen's initial task was to develop a series of design guidelines and details. Many of these details outline green infrastructure improvements that not only enhance the street scape, they provide sustainable solutions as well. A graphical representation of these details are depicted below.

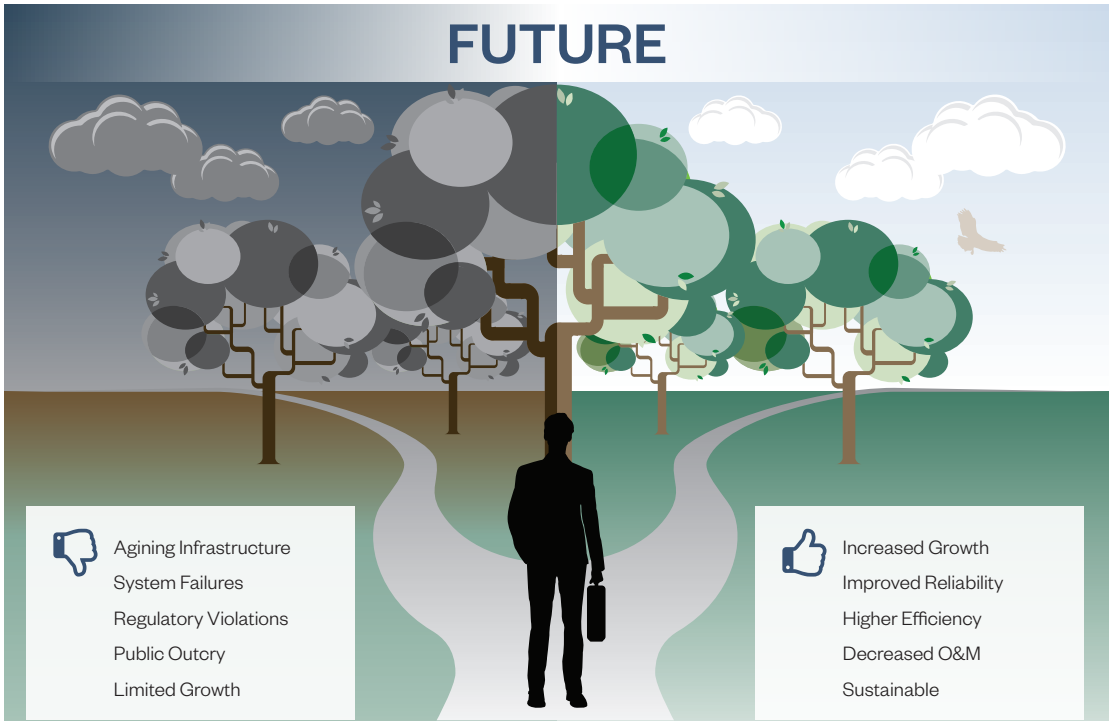


The City's continued growth in the downtown and surrounding areas requires continued thought and consideration of its impact on existing infrastructure and assuring adequate capacity moving into the future. Master Planning is the key to assuring that infrastructure needs are met in the near term as well as the future.




**Downtown Coral Gables continues to experience significant growth.** Infrastructure planning facilitates such growth, while maintaining a high level of service to residents and businesses.

## Master Planning allows your utility to choose the right path




Master planning can help the City make informed decisions in regards to infrastructure improvements and utility operations. **Proper planning can lead to higher efficiency, operational savings, improved service to residents, and businesses, and a sustainable City.**

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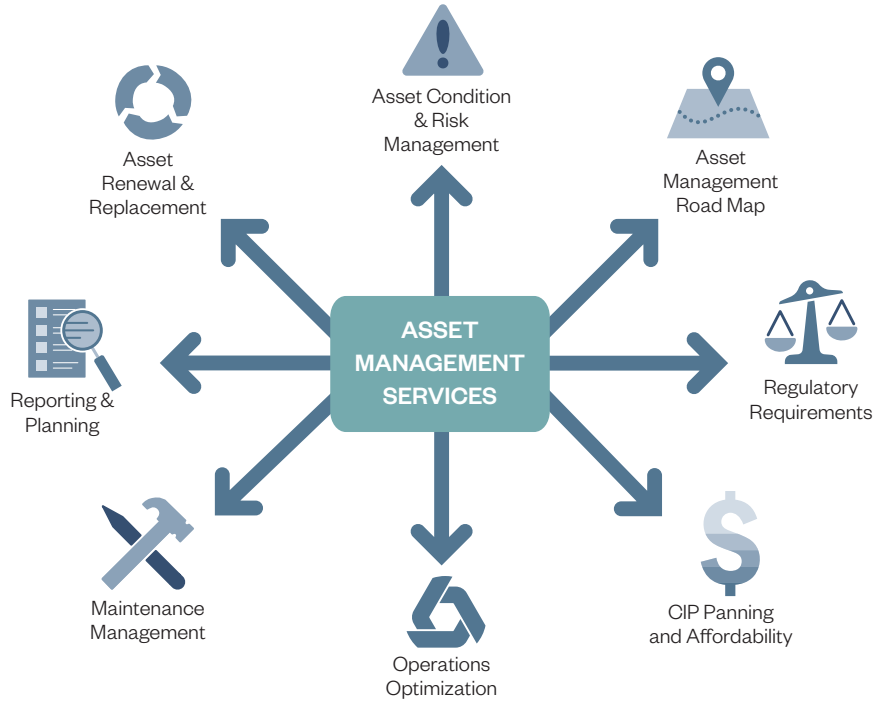
# 7 ASSET MANAGEMENT

Rising operating costs, aging infrastructure, regulatory pressures, simultaneously ongoing programs, and a customer base that expects world class service means that the City must find ways to extract greater value from their existing assets. Many utilities already implement several of the elements of Asset Management programs – they just may not refer to these tasks collectively as Asset Management.

A structured approach to asset management is designed to help a utility make better operations, maintenance, renewal and replacement decisions through efficient and effective management of its assets, and Hazen is developing the City of Coral Gables' asset management plan including:

- Establishment of defined levels of service
- Adoption of a life cycle management approach
- Development of long-term cost-effective management strategies
- Monitoring, tracking, and reporting program performance

Asset management is emerging as an important focus of Hazen's work throughout the United States, and most commonly involves CMOM programs where sanitary sewer systems are concerned.




In addition to the tools we have developed, we also know how to leverage commercially available software systems to support critical Asset Management decisions.

- Maximo
- CITYWorks
- NexGen
- Accela
- LuCITY
- CapPlan Water


Hazen provides expertise, tools, technologies, and procedures **that empower our clients to achieve excellence in asset management.**

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### GIS and Database Management

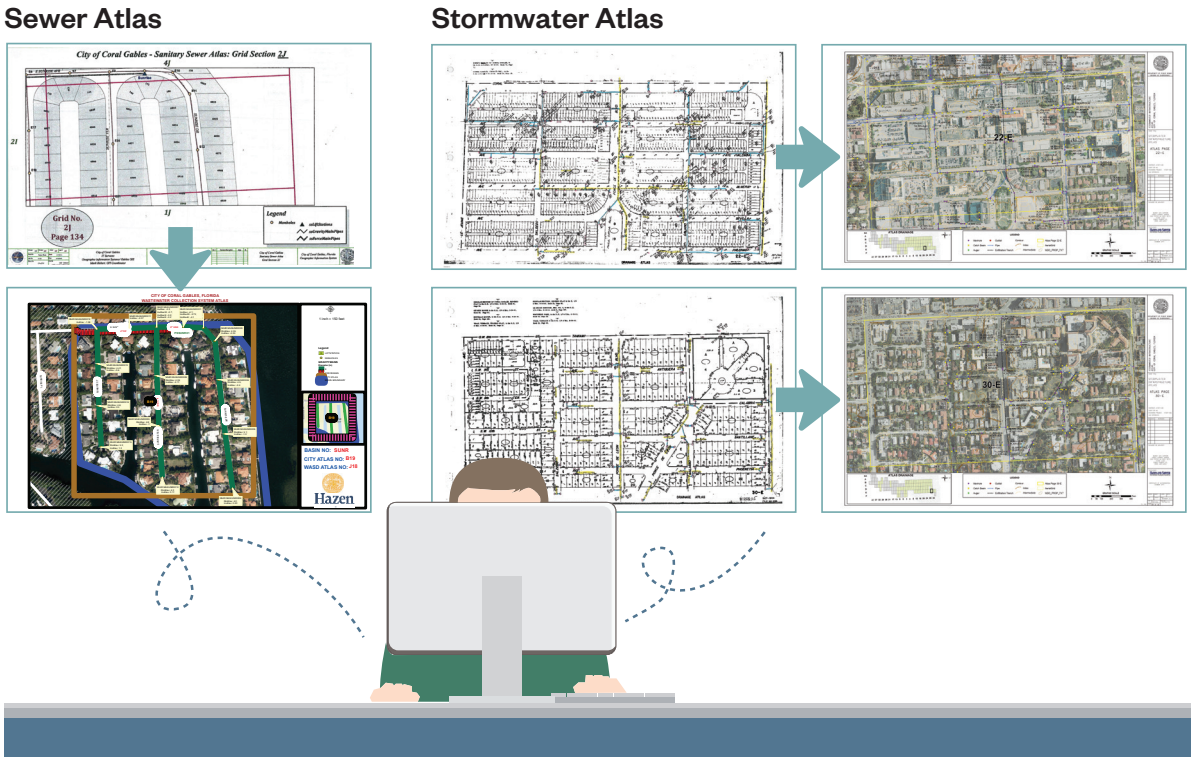
Geographic information systems (GIS) have many applications which can be applied to wide array of disciplines. The use of GIS in a municipal utilities program is advantageous because it allows for easy storage of spatial information which can be easily queried and manipulated based on the specific needs of a project. GIS can be used at a high level of success for any projects which require any comparison(s) of multiple spatially explicit data. Previously independent datasets can be directly compared based on their spatiality indifferent ways depending on the project goals.

For example, for a stormwater assignment, land cover characteristics (e.g. percent imperviousness) can be coupled with soil properties (e.g. hydrologic soil group) to quickly determine the curve number at a high spatial resolution across a large area. This new curve number dataset can then be coupled with other data for further calculations as is necessary for a particular project.

An example of this is when Hazen used GIS as a tool for calculating pollutant loads in stormwater runoff on a sub-drainage area basis. GIS was used to satisfy NPDES permitting requirements in a cost effective manner due to the availability of different GIS data sets and ease in which the data can be manipulated. The employment of this tool helped save the City of Coral Gables considerable time and resources.

Another use of GIS could be for planning purposes by allowing for easy visualization of where existing infrastructure is located and identifying infrastructure needs based on proposed future development. While these are only a few examples of how GIS can be used, the list of applications for the tool is expansive due to the ease of use and the availability of accurate and useful data.

**Hazen developed GIS based atlases for the City of Coral Gables sanitary sewer and storm sewer systems**, thus allowing for improved management of assets by City staff.

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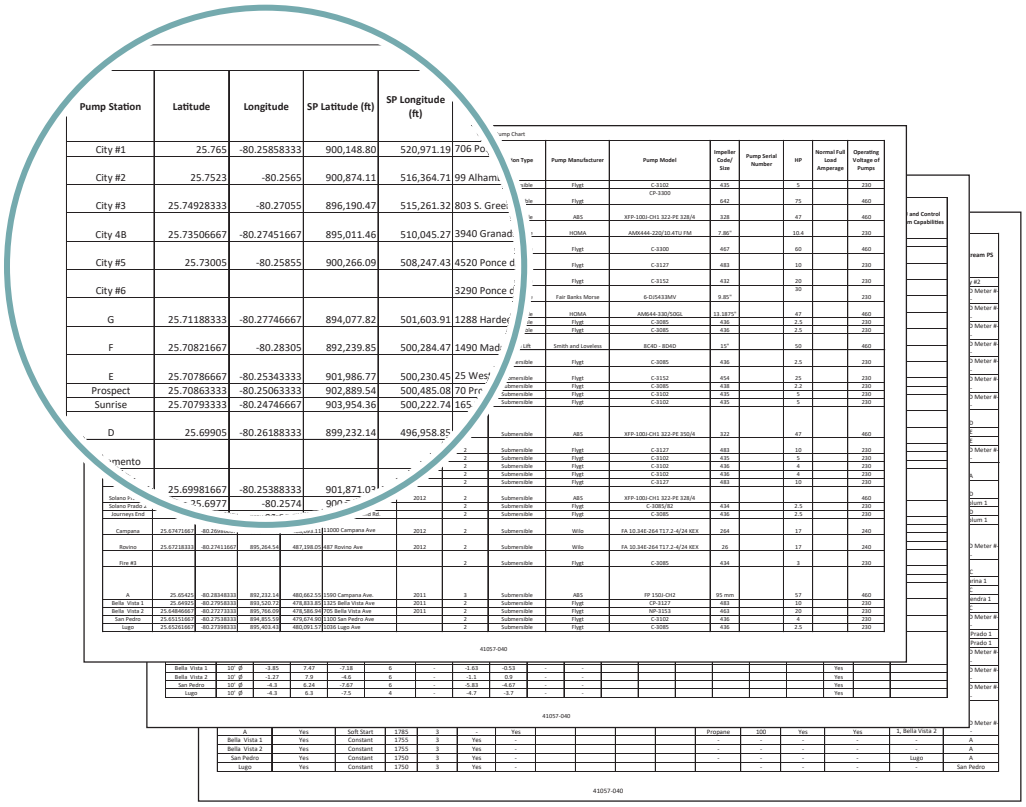
### Operations and Maintenance Program

As part of the pump station inspection program, Hazen staff visited all 35 pump stations to collected pertinent data on each station including the number of pumps, manufacturer, model, impeller size, serial number, horsepower, operating voltages, wet well diameter and control elevations.

The data collected has been utilized to develop a system wide O&M program. The City has been examining each of the stations on an individual basis to determine what pumping units are to be replaced, to identify and implement preventative operations and maintenance schedules and procedures, as well as develop an inventory management system to track critical equipment/ spare parts.

A similar approach can be applied to any of the City's operation and maintenance activities. Parallel needs exist with relation to stormwater and other systems. **Hazen's experience and familiarity with City staff can be leveraged to obtain significant value.**

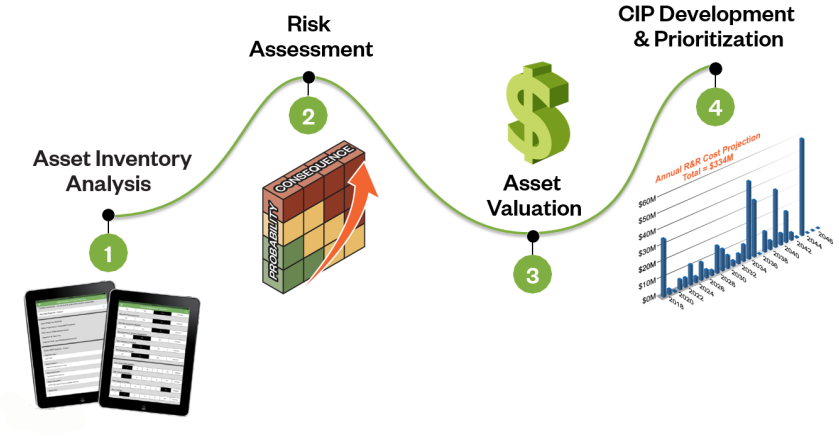


| Pump Station | Latitude | Longitude | SP Latitude (ft) | SP Longitude (ft) | |
|---|---|---|---|---|---|
| City #1 | 25.765 | -80.25858333 | 900,148.80 | 520,971.19 | 706 Po |
| City #2 | 25.7523 | -80.2565 | 900,874.11 | 516,364.71 | 99 Alham |
| City #3 | 25.74928333 | -80.27055 | 896,190.47 | 515,261.32 | 803 S. Gree |
| City 4B | 25.73506667 | -80.27451667 | 895,011.46 | 510,045.27 | 3940 Granad |
| City #5 | 25.73005 | -80.25855 | 900,266.09 | 508,247.43 | 4520 Ponce d |
| City #6 | | | | | 3290 Ponce d |
| G | 25.71188333 | -80.27746667 | 894,077.82 | 501,603.91 | 1288 Harde |
| F | 25.70821667 | -80.28305 | 892,239.85 | 500,284.47 | 1490 Mad |
| E | 25.70786667 | -80.25343333 | 901,986.77 | 500,230.45 | 25 Wes |
| Prospect | 25.70863333 | -80.25063333 | 902,889.54 | 500,485.08 | 70 Pr |
| Sunrise | 25.70793333 | -80.24746667 | 903,954.36 | 500,222.74 | 165 |
| D | 25.69905 | -80.26188333 | 899,232.14 | 496,958.85 | |
| | | | | | |
| | 25.69981667 | -80.25388333 | 901,871.03 | | |
| | 25.6977 | -80.2574 | 900 | | |

### Asset Management & Condition Assessment

Hazen has employed a systematic approach to asset inventory, condition assessment, risk assessment, and prioritization of assets for renewal and replacement, culminating in a prioritized capital improvements plan for the City of Sunrise's water main and force main systems.

The City of Sunrise operates and maintains over 650 miles of water transmission mains and over 125 miles of wastewater transmission mains. In 2018, the City of Sunrise Utilities Department selected Hazen to prepare a Water and Wastewater Master Plan Update. The update includes asset inventory and condition assessment of the City's wastewater collection and water transmission systems.



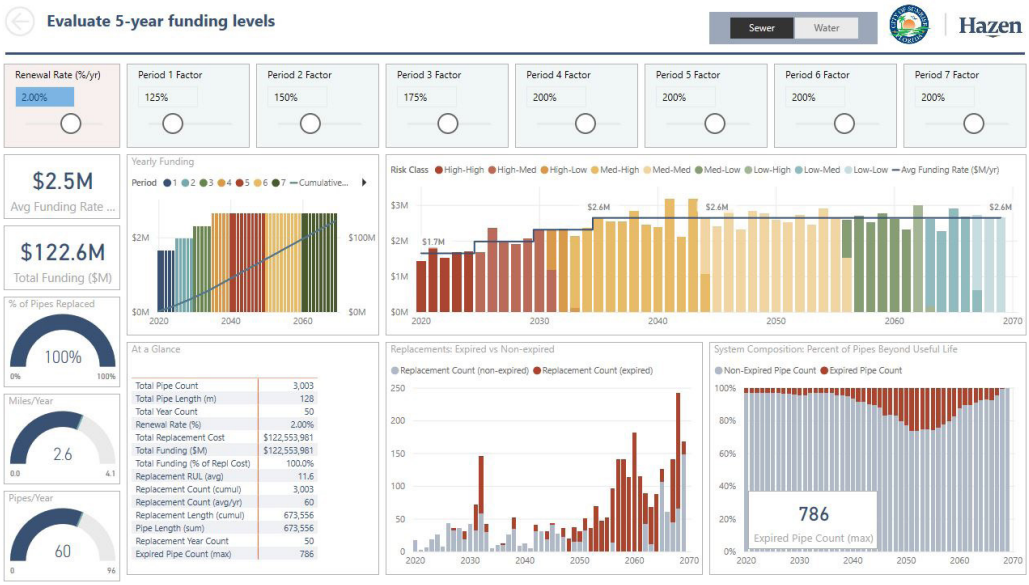

Using a variety of tools including Model Builder, Power BI, ARCMAP and more, **Hazen is developing a complete risk assessment and budget forecast for inspection and replacement of all City of Sunrise force mains and water mains.**

Relevance to the City:

- Asset inventory and condition assessment
- Remaining useful life prediction
- GIS, Power BI, Model Builder software tools
- GIS integration and mapping
- Capital improvement budgeting

Benefits to the City

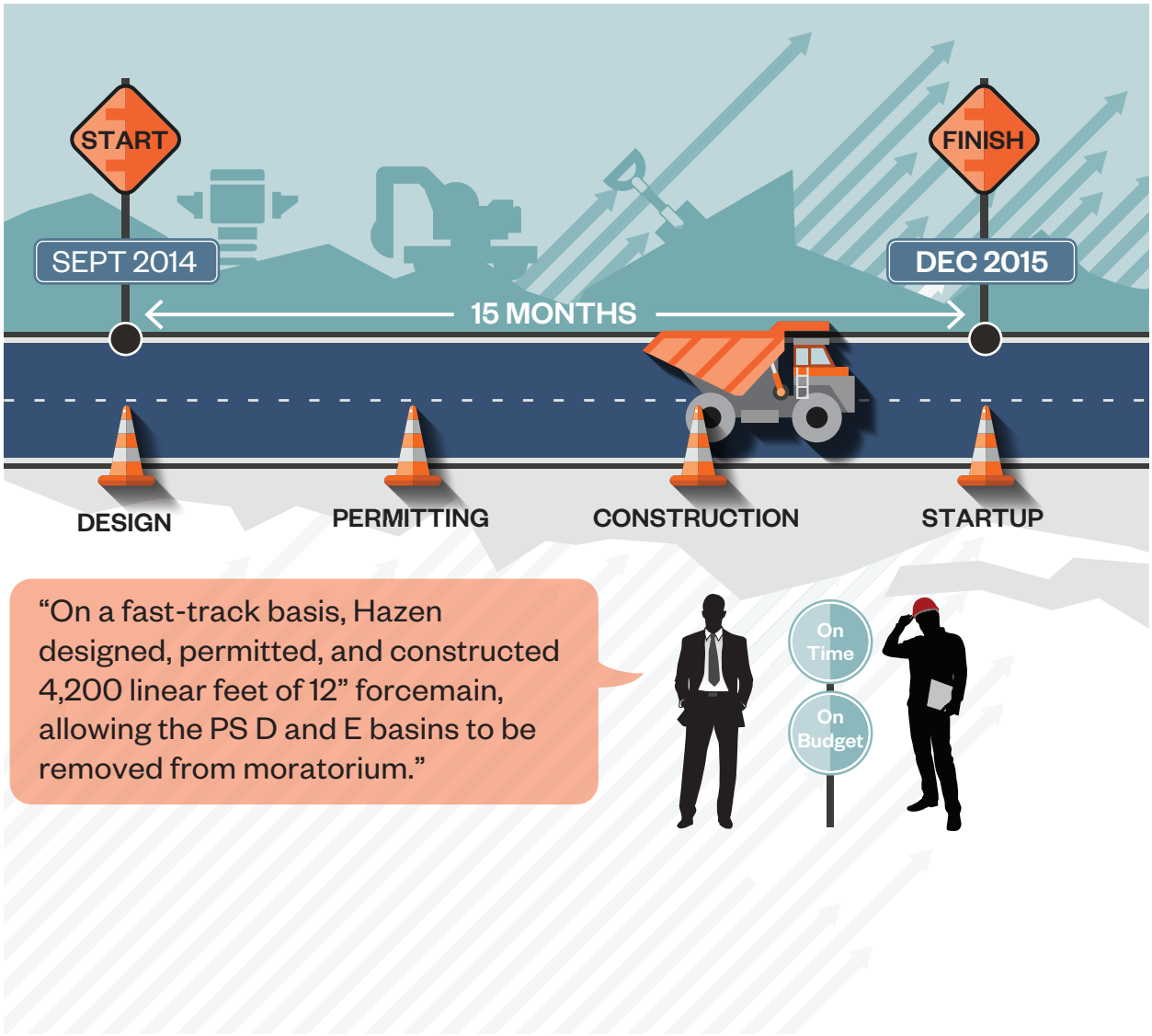
- Inexpensive standard software tools: ESRI GIS Arcmap & Model Builder and Microsoft Power BI
- User-friendly filters and buttons allow for unlimited visual scenarios
- Numerous dynamic dashboards
- Forecasts likelihood of failure and remaining useful life
- Summarizes triple bottom line consequence of failure
- Develops future CIP spending plans to manage pipe failure risks



# 8 CONSTRUCTION MANAGEMENT

As one of the City's environmental engineering consultants, we have provided construction management for all of the projects we have designed and permitted. Depending on the type of project, pumps stations, flood mitigation, SSES piping lining, etc., Hazen has provided specialized inspectors that have years of experience in the implementation of the products/equipment that were specified during design. This facilitates installation while assuring quality assurance.

**Our understanding of the varying code requirements allows our staff members to address construction conflicts or discrepancies in a prompt manner,** which facilitates the resolution of field inquires in a timely fashion while assuring compliance with all associated requirements.

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**Hazen pledges to provide the City with a familiar staff** to assist in implementation and execution of projects which we have designed, or as requested through continued provision of construction management services.

Hazen's approach is embodied by a committed to providing staff members which the City has worked with for several years and in some cases decades. Our continuous involvement in the construction of various wastewater and stormwater infrastructure projects throughout the City has led to the development of a partnership between City staff, Hazen, and local residents. This relationship assures the proper implementation and function of the project designs while remaining sensitive to the needs of the residents and the overall community. The positive relationship between the City of Coral Gables and Hazen has led to the successful construction of diverse infrastructure projects throughout the City with minimal impacts from local residents and businesses.

### Other Contracts of Similar Scope

As with the City of Coral Gables, many of the municipalities we provide design and permitting services for also retain Hazen to provide construction management services. This commitment results in continuity of design intent, more efficient coordination with the construction contractor, and ensured consistency and quality of completed projects.

## Project Highlights

### Homestead Influent PS and Gravity Main

In order to address moratorium issues in the collection system impacting the western portion of the City and reduce operating pressures in the eastern portion of the City, Hazen was tasked with the design of a new influent pump station (IPS). The station, with capacity of 21 mgd, is capable of delivering wastewater to the City's WWTP as well as the MDWASD via 70 and 165 HP pumps respectively. The new station was constructed at the WWTP and consisted of a new influent box, wet well with screening facility, electrical building and generator. The collection system discharges to the influent box via and existing 24-inch FM from the east and a new 36-inch gravity from the western portion of the City that eliminated two re-pump stations.

### North Miami Beach Pump Station Improvement Program

In an effort to standardize pump station configuration and increase reliability, the City embarked on a pump station improvement program (PSIP) that involved improvement to 10 stations. Hazen was tasked with the design of two of the ten stations as well as the final constructability review of 10 stations. In order to assure continuity through construction, Hazen was selected to provide the construction management for all 10 pumps. The project is scheduled to be completed during the fourth quarter of 2015.

### Hialeah Pump Station Improvement Program

In 2015 Hazen was requested to design improvements to 12 pump stations and approximately 35,000 lf of force main to improve station operating hours and increase reliability. To assure continuity between the design and construction phase Hazen was also selected to construction management services. The project is anticipated to be complete by December of 2019.

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# 9 ENVIRONMENTAL ASSESSMENT

Municipalities can find themselves involved in environmental assessments and remedial actions for various reasons. Ultimately, regardless of the specific circumstances of any individual site or environmental issue, one of the most important considerations for a municipality involves liability, and for this reason it is essential that any environmental concern or potential concern be managed with forethought and a thorough knowledge of applicable regulations and technical considerations.

For environmental issues that may arise during this contract, **Hazen's staff has the experience and knowledge to advise and assist the City.**

The Hazen team includes personnel with a wide range of experience in Phase I and Phase II site assessments, subsurface investigations and sampling of suspected contamination in groundwater and soils, and the development of site assessment reports, monitoring plans for contaminated groundwater, and remedial action plans as warranted by site conditions.

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly referred to as the Superfund, includes a strict liability scheme to enable the United States Environmental Protection Agency (USEPA) to recover cleanup costs from responsible parties. CERCLA creates liability for local governments in the same manner as it does for private parties. One of the most problematic areas for municipalities has involved hazardous waste disposal by an outside company within City boundaries. Waste generated by a municipality remains the responsibility of the municipality, regardless of where it is transported to. Careless handling and disposal of hazardous substances can result in a municipality being subject to fines for improper disposal as well as liable for the often large cleanup costs.

A municipality can also incur liability for cleanup costs via the acquisition of contaminated land or facilities. In cases where a municipality is already in possession of contaminated land or facilities, such an acquisition may be defensible. An "involuntary acquisition" is created, for example, when a municipality acquires property as a result of an owner's failure to pay property taxes. There may also be some consideration if land was purchased without knowledge of a toxic waste problem, provided the new owner took immediate steps to mitigate the problem after it became known.

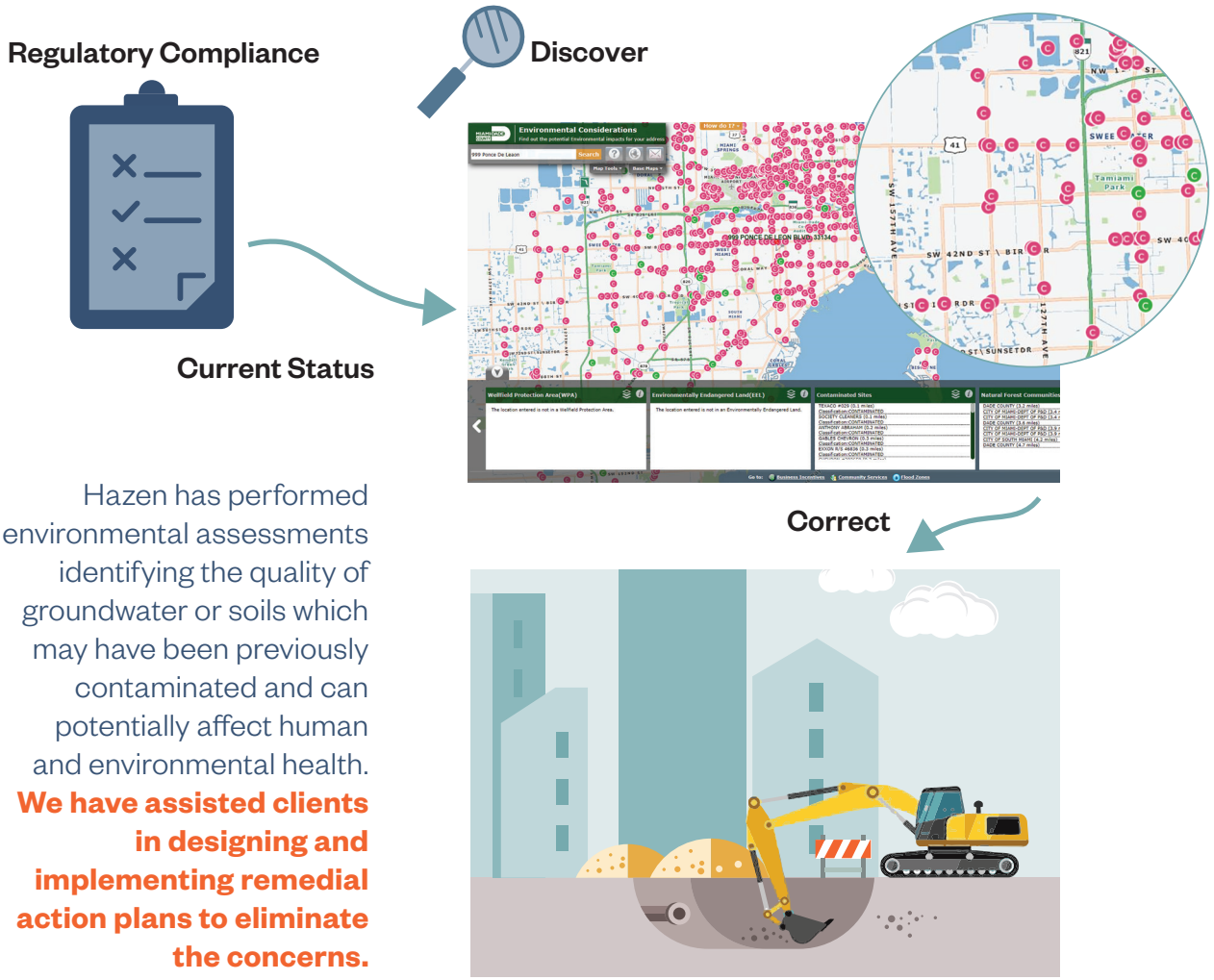
Federal Environmental Laws include a small but real possibility that public (and private) officials can be held personally liable for environmental problems. In such cases, legal precedent has established the following factors supporting individual liability:

1. The ability to make timely discovery of the problem;
2. The power to direct the activities of the persons who control the mechanisms causing the pollution; and
3. The ability to prevent and abate damage.

Given these considerations, liability prevention measures should focus on two concepts as follows:

- First, the best defense is a program of regulatory compliance. The government or a private citizen will have more difficulty prosecuting a public official who is making a good faith effort to comply with the law.
- Second, in order to make that good faith effort, public officials need to know their current regulatory status and be prepared to take immediate steps toward correction of problems that may be discovered. The failure to abate a recognized hazard is the quickest route to liability.

While projects involving environmental assessment and remediation are not the usual business of a municipality, nonetheless municipalities need to be prepared to readily understand and take action on environmental issues that may arise in the course of providing public services. Whether this involves the assessment and cleanup of lead contamination at gun ranges, arsenic from years of herbicide application at golf courses, petroleum or organic solvent soil and groundwater contamination from old automotive service stations or dry cleaners, or canal sediment contaminated from years of urban storm water runoff, municipal decision makers need prompt access to relevant technical and regulatory knowledge.




Hazen has performed environmental assessments identifying the quality of groundwater or soils which may have been previously contaminated and can potentially affect human and environmental health. **We have assisted clients in designing and implementing remedial action plans to eliminate the concerns.**

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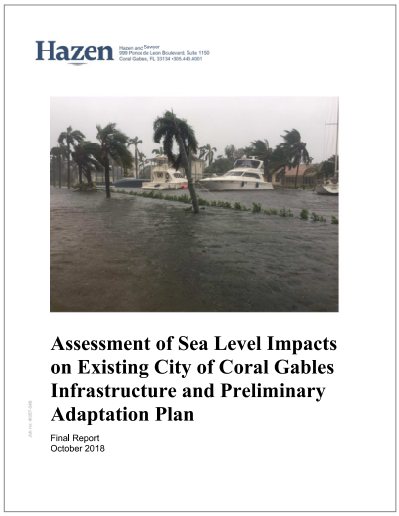
# 10 HAZARD MITIGATION

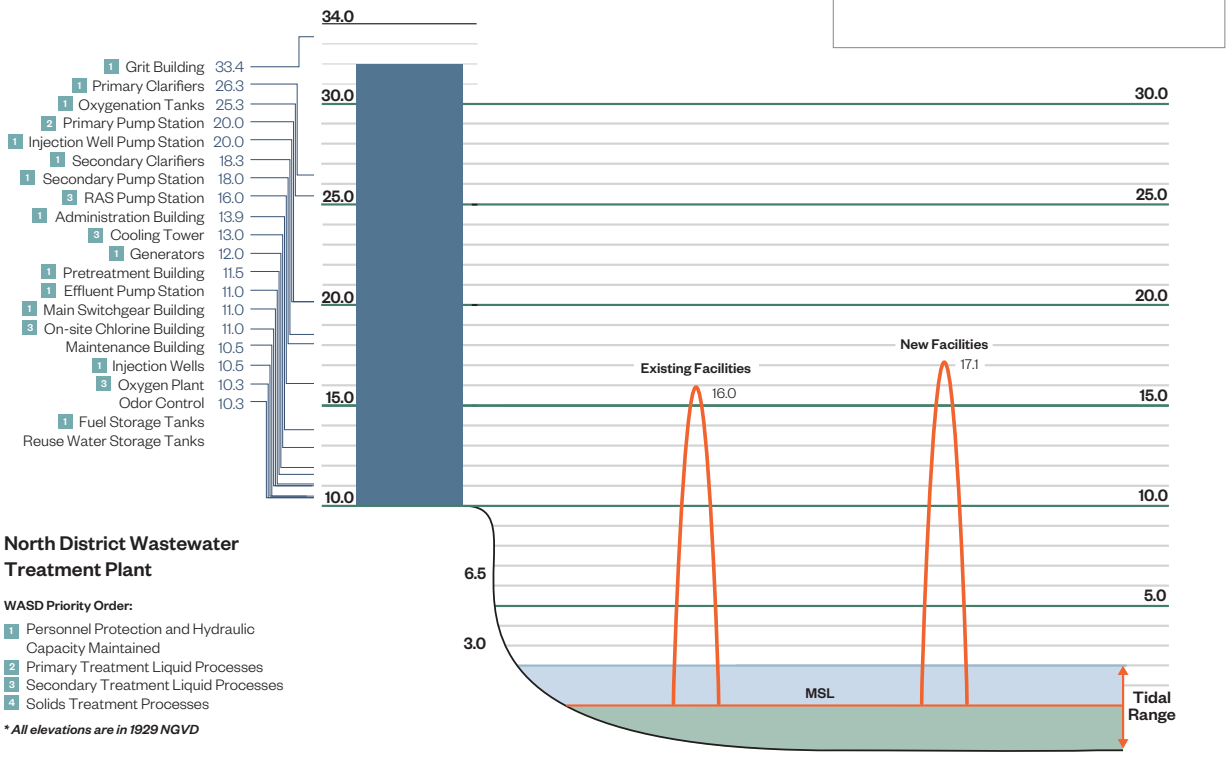
In today's ever-changing environment it is necessary that municipalities be prepared to protect their communities and infrastructure assets from natural hazards. In South Florida, we are particularly vulnerable to a series of environmental hazards not commonly experienced elsewhere in the United States. As a result of our local presence and national experience, Hazen is able to assist the City of Coral Gables in identifying hazards, performing vulnerability analyses, and developing corresponding mitigation strategies.

Our ongoing involvement with sea level rise places Hazen in an excellent position to recognize and advise as to how potential local and regional adaptations to this issue may affect the City of Coral Gables and other members of the broader community. **Hazen was awarded Assessment of Sea Level Rise on Existing City of Coral Gables Infrastructure and Preliminary Adaptation Plan in 2016.** The plan detailed the impacts of various storm conditions, and proposed hardening of various infrastructure based on their criticality.

## Sea Level Rise

Hazen continues to be a leader in efforts, both locally in South Florida and in vulnerable locations elsewhere in the United States, to understand and anticipate the risks to infrastructure posed by sea level rise and to recommend sustainable, cost-effective adaptation strategies to help mitigate the risk. Hazen has performed numerous assessments of the vulnerability/resiliency of our clients' facilities, and provided corresponding recommendations to mitigate potential hazards.

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As assessed in the October 2018 report titled, "Assessment of Sea Level Rise on Existing City of Coral Gables Infrastructure and Preliminary Adaptation Plan", it is known that the City of Coral Gables (CITY) and its infrastructure is vulnerable to the impact of ongoing sea level rise (SLR) brought on by climate change.

As with all coastal cities in southeast Florida, creating climate resilient infrastructure moving ahead is vital to a community's ability to sustain itself and continue to grow. The fact that creating a climate resilient facility does not raise capital costs of a project significantly, coupled with studies that show that the cost of creating resilient infrastructure is between 4 and 36 times less costly than rebuilding the same infrastructure should it not be constructed in a resilient way.

Our approach to assisting the City to develop climate resilient utilities moving ahead is to use the process set forth by the EPA in their technical document, "Climate Ready Water Utilities-Adaptation Strategies Guide for Water Utilities".

The first step in this process is to determine inundation depths to be evaluated for a piece of infrastructure. These inundation depths have already been determined by Hazen for the City in the report "Assessment of Sea Level Rise on Existing City of Coral Gables Infrastructure and Preliminary Adaptation Plan" where inundation levels due to SLR + King Tide (KT) + Storm Surge (CAT 1, 3 & 5), have been calculated out to year 2070.

The next step is to determine the service life of the infrastructure being evaluated and determine which storm event to use in the evaluation, ie., category 1, 3 or 5. Appropriate inundation depth to be used, ie., which storm event, is determined by the piece of infrastructures criticality in the overall system.

With this information in hand an inundation depth is determined and compared, on the same topographic datum, to the elevation of critical pieces of an existing water/wastewater/stormwater facility such as control panels, electrical panels, pump motors, emergency power...etc. can be elevated 1.0' above this elevation, while equipment located below this depth is designed to operate while submerged.

The Hazen design team will evaluate the effectiveness of different possible resilience measures, as appropriate, which could include, but are not necessarily limited to:

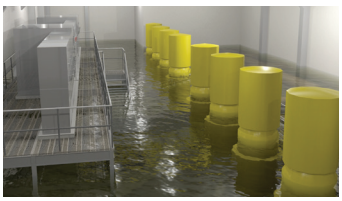
- Elevating facility/relocating facility
- Harden Facilities.
  - Waterproof equipment

**Sea level rise impact will be evaluated** throughout the project.

**Bay Park Repair and Resiliency PM/CM (Nassau County, NY, 2013)** Hazen provided PM/CM services during expedited and extensive rehabilitation of the facility following Hurricane Sandy.

**Climate Risk Analysis for Reclaimed Water, Miami-Dade and Broward Counties, 2014)** Hazen evaluated the impacts of regional climate change.

**Sea Level Rise Adaptation Assessment (Miami-Dade County, 2014)** Hazen evaluated risk to Miami-Dade wastewater treatment facilities from floods and severe weather impacts, recommending sustainable, cost-effective adaptation strategies to mitigate the risk.



**Ocean Outfall Legislation Program (Miami-Dade County, 2015)** Hazen is currently dealing with the Ocean Outfall Legislation Program which requires hardening and moving facilities due to SLR.

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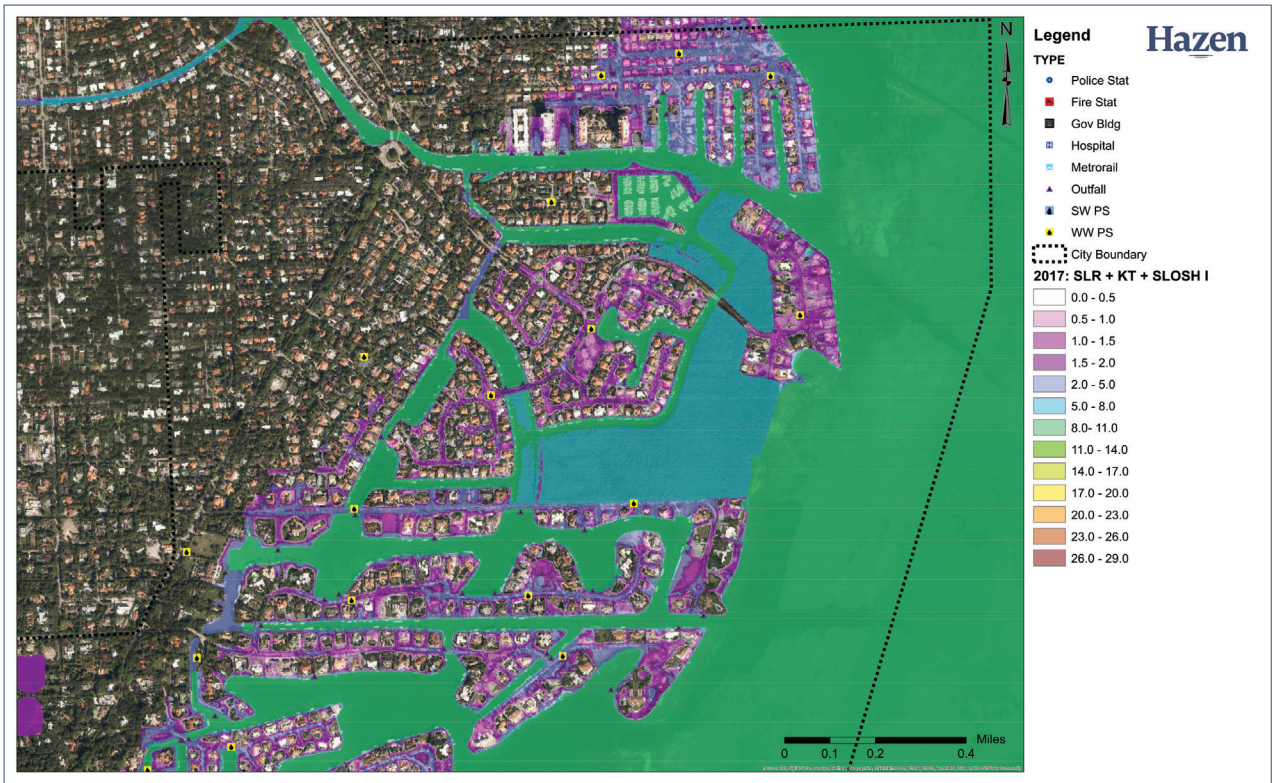
  - Wet-proof/dry-proof structures
  - Utilize submersible equipment
  - Utilize temporary flood barriers
  - Utilize adequate emergency pumping systems
  - Utilize permanent barriers
- Facilitate Restoration.
  - Modular equipment
  - Redundant facilities
  - Bypass capabilities
  - Emergency power

As part of the evaluation of resilience measures, an opinion of probable cost will also be calculated for the implementation of the measure or suite of measures. The Hazen team will then complete a benefit cost analysis of the proposed resilience measures. Based on this evaluation, the Hazen team will make a recommendation to the CITY for resilience measures to be included in the overall design of the project assigned to create climate resilient infrastructure.

### Preventative Actions

An important component of hazard mitigation is ensuring the proper operation of existing infrastructure intended to protect human health and property. It is our philosophy that preventative maintenance and operational controls are as important as capital improvements. For this reason, Hazen has helped Coral Gables in establishing clear and effective procedures for the operation and maintenance of the City's stormwater and wastewater systems.

The effective maintenance of the City's stormwater system can mitigating the potential of severe flooding and dampen the impacts of sea level rise. Recently, we assisted the City in developing standard operating procedures to address all components of the City's drainage system, including public outreach.




Neighborhoods: Sunrise Point, Sunrise Harbour, Baker Homestead, Biscayne Bay Sea, Biscayne View, Cocoplum, Tahiti Beach, north Gables Estates

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## Hazen has developed over 19 SOPs for the City. The SOPs developed include:

- Standard Operating Procedures for Stormwater Structural Controls Inspection and Maintenance,
- Standard Operating Procedures for Development Project Review and Permitting Procedures and/or Local Codes and Regulations for New Development / Areas of Significant Development
- Standard Operating Procedures for the City's Litter Control Program
- Standard Operating Procedures Street Sweeping Program
- Standard Operating Procedures Maintenance Shop/Equipment Yard Inspections
- Standard Operating Procedures Public Education and Outreach Program: Pesticides, Herbicides, and Fertilizers
- Standard Operating Procedures for Reducing Use of Pesticides, Herbicides, Fertilizers
- Standard Operating Procedures Proactive Illicit Discharge/ Connections/Dumping Inspections
- Standard Operating Procedures Reactive Illicit Discharge/ Connections/Dumping Inspections
- Standard Operating Procedure for Illicit Discharge Proactive Inspection Program
- Standard Operating Procedures Illicit Discharge Training
- Standard Operating Procedures Spill Prevention and Response Efforts
- Standard Operating Procedures Spill Prevention and Response Training
- Standard Operating Procedures Public Education and Outreach Program on how to Identify and Report Illicit Discharges and Improper Disposal into the MS4 and on the Proper Use and Disposal of Oils, Toxins, and Household Hazardous Waste
- Standard Operating Procedures to Reduce/Eliminate Sanitary Wastewater Contamination of the MS4
- Standard Operating Procedures Construction Site Plan Review for Stormwater, Erosion, and Sedimentation Controls and ERP/ CGP Coverage
- Standard Operating Procedures Construction Site Plan Review for Stormwater, Erosion, and Sedimentation Controls and ERP/ CGP Coverage
- Stormwater, Erosion, and Sedimentation Inspection Program for Construction Sites
- Standard Operating Procedures Stormwater Erosion and Sedimentation BMP Training


Hazen also developed an O&M manual to provide a set of Best Management Practices for the City's wastewater collection and pumping system operations and management. This O&M manual was the first in the County to be approved by the Department of Environmental Resources Management (DERM), and was selected by DERM as a template for other utilities to follow. The manual includes the following primary elements:

- Statement of purpose.
- System description including maps and contingency operation features.
- Section on control and monitoring including remote alarm capabilities, troubleshooting guides, and routine maintenance procedures.
- Section on personnel including an organizational chart with responsibilities identified, staffing requirements for system operation, training programs and procedures, and management responsibilities.
- Record keeping procedures.
- Safety
- Maintenance schedules, emergency equipment, and spare parts lists.
- An emergency response and operations program.

# 11 ADDITIONAL CONSIDERATIONS

Hazen's direct experience with the City of Coral Gables and the Miami-Dade regulatory environment makes us uniquely qualified to continue supporting the City in the role of Environmental Engineering Consultant. While our institutional knowledge of the City confers advantages that cannot be over-emphasized, the Hazen team also brings a broader experience in the South Florida engineering profession that multiplies the value of our direct experience with the City. Hazen is a member of the team assisting MDWASD with responding to the Ocean Outfall Legislation, and is tasked with the modeling and evaluation of alternative projects and operating scenarios to reduce reliance on the outfalls for effluent disposal.


Hazen has the ability to recognize how possible alternative operating scenarios, such as providing an additional connection point to MDWASD, could affect the City and its operations, **and to assist the City in planning for such changes.**

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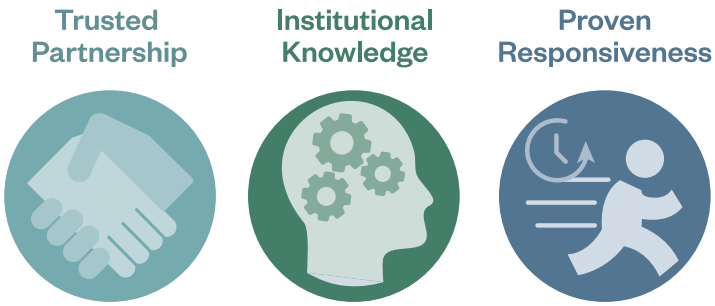
Selection of Hazen provides the City of Coral Gables with a environmental engineering consultant who is not only intimately familiar with its systems and staff, but also in a unique position to provide valuable guidance concerning the City's future plans. As a continued partner to Coral Gables, Hazen offers devoted local staff as well as access to national resources and experience.

Over the past 28 years, we have endeavored to earn the position of trusted advisors to Coral Gables, particularly in helping the City to plan and prepare for the greatly expanded regulatory demands and continuous growth. It has been a privilege to work with the City of Coral Gables on these important programs and priorities, and we are sincerely committed to continuing in this role.

Hazen provides the City with an environmental engineering consultant who is not only intimately familiar with its sanitary and storm systems, but also in a unique position to provide valuable guidance concerning ongoing/future regulatory requirements. This experience, our proactive approach and foresight, and our unique expertise and existing relationships, position Hazen as the best team to provide a Continued Partnership, assure Proven Responsiveness, and deliver Institutional Knowledge. As a continued partner to the City, Hazen offers devoted local staff as well as access to national resources and experience. Over the past 24 years we have endeavored to earn the position of trusted advisors to City, we are sincerely committed to continuing in this role by providing the personnel the City is familiar with and depends on.




The highly seasoned team of professionals assembled have been successful in delivering multiple infrastructure and regulatory projects on time and under budget. **Their fundamental understanding of the City's systems and procedures allows them to leverage their existing knowledge base to provide actionable guidance effectively and efficiently.**

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## Innovative interaction and communication with community, City staff, and multiple stakeholders.

Communication is key to the successful implementation of any project that involves interaction with the public. The team Hazen has proposed for this project has worked with the City for decades is some instances. Over this time period Hazen has garnered institutional insight of how the City operates, its interaction with the community and the community's expectation of the of the work that is be performed within their neighborhoods.

An illustration of this is the Citywide smoke testing project Hazen was assigned as part of the SSES Phase II requirements. The main component of this activity requires the injection of smoke into the gravity collection system to determine where defects are that permit rainwater to enter the gravity system in the form of inflow. The smoke, which is nontoxic/ non staining can enter homes if plumbing venting is installed improperly or has been compromised in any manner. As door hangers are not permissible within the City, Hazen developed flyers describing the activities to be performed in three languages, English. Spanish and Creole. The flyers were mailed to the public with their billing statements. Subsequent follows ups were noted on the City's TV channel informing residents when smoke testing activities would occur in their specific areas.

As result of this close coordination with City and the use of multiple media systems, residential concerns/ complaints were mitigated. Ongoing activities engaging the City, the community and stakeholders involve the proposed improvements to the Cocoplum 1 Pump Station and Force main. Hazen and the City have met with Cocoplum residents and the Homeowners Association (HOA) to explain the project and its proposed impacts, as well obtain input on proposed bike/ pedestrian lane and sidewalk within the area. This close collaboration with City staff, the community and the HOA allowed for the development of a project that not only meets technical/ regulatory requirement, it satisfies the community's concerns and makes them part of the decision-making process.

City of Coral Gables
Gravity Sanitary Sewer Smoke Testing
Basin 00A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Date** | 9/14/2012 | **Time** | 4:05 PM | **Defect** | 931 Replace Clean Out Cap | | | | |
| **USMH** | A26 | **DSMH** | A25 | **Address** | 1422 CORUNA AVE | | **Property Type** | Private | |
| **Defect Coordinates** | **X** | -80.284283 | **Y** | 25.655280 | **Latitude** | N 25° 39' 13" | **Longitude** | W 80° 16' 53" | |


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## Minimizing Impact on the Community

On every project we are involved with, Hazen strives to limit impacts on the surrounding community. As a result of our long history of working with the City of Coral Gables, we have a unique understanding of what it takes to satisfy the expectations of local residents and businesses. During the design phase, our engineers apply technical innovations to minimize disruptions.

On numerous projects, we have employed trenches technologies, thus eliminating surface disruptions to traffic and existing infrastructure. Over the past decade, Hazen has repaired thousands of feet of pipelines beneath the City of Coral Gables with minimal impact to the surrounding community. The firm has also rehabilitated dozens of pumps stations by removing above ground structures and placing all components underground in a submersible type configuration. This has been done with an objective of enhancing neighborhood aesthetics and improving quality of life.

On projects where traditional construction methods are required, Hazen sets and enforce strict specifications in regards to working hours, work site cleanliness, noise, and restoration. By keeping our projects on schedule we also minimize impacts to residents and business. It is our philosophy that every project should serve to enhance and engage the community.

We have proven our dedication to these principles via the successful completion of large infrastructure projects in sensitive areas, including Old Cutler Road, Granada Boulevard, North Gables and many communities throughout the City. The same can be stated regarding our projects for other municipal clients in Miami-Dade County.

## Schedule and Cost Control; Similar Initiatives Completed On-time and On-Budget

Our firm's capability to effectively meet client needs is reflected in the longevity of our partnerships. Our team has continually proven their ability to complete projects effectively within time and budgetary constraints while meeting regulatory compliance requirements. Hazen is committed to producing quality, cost-efficient products within performance schedules. Hazen is committed to accomplishing our engineering, design, construction administration, and start-up assignments with the requisite quality, within schedule and cost limitations, and to meet the special needs of our clients. The experience gained by our team over the years on a vast array of projects of varying size and complexity has led to the development of effective project management and control techniques that are routinely employed by our staff on all projects. Cost control on projects under this contract will be the responsibility of our Project Manager, Christopher Kish, PE.

Mr. Kish will also use the firm's computerized, web-based tool (Deltek Vision) to help with project planning, monitoring, and reporting. He will serve as the main point of contact with the City for each work assignment and will oversee execution of all tasks and the performance of the task leaders. The City of Coral Gables' project manager will be notified of current schedule and cost through routine communication and the submission of the summary report with the monthly invoice.

**Hazen's goal is to be a partner with, and therefore an extension of, the City of Coral Gables staff.** To this end, we believe that our Project Team's ability to accomplish this goal is enhanced by the presence of professionals located within a 15-minute drive from your City.

The table below illustrates our cost estimate and schedule performance on a variety of assignments. It is also evidence of our competence and dedication to provide clients with accurate project estimating. This is the best evidence an engineering firm can present to demonstrate project cost control performance. In the event that the Engineer's estimate of probable cost at any point in the design process exceeds the most recent City of Coral Gables budget to such a point that completion of all phases of the project are in jeopardy, Hazen will evaluate the design and identify changes necessary, if possible, to bring the project cost within budget, and/or provide justification to support an increase to the project budget.

**We will communicate frequently with the City to keep projects on schedule and within budget.** Through this communication, we can deliver work assignments effectively.

| Client | Project | On Budget | On Schedule |
|---|---|---|---|
| Coral Gables | Ponce Road Force Main Replacement | ✔ | ✔ |
| Coral Gables | PS D Force Main Replacement | ✔ | ✔ |
| City of Hollywood | Clarifier 5-8 Flow Distribution Box | ✔ | ✔ |
| City of Hollywood | Aquifer Recharge Pilot Study | ✔ | ✔ |
| City of Hollywood | PLC System Upgrade | ✔ | ✔ |
| City of Hollywood | Headworks Rehabilitation and Replacement | ✔ | (1) |
| City of Hollywood | 201 Facilities Plan Update 2018 | ✔ | ✔ |
| City of Hollywood | Wastewater Master Plan | ✔ | ✔ |
| City of Miramar | East WTP Renovations | ✔ | ✔ |
| City of Hollywood | McKinley Street Interceptor | ✔ | ✔ |
| City of Fort Lauderdale | Intracoastal Waterway Horizontal Directional Drill | ✔ | ✔ |
| City of Sunrise | Biosolids Management Improvements | ✔ | ✔ |
| Broward County | WTP 3C Ground Storage Tank and Pump Station | ✔ | ✔ |
| Broward County | Master Pump Station 440 Modifications | ✔ | ✔ |
| Broward County | Master Pump Station 310 Relocation | ✔ | ✔ |
| Broward County | North Regional WWTP (NRWWTP) Fine Bubble | ✔ | ✔ |
| Broward County | NRWWTP Facility Improvements - Fast-Track | ✔ | ✔ |
| Broward County | NRWWTP Facility Improvements - Effluent | ✔ | ✔ |
| Broward County | NRWWTP Screening Gates and Lift Station Force Main Modifications | ✔ | ✔ |
| City of Delray Beach | Plant A Secondary Clarifiers and Stormwater Rehabilitation | ✔ | ✔ |
| Miami-Dade Water and Sewer Department | South District WWTP High Level Disinfection Project | ✔ | ✔ |
| City of Hialeah | Peak Flow Management Study | ✔ | ✔ |

**(1) Construction schedule extended due to field and scope changes.**

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## Ability to Successfully Deliver Similar Projects that have Significant Community and Business Involvement

Hazen understands that the successful implementation of any design plan/project is directly proportional to local community involvement. Public outreach is an important element of any design program. To this end, as part of the Fort Lauderdale Stormwater Master Plan project, a dozen specifically developed meetings were held with the seven neighborhoods during the planning and preliminary design process. These meeting outlined the proposed improvements as well as the potential construction impacts and anticipated results related LOS. Feedback and information obtained from these meeting were incorporated into the various designs allowing them to meet technical/regulatory requirements while at the same time addressing local concerns.

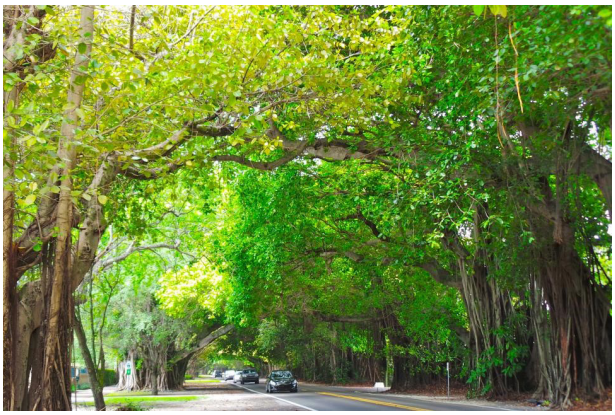
Similarly for the PS Cocoplum 1 PS and FM Improvement project, Hazen and the City have met with the Cocoplum Home Owners Association (HOA) to advise the HOA of the project's progress and anticipated impacts as well community buy-in on the inclusion of bike paths and sidewalks. Initial bike path designs presented by the City that involved medians and landscaping were rejected as the residents noted how the medians could limit the use of the Cocoplum Road. Revised designs involved painted bike paths that defined bike lane but did not hamper the use of the entire road by local residents in the event of an emergency were accepted and incorporated into Hazen's final design drawings. Similarly, as part of the HOA discussion, the sidewalk location along Isla Dorado Boulevard, was defined as well as the proposed material garnering HOA approval.

## Approach to Preserving the Historic and Natural Environment of Coral Gables while Providing the Services Solicited in this RFQ

Hazen has worked throughout the City on various projects. Each of the various projects were developed to provide the least amount of disruption to the local residents/ business community while preserving the City's historic and natural environments. The Venetian Pool located in the center of the City is a local and national historic landmark. First opened in 1924, the pool was added to the National Register of Historic Places in 1981. Hazen has been assigned two projects at the facility that are critical to its function. The initial project in the early 1990s involved the installation of a new chlorine disinfection system. The sodium hypochlorite system is hidden away in one of the existing storage rooms. It adds sodium hypochlorite to the well water as the pool is filled. The pool is drained and filled seasonally on a daily basis as there is no means of recirculating water within the pool. The system chlorinates the water to meet public safety standards without impacting the pools initial configuration/design elements. Similarly, in the early 2000s Hazen designed a new supply well for the pool. Since the pool has no means of water recirculation, it must be filled/chlorinated on daily. As not to impact the design feature/ historical elements of the pool, the new well pump was located outside the facility near the entrance. A submersible well pump was utilized resulting in all mechanical elements being contained in a vault below grade, thus not impacting the view of the historic entrance. This project as well as others Hazen has designed have met / exceeded the City's Historic preservation review board requirements.

One of the key features behind the "City Beautiful" designation is the tree canopies that line many of the City's historic roadways. A key historic thoroughfare at the southern end of the City is Old Cutler Road. Declared a public road in 1895, it obtained "State Historic Highway" status in 1974. As a result of aging

infrastructure in the area, Hazen has been tasked with the replacement of the majority if not all of the force main piping along the road. Although the proposed designs called for piping to be located away from existing tree root systems, unforeseen conflicts and space restraints in some instances required piping to be located near existing trees/roots. In these instances, specifications concerning the trees protection were developed in close coordination with the City's certified arborist. Detailed construction oversight was also necessary to assure only required root/ tree limbs were properly pruned. As a result of these activities the tree canopies along Old Culter Road have not been adversely effected by various infrastructure projects designed/ implemented by Hazen.

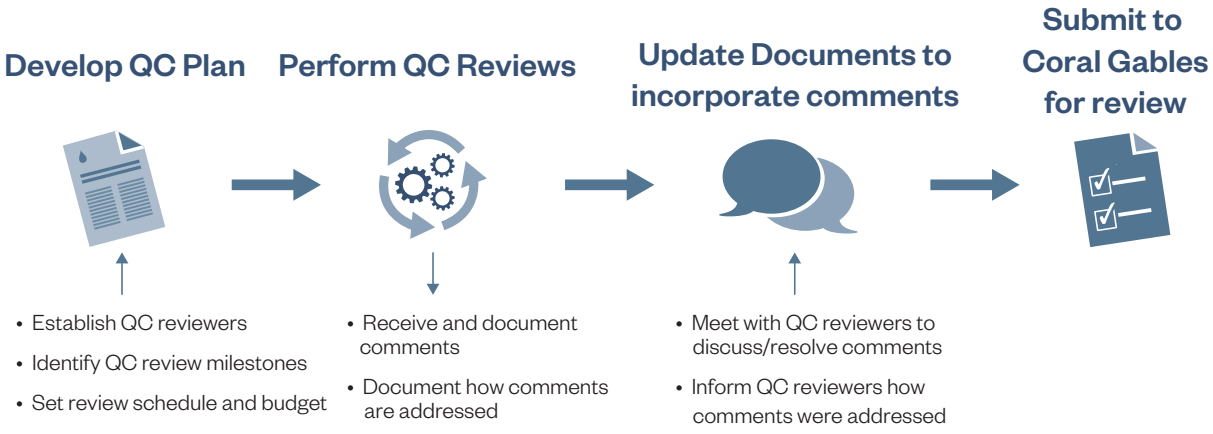


Providing quality engineering services and products is a core element of Hazen's business practice **and is inherent to our culture.**

## Quality Assurance/Quality Control

In support of this commitment and philosophy, we have developed a company-wide Quality Assurance Policy (QAP) Manual to provide guidance to staff during execution of every project. Hazen has earned a reputation for exceptional technical work and outstanding quality deliverables. This has been accomplished largely by our staff providing strong technical leadership, engineers at each level paying close attention to the details, and milestone QC reviews. All of these key factors are integral to the approach presented in the QAP Manual.

Every project is required to have a QC plan, and execution and adherence to the plan is strictly enforced. Our firm has a Chief Quality Officer (who is a senior owner 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. This puts the responsibility of QA/QC on Hazen's staff and not the City, ensuring the highest quality deliverables on this project.

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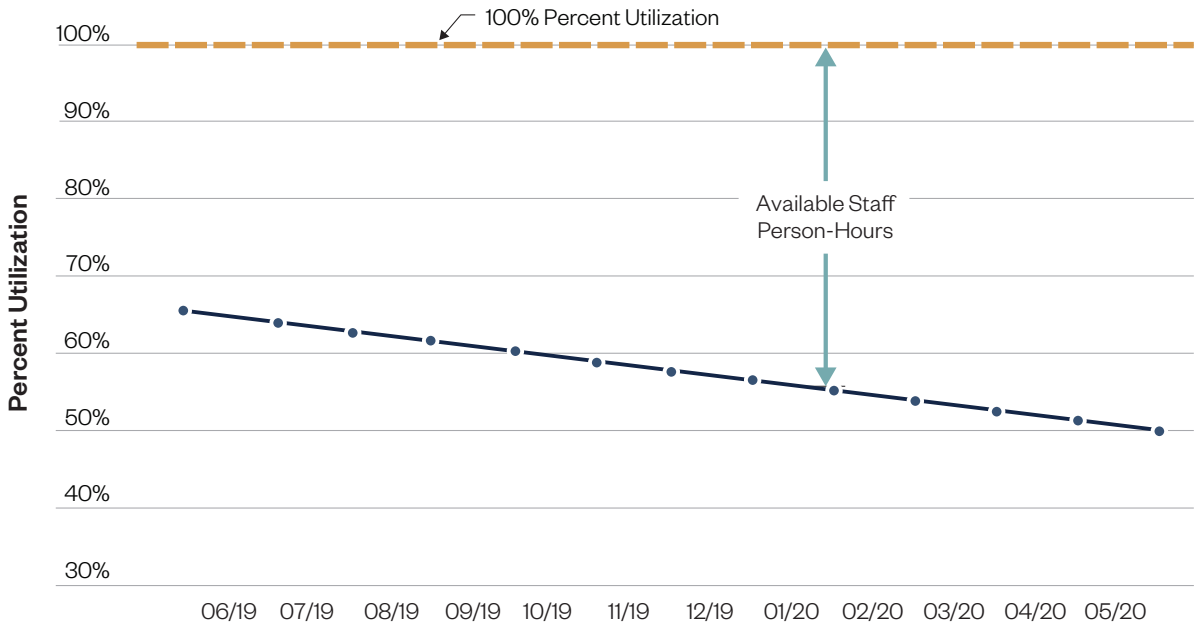
## Workload

We do not anticipate any work that would prevent us from completing your assignments within schedule. Based on workload projections, Hazen selects the most qualified staff to work each assignment. Our team has a conservative approach of undertaking projects only when the workload permits. Should we be selected for this contract, we will ensure that the individuals identified on our organizational chart are available. Hazen has significant resources available and is ready to begin work immediately upon award of this contract.

Should unforeseen circumstances occur, our team has the necessary support and backup staff at all levels with experience in all aspects of engineering. If additional resources are necessary to support our team, Hazen maintains sufficient staff in our eight Florida offices 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's request.

A listing of our key team members' recent, current, and projected workload is included on the table on the next page.




The Hazen team commits to providing the resources necessary to complete this project. With the selection of Hazen, you can be assured that **this project will be completed on time and within budget.**

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### Key Personnel Workload Table

| Name | Company/ Agency/ Name/ Contract # of the project | Dates of services | Scope |
|---|---|---|---|
| **Christopher Kish, PE, ENV SP - Project Manager** | Coral Gables/ Cocoplum 1 PS and FM Improvements | June 2019-October 2020 | Finalize permitting and bid/award services, provide construction management services related to project implementation |
| | City of Fort Lauderdale/ NW 13th Street design criteria package (DCP) development | May 2019-July 2019 | Develop DCP for replacement force design |
| | City of Hialeah/ PS 12 and FM Upgrades | August 2019-February 2020 | Provide construction management services related to project implementation |
| | City of Hialeah/ PS 12 and FM Upgrades | August 2019-February 2020 | Provide construction management services related to project implementation |
| | City of Homestead/ Racetrack Booster PS | August 2019-December 2019 | Provide construction management services related to project implementation |
| | Miami Dade Aviation Department (MDAD)/ SSES Phase I | October 2019-February 2020 | Develop Phase I prioritization report for DERM 2020 Cycle 3 submittal |
| **Jayson Page, PE - Project Director** | Miami Beach/ Miami Beach Water and Wastewater General Services | January 2018- July 2019 | Modeling and master planning of water and wastewater system |
| | Miami Beach/ Miami Beach Water and Wastewater General Services | January 2018- July 2019 | SCADA system upgrade Design Criteria Professional |
| | MDWASD/ MDWASD CMOM - Water | January 2019 - July 2019 | Risk Management Plan for Orr and Preston WTPs |
| | MDWASD/ MDWASD CMOM - Water | June 2019 - July 2020 | AWIA 2018 risk and resilience program |
| | City of Hollywood/ Hollywood City Wide Vulnerability Assessment | January 2019- December 2019 | Assess vulnerability and criticality of City assets and develop adaptation plans |

| Name | Company/ Agency/ Name/ Contract # of the project | Dates of services | Scope |
|---|---|---|---|
| **Beth Waters, PE ENV SP - Environmental Assessments; Hazard Mitigation Strategies; Construction Management** | City of Miami Beach/ Water and Wastewater Systems Consultant RFQ 2017-129-KB | October 2018 - December 2019 | Leak Detection and Unaccounted for Water |
| | City of Hallandale Beach/ Design of High Service Pump Replacement Phase I RFP #FY2015-2016-025 | March 2019-April 2020 | Engineering services during construction |
| | MDWASD/ Water Capacity Management Operation and Maintenance (CMOM) 14-HASPC001 | March 2019-June 2019 | Chlorine RMP Update and Process Safety Management Plan |
| | City of Miami Beach/ Water and Wastewater Systems Consultant RFQ 2017-129-KB | June 2018 - December 2019 | Terminal Island Force Main Design |
| | City of Miami Beach/ Water and Wastewater Systems Consultant RFQ 2017-129-KB | February 2018 - August 2019 | SCADA RFP DCP Development |
| **Hannah Borders, EI - Water and Sanitary System; Permitting; Lift Station/Pipeline Design** | Miccosukee Tribe/ Miccosukee WTP Upgrades – Design Services | May 2018 – July 2019 | Site civil and mechanical design; bidding and negotiation services |
| | Miccosukee Tribe/ Miccosukee WTP Upgrades – Construction Management Services | August 2019 – June 2020 | Shop drawing review; periodic site visits |
| | Fort Lauderdale/ Design Criteria Package | May 2019 – August 2019 | Develop design criteria packages for FM repairs |

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| Name | Company/ Agency/ Name/ Contract # of the project | Dates of services | Scope |
|---|---|---|---|
| **Robert Taylor, PE - QA/QC; Stormwater Systems** | City of Fort Lauderdale/ Watershed Asset Management Plan | February 2019 - September 2019 | Develop a City-wide watershed asset management plan |
| | SFWMD/ Restoration/ OMRR&R | April 2019 - April 2022 | General engineering for restoration and operation, maintenance, renewal, replacement and rehabilitation |
| | City of Sunrise/ Water and Wastewater Master Plan Update | September 2018 -September 2019 | Prepare a City/service area-wide master plan update |
| | Evans Properties/ Grove Land Reservoir and STA | June 2016 - December 2019 | PD&E for a 5,000-acre reservoir and 2,000-acre stormwater treatment area |
| | City of Fort Lauderdale / Stormwater Master Plan Modeling and Design Implementation | April 2015 - April 2025 | Modeling, planning, design, permitting and construction services related to stormwater and resiliency. |
| **Guillermo Regalado, PE - Modeling** | City of Miami Beach/ Water and Wastewater Systems Consultant RFQ 2017-129-KB | August 2018 - September 2019 | Develop hydraulic models for water distribution and wastewater collection and transmission systems. Develop water and wastewater master plans. |
| | City of Fort Lauderdale/Fort Lauderdale Public Works Department Sewer Design and Implementation Program | August 2018 - August 2019 | Task Order 8: Capacity Evaluation. Includes the development of hydraulic models for the Wastewater Transmission System |
| | City of Sunrise/ City of Sunrise Water and Sewer Master Plan | October 2018 - August 2019 | Update and calibration of Water and Wastewater models |

| Name | Company/ Agency/ Name/ Contract # of the project | Dates of services | Scope |
|---|---|---|---|
| **Evan Bowles, PE, ENV SP - Sustainability** | Henrico County DPU/ Henrico County WRF Nutrient Removal Upgrades | September 2017 - May 2023 | Design of denitrification filters, supplemental carbon storage/distribution, sidestream deammonification, and new ENR basins for an existing 75-mgd ENR treatment facility. |
| | Henrico County DPU/ Creighton Road Vent Station | September 2013 - July 2019 | Design of vent and odor control facility for existing dual 54-inch force main. Facility designed to blend with adjacent residential neighborhood. |
| | Hampton Roads Sanitation District/ SWIFT Full Scale Implementation Program | September 2018 - July 2032 | Design of five advanced water treatment facilities. Evan Bowles is the sustainability lead on the Program. |
| | Hampton Roads Sanitation District/ Providence Road Offline Storage Facility | March 2019 - June 2021 | Design of offline wet weather storage facility inside of municipal park. Evan Bowles is the sustainability lead on the project. |
| | Maine Water/ Saco River Water Treatment Plant | January 2017 - March 2020 | Design of new water treatment plant to replace existing ~130-yr old facility. Evan Bowles is the sustainability lead on the project. |

## Compliance with Public Policies of the Federal Government

### Hazen's Commitment to Equal Opportunity Employment

Hazen is committed to the principle of Equal Employment Opportunity (EEO) in its personnel policies and practices. We pride ourselves on our diversity and the opportunities we provide to each individual within Hazen. The firm's written EEO policy is included in the Hazen Employee Manual. The Employee Manual is available to all staff on Hazen's internal intranet site and a printed version is kept in our Coral Gables and Hollywood offices. In addition, posted in prominent locations within our Coral Gables and Hollywood offices are full-size Florida Complete Labor Law Posters and a Declaration of EEO Policy signed by Hazen's President and CEO. Hazen provides equal employment opportunities to all employees and job applicants without regard to race, religion, creed, color, national origin, sex, sexual orientation, sexual preference, or gender identification, age, disability, veteran status, citizenship status, ancestry, military status, marital status, genetic information, genetic pre-disposition status, familial status, domestic violence victim status, or disability or any other basis prohibited by applicable Federal, State and/or local law. This policy extends to, but is not limited to, recruitment, selection, compensation, benefits, promotion, training and termination. The company implements this policy by providing equal work in accordance with the Fair Labor Standards Act and Hazen maintains records of Equal Employment Opportunity activities and all other mandatory records as required by law.

### Commitment to Including Minority/Women Business Enterprises (M/WBEs) on our Project Teams/Examples of our MBE Efforts for FEMA Financial Assistance Projects

Hazen has a long history of utilizing the expertise of M/WBE teaming partners for our projects of all sizes. We have met or exceeded M/WBE goals for several clients, including the City of Fort Lauderdale, Broward County, Miami-Dade Water and Sewer Department, and the Miami-Dade Aviation Department (MDAD). An example of our commitment to using M/WBEs on significant design-related projects includes our City of Fort Lauderdale General Water Consultant contract (1999-2010), where Hazen contracted an estimated $2.3 million to M/WBEs out of a total of approximately $13 million (approximately 17 percent). For the Miami-Dade Water and Sewer Department South District Wastewater Treatment Plant High Level Disinfection contract (2004-2013), approximately $10.7 million of Hazen's $42.9 million fee was paid to Miami-Dade County certified small businesses.

This is no different for projects supported by FEMA financial assistance and, depending on the project, includes different steps outlined in CFR § 200.321(b). Many of our clients require and desire to utilize the same affirmative steps:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists.
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources.
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises.
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises.
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.
6. Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs 1 through 5 of this section.

One of our example projects includes the flood recovery assistance for the Clarksville WWTP in Clarksville, Tennessee. In 2010, the facility was completely flooded and Hazen was selected to assist the City with recovery efforts. One of the first steps was dewatering the facility. Hazen subcontracted with ATS to provide on-site dewatering services. As the project continued and reconstruction began, Hazen had the opportunity to solicit assistance from a local small business, DBS & Associates, for inspection support services during the rebuild process. Each of our small business partners provided services and assistance for completion of this challenging project.

Section No. IV

# Past Performance and References

*Hazen has an extensive record of successful projects with a wide range of clients. Our performance on past projects is best represented by our clients' satisfaction in our work.*

We encourage the City to contact our references in our Standard Form 330 (Section I) and project sheets in Section II , as we are proud of our proven success in meeting the goals and objectives of our clients. Our client references can confirm how our responsiveness and technical expertise have benefited them on our previous projects.

## Five Most Recent and Relevant Projects Similar in Scope and Nature

Detailed information on five of our most recent and relevant projects similar and scope and nature to the services described in the RFQ are located in SF330, Part I – Section F, at the end of Section I.

## Contracts which the Proposer has performed (past and present) for the City of Coral Gables

A list of all contracts Hazen has performed for the City (present and past) is provided on the next page.

## Contact information of public sector clients, if any, that have discontinued use of Proposer's services within the past two (2) years

None.

## Identify each incident within the last five (5) years where (a) a civil, criminal, administrative, other similar proceeding was filed or is pending, if such proceeding arises from or is a dispute concerning the Proposer's rights, remedies or duties under a contract for the same or similar type services to be provided under this RFQ

Hazen has not had any incidents within the last five years where a proceeding was filed or is pending arising from a contract for the same or similar type services to be provided under the RFQ.

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## City of Coral Gables Contracts

| Name of City Department/ Scope/Description of Work | Awarded value of the contract/ current value | Effective Dates and Term of Contract | City project manager's name and phone number | Prime or Sub | Project Results |
|---|---|---|---|---|---|
| *Public Works*<br>Environmental Engineering Consultant (RFQ 2015.09.04) - design/construction services for general sanitary sewer projects, general environmental projects, and general stormwater utility projects | Open-ended contract<br><br>$714761 (fee-to-date) | 03/2016-Present | Jorge E. Acevedo, PE, LEED Green Associate<br>Utility Director<br>Department of Public Works<br>2800 SW 72nd Ave.<br>Miami, FL 33155<br>305.460.5006 | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |
| *Public Works*<br>Environmental Engineering Consultant (RFQ No. 2011.05.13) - design/construction services for general sanitary sewer projects, general environmental projects, and general stormwater utility projects | Open-ended contract<br><br>$1,494,853 | 2012-2016 | Glen Kephart, PE<br>Former Public Works Director<br><br>Ernesto Pino, RA, LEED AP, Former Interim Public Works Director<br><br>305.460.5000 | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |
| *Public Works*<br>Professional Environmental Engineering Services - design/ construction services for general sanitary sewer projects, general environmental projects, and general stormwater utility projects | Open-ended contract<br><br>$1,148,855 | 2006-2011 | R. Alberto Delgado<br>Former Director<br><br>James Kay, PE<br>Former Engineering Division Supervisor<br><br>305.460.5000 | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |
| *Public Works*<br>Professional Environmental Engineering Services - professional environmental engineering services for general sanitary sewer projects, general environmental projects and general stormwater utility projects | Open-ended contract<br><br>$633,684 | 2002-2006 | R. Alberto Delgado<br>Former Director<br><br>305.460.5000 | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |
| *Public Works*<br>Professional Environmental Engineering Services - design/ construction services for general sanitary sewer projects, general environmental projects, and general stormwater utility projects | Open-ended contract<br><br>$951,855 | 1998-2002 | R. Alberto Delgado<br>Former Director<br><br>305.460.5000 | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |
| *Public Works*<br>Professional Environmental Services - professional services for design of lift stations repairs, general environmental sewer projects, and general stormwater utility projects | Open-ended contract<br><br>$108,810 | 1995-1998 | A.R. Linero, Jr., PE<br>Former Coral Gables Employee<br><br>305.460.5000 | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |
| *Public Works*<br>Professional Environmental Services - professional services for design of lift stations repairs, general environmental sewer projects, and general stormwater utility projects | Open-ended contract<br><br>Fee not available due to age of the contract. | 1991-1994 | Not available | Prime | Overall, Hazen met the City's schedule and budget on a majority of the assigned projects. |

Note: If the City would like details regarding the task assignments awarded under each contract, Hazen will provide upon request.