Brown and Caldwell

Bid Contact **Albert Perez**
alperez@brwncald.com
Ph 305-418-4090
Fax 305-418-4924

Address **2333 Ponce de Leon Blvd**
Suite R-205
Coral Gables, FL 33134

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs
PNC2115559P1--01-01	Professional Engineering Services for Studies and Reports	**Supplier Product Code:**	**First Offer -**	1 / each	**Y**	**Y**

Supplier Total $0.00

Brown and Caldwell

Item: **Professional Engineering Services for Studies and Reports**

Attachments

Supplier: **Brown and Caldwell**

Standard Instructions to Vendors
Request for Proposals, Request for Qualifications, or Request for Letters of Interest

Vendors are instructed to read and follow the instructions carefully, as any misinterpretation or failure to comply with instructions may lead to a Vendor's submittal being rejected.

Vendor MUST submit its solicitation response electronically and MUST confirm its submittal in order for the County to receive a valid response through BidSync. Refer to the Purchasing Division website or contact BidSync for submittal instructions.

A. Responsiveness Criteria:

In accordance with Broward County Procurement Code Section 21.8.b.65, a Responsive Bidder [Vendor] means a person who has submitted a proposal which conforms in all material respects to a solicitation. The solicitation submittal of a responsive Vendor must be submitted on the required forms, which contain all required information, signatures, notarizations, insurance, bonding, security, or other mandated requirements required by the solicitation documents to be submitted at the time of proposal opening.

Failure to provide the information required below at the time of submittal opening may result in a recommendation Vendor is non-responsive by the Director of Purchasing. The Selection or Evaluation Committee will determine whether the firm is responsive to the requirements specified herein. The County reserves the right to waive minor technicalities or irregularities as is in the best interest of the County in accordance with Section 21.30.f.1(c) of the Broward County Procurement Code.

Below are standard responsiveness criteria; refer to **Special Instructions to Vendors**, for Additional Responsiveness Criteria requirement(s).

1. **Lobbyist Registration Requirement Certification**
   Refer to **Lobbyist Registration Requirement Certification** . The completed form should be submitted with the solicitation response but must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

2. **Addenda**
   The County reserves the right to amend this solicitation prior to the due date. Any change(s) to this solicitation will be conveyed through the written addenda process. Only written addenda will be binding. If a "must" addendum is issued, Vendor must follow instructions and submit required information, forms, or acknowledge addendum, as instructed therein. It is the responsibility of all potential Vendors to monitor the solicitation for any changing information, prior to submitting their response.

B. Responsibility Criteria:

Definition of a Responsible Vendor: In accordance with Section 21.8.b.64 of the Broward County Procurement Code, a Responsible Vendor means a Vendor who has the capability in all respects to perform the contract requirements, and the integrity and reliability which will assure good faith performance.

The Selection or Evaluation Committee will recommend to the awarding authority a determination of a Vendor's responsibility. At any time prior to award, the awarding authority may find that a Vendor is

not responsible to receive a particular award.

Failure to provide any of this required information and in the manner required may result in a recommendation by the Director of Purchasing that the Vendor is non-responsive.

Below are standard responsibility criteria; refer to **Special Instructions to Vendors**, for Additional Responsibility Criteria requirement(s).

1. **Litigation History**

   a. All Vendors are required to disclose to the County all "material" cases filed, pending, or resolved during the last three (3) years prior to the solicitation response due date, whether such cases were brought by or against the Vendor, any parent or subsidiary of the Vendor, or any predecessor organization. A case is considered to be "material" if it relates, in whole or in part, to any of the following:

      i. A similar type of work that the vendor is seeking to perform for the County under the current solicitation;
      ii. An allegation of negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
      iii. A vendor's default, termination, suspension, failure to perform, or improper performance in connection with any contract;
      iv. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary) or receivership; or
      v. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.

   b. For each material case, the Vendor is required to provide all information identified on the **Litigation History Form**.

   c. The County will consider a Vendor's litigation history information in its review and determination of responsibility.

   d. If the Vendor is a joint venture, the information provided should encompass the joint venture and each of the entities forming the joint venture.

   e. A Vendor is also required to disclose to the County any and all case(s) that exist between the County and any of the Vendor's subcontractors/subconsultants proposed to work on this project.

   f. Failure to disclose any material case, or to provide all requested information in connection with each such case, may result in the Vendor being deemed non-responsive.

2. **Financial Information**

   a. All Vendors are required to provide the Vendor's financial statements at the time of submittal in order to demonstrate the Vendor's financial capabilities.

   b. Each Vendor shall submit its most recent two years of financial statements for review. The financial statements are not required to be audited financial statements. The annual financial statements will be in the form of:

      i. Balance sheets, income statements and annual reports; or
      ii. Tax returns; or
      iii. SEC filings.

If tax returns are submitted, ensure it does not include any personal information (as defined under Florida Statutes Section 501.171, Florida Statutes), such as social security numbers, bank account or credit card numbers, or any personal pin numbers. If any personal information data is part of financial statements, redact information prior to submitting a response the County.

c. If a Vendor has been in business for less than the number of years of required financial statements, then the Vendor must disclose all years that the Vendor has been in business, including any partial year-to-date financial statements.

d. The County may consider the unavailability of the most recent year's financial statements and whether the Vendor acted in good faith in disclosing the financial documents in its evaluation.

e. Any claim of confidentiality on financial statements should be asserted at the time of submittal. Refer to **Standard Instructions to Vendors**, Confidential Material/ Public Records and Exemptions for instructions on submitting confidential financial statements. The Vendor's failure to provide the information as instructed may lead to the information becoming public.

f. Although the review of a Vendor's financial information is an issue of responsibility, the failure to either provide the financial documentation or correctly assert a confidentiality claim pursuant the Florida Public Records Law and the solicitation requirements (Confidential Material/ Public Records and Exemptions section) may result in a recommendation of non-responsiveness by the Director of Purchasing.

3. **Authority to Conduct Business in Florida**

a. A Vendor must have the authority to transact business in the State of Florida and be in good standing with the Florida Secretary of State. For further information, contact the Florida Department of State, Division of Corporations.

b. The County will review the Vendor's business status based on the information provided in response to this solicitation.

c. It is the Vendor's responsibility to comply with all state and local business requirements.

d. Vendor should list its active Florida Department of State Division of Corporations Document Number (or Registration No. for fictitious names) in the **Vendor Questionnaire**, Question No. 10.

e. If a Vendor is an out-of-state or foreign corporation or partnership, the Vendor must obtain the authority to transact business in the State of Florida or show evidence of application for the authority to transact business in the State of Florida, upon request of the County.

f. A Vendor that is not in good standing with the Florida Secretary of State at the time of a submission to this solicitation may be deemed non-responsible.

g. If successful in obtaining a contract award under this solicitation, the Vendor must remain in good standing throughout the contractual period of performance.

4. **Affiliated Entities of the Principal(s)**

a. All Vendors are required to disclose the names and addresses of "affiliated entities" of the Vendor's principal(s) over the last five (5) years (from the solicitation opening deadline) that have acted as a prime Vendor with the County. The Vendor is required to provide all

information required on the **Affiliated Entities of the Principal(s) Certification Form**.

b. The County will review all affiliated entities of the Vendor's principal(s) for contract performance evaluations and the compliance history with the County's Small Business Program, including CBE, DBE and SBE goal attainment requirements. "Affiliated entities" of the principal(s) are those entities related to the Vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.

c. The County will consider the contract performance evaluations and the compliance history of the affiliated entities of the Vendor's principals in its review and determination of responsibility.

5. Insurance Requirements

The **Insurance Requirement Form** reflects the insurance requirements deemed necessary for this project. It is not necessary to have this level of insurance in effect at the time of submittal, but it is necessary to submit certificates indicating that the Vendor currently carries the insurance or to submit a letter from the carrier indicating it can provide insurance coverages.

C. Additional Information and Certifications

The following forms and supporting information (if applicable) should be returned with Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit may affect Vendor's evaluation.

1. Vendor Questionnaire

Vendor is required to submit detailed information on their firm. Refer to the **Vendor Questionnaire** and submit as instructed.

2. Standard Certifications

Vendor is required to certify to the below requirements. Refer to the **Standard Certifications** and submit as instructed.

a. **Cone of Silence Requirement Certification**
b. **Drug-Free Workplace Certification**
c. **Non-Collusion Certification**
d. **Public Entities Crimes Certification**
e. **Scrutinized Companies List Certification**

3. Subcontractors/Subconsultants/Suppliers Requirement

The Vendor shall submit a listing of all subcontractors, subconsultants, and major material suppliers, if any, and the portion of the contract they will perform. Vendors must follow the instructions included on the **Subcontractors/Subconsultants/Suppliers Information Form** and submit as instructed.

D. Standard Agreement Language Requirements

1. The acceptance of or any exceptions taken to the terms and conditions of the County's Agreement shall be considered a part of a Vendor's submittal and will be considered by the Selection or Evaluation Committee.

2. The applicable Agreement terms and conditions for this solicitation are indicated in the **Special Instructions to Vendors.**

3. Vendors are required to review the applicable terms and conditions and submit the **Agreement Exception Form**. If the **Agreement Exception Form** is not provided with the submittal, it shall

be deemed an affirmation by the Vendor that it accepts the Agreement terms and conditions as disclosed in the solicitation.

4. If exceptions are taken, the Vendor must specifically identify each term and condition with which it is taking an exception. Any exception not specifically listed is deemed waived. Simply identifying a section or article number is not sufficient to state an exception. Provide either a redlined version of the specific change(s) or specific proposed alternative language. Additionally, a brief justification specifically addressing each provision to which an exception is taken should be provided.

5. Submission of any exceptions to the Agreement does not denote acceptance by the County. Furthermore, taking exceptions to the County's terms and conditions may be viewed unfavorably by the Selection or Evaluation Committee and ultimately may impact the overall evaluation of a Vendor's submittal.

E. Evaluation Criteria

1. The Selection or Evaluation Committee will evaluate Vendors as per the **Evaluation Criteria.** The County reserves the right to obtain additional information from a Vendor.

2. Vendor has a continuing obligation to inform the County in writing of any material changes to the information it has previously submitted. The County reserves the right to request additional information from Vendor at any time.

3. For Request for Proposals, the following shall apply:

   a. The Director of Purchasing may recommend to the Evaluation Committee to short list the most qualified firms prior to the Final Evaluation.

   b. The Evaluation Criteria identifies points available; a total of 100 points is available.

   c. If the Evaluation Criteria includes a request for pricing, the total points awarded for price is determined by applying the following formula:

      (Lowest Proposed Price/Vendor's Price) x (Maximum Number of Points for Price)
      = Price Score

   d. After completion of scoring, the County may negotiate pricing as in its best interest.

4. For Requests for Letters of Interest or Request for Qualifications, the following shall apply:

   a. The Selection or Evaluation Committee will create a short list of the most qualified firms.

   b. The Selection or Evaluation Committee will either:

      i. Rank shortlisted firms; or
      ii. If the solicitation is part of a two-step procurement, shortlisted firms will be requested to submit a response to the Step Two procurement.

F. Demonstrations

If applicable, as indicated in **Special Instructions to Vendors**, Vendors will be required to demonstrate the nature of their offered solution. After receipt of submittals, all Vendors will receive a description of, and arrangements for, the desired demonstration. A copy of the demonstration (hard copy, DVD, CD, flash drive or a combination of both) should be given to the Purchasing Agent at the demonstration meeting to retain in the Purchasing files.

G. Presentations

Vendors that are found to be both responsive and responsible to the requirements of the solicitation and/or shortlisted (if applicable) will have an opportunity to make an oral presentation to the Selection or Evaluation Committee on the Vendor's approach to this project and the Vendor's ability to perform. The committee may provide a list of subject matter for the discussion. All Vendor's will have equal time to present but the question-and-answer time may vary.

H. Public Art and Design Program

If indicated in **Special Instructions to Vendors,** Public Art and Design Program, Section 1-88, Broward County Code of Ordinances, applies to this project. It is the intent of the County to functionally integrate art, when applicable, into capital projects and integrate artists' design concepts into this improvement project. The Vendor may be required to collaborate with the artist(s) on design development within the scope of this request. Artist(s) shall be selected by Broward County through an independent process. For additional information, contact the Broward County Cultural Division.

I. Committee Appointment

The Cone of Silence shall be in effect for County staff at the time of the Selection or Evaluation Committee appointment and for County Commissioners and Commission staff at the time of the Shortlist Meeting of the Selection Committee or the Initial Evaluation Meeting of the Evaluation Committee. The committee members appointed for this solicitation are available on the Purchasing Division's website under Committee Appointment.

J. Committee Questions, Request for Clarifications, Additional Information

At any committee meeting, the Selection or Evaluation Committee members may ask questions, request clarification, or require additional information of any Vendor's submittal or proposal. It is highly recommended Vendors attend to answer any committee questions (if requested), including a Vendor representative that has the authority to bind.

Vendor's answers may impact evaluation (and scoring, if applicable). Upon written request to the Purchasing Agent prior to the meeting, a conference call number will be made available for Vendor participation via teleconference. Only Vendors that are found to be both responsive and responsible to the requirements of the solicitation and/or shortlisted (if applicable) are requested to participate in a final (or presentation) Selection or Evaluation committee meeting.

K. Vendor Questions

The County provides a specified time for Vendors to ask questions and seek clarification regarding solicitation requirements. All questions or clarification inquiries must be submitted through BidSync by the date and time referenced in the solicitation document (including any addenda). The County will respond to questions via Bid Sync.

L. Confidential Material/ Public Records and Exemptions

1. Broward County is a public agency subject to Chapter 119, Florida Statutes. Upon receipt, all submittals become "public records" and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes. Submittals may be posted on the County's public website or included in a public records request response, unless there is a declaration of "confidentiality" pursuant to the public records law and in accordance with the procedures in this section.

2. Any confidential material(s) the Vendor asserts is exempt from public disclosure under Florida Statutes must be labeled as "Confidential", and marked with the specific statute and subsection

asserting exemption from Public Records.

3. To submit confidential material, three hardcopies must be submitted in a sealed envelope, labeled with the solicitation number, title, date and the time of solicitation opening to:

   Broward County Purchasing Division
   115 South Andrews Avenue, Room 212
   Fort Lauderdale, FL 33301

4. Material will not be treated as confidential if the Vendor does not cite the applicable Florida Statute (s) allowing the document to be treated as confidential.

5. Any materials that the Vendor claims to be confidential and exempt from public records must be marked and separated from the submittal. If the Vendor does not comply with these instructions, the Vendor's claim for confidentiality will be deemed as waived.

6. Submitting confidential material may impact full discussion of your submittal by the Selection or Evaluation Committee because the Committee will be unable to discuss the details contained in the documents cloaked as confidential at the publicly noticed Committee meeting.

M. Copyrighted Materials

Copyrighted material is not exempt from the Public Records Law, Chapter 119, Florida Statutes. Submission of copyrighted material in response to any solicitation will constitute a license and permission for the County to make copies (including electronic copies) as reasonably necessary for the use by County staff and agents, as well as to make the materials available for inspection or production pursuant to Public Records Law, Chapter 119, Florida Statutes.

N. State and Local Preferences

If the solicitation involves a federally funded project where the fund requirements prohibit the use of state and/or local preferences, such preferences contained in the Local Preference Ordinance and Broward County Procurement Code will not be applied in the procurement process.

O. Local Preference

Except where otherwise prohibited by federal or state law or other funding source restrictions, a local Vendor whose submittal is within 5% of the highest total ranked Vendor outside of the preference area will become the Vendor with whom the County will proceed with negotiations for a final contract. Refer to **Local Vendor Certification Form (Preference and Tiebreaker)** for further information.

P. Tiebreaker Criteria

In accordance with Section 21.31.d of the Broward County Procurement Code, the tiebreaker criteria shall be applied based upon the information provided in the Vendor's response to the solicitation. In order to receive credit for any tiebreaker criterion, complete and accurate information must be contained in the Vendor's submittal.

1. **Local Vendor Certification Form (Preference and Tiebreaker);**
2. **Domestic Partnership Act Certification (Requirement and Tiebreaker);**
3. **Tiebreaker Criteria Form: Volume of Work Over Five Years**

Q. Posting of Solicitation Results and Recommendations

The Broward County Purchasing Division's website is the location for the County's posting of all

solicitations and contract award results. It is the obligation of each Vendor to monitor the website in order to obtain complete and timely information.

R. Review and Evaluation of Responses

A Selection or Evaluation Committee is responsible for recommending the most qualified Vendor(s). The process for this procurement may proceed in the following manner:

1. The Purchasing Division delivers the solicitation submittals to agency staff for summarization for the committee members. Agency staff prepares a report, including a matrix of responses submitted by the Vendors. This may include a technical review, if applicable.

2. Staff identifies any incomplete responses. The Director of Purchasing reviews the information and makes a recommendation to the Selection or Evaluation Committee as to each Vendor's responsiveness to the requirements of the solicitation. The final determination of responsiveness rests solely on the decision of the committee.

3. At any time prior to award, the awarding authority may find that a Vendor is not responsible to receive a particular award. The awarding authority may consider the following factors, without limitation: debarment or removal from the authorized Vendors list or a final decree, declaration or order by a court or administrative hearing officer or tribunal of competent jurisdiction that the Vendor has breached or failed to perform a contract, claims history of the Vendor, performance history on a County contract(s), an unresolved concern, or any other cause under this code and Florida law for evaluating the responsibility of a Vendor.

S. Vendor Protest

Sections 21.118 and 21.120 of the Broward County Procurement Code set forth procedural requirements that apply if a Vendor intends to protest a solicitation or proposed award of a contract and state in part the following:

1. Any protest concerning the solicitation or other solicitation specifications or requirements must be made and received by the County within seven business days from the posting of the solicitation or addendum on the Purchasing Division's website. Such protest must be made in writing to the Director of Purchasing. Failure to timely protest solicitation specifications or requirements is a waiver of the ability to protest the specifications or requirements.

2. Any protest concerning a solicitation or proposed award above the award authority of the Director of Purchasing, after the RLI or RFP opening, shall be submitted in writing and received by the Director of Purchasing within five business days from the posting of the recommendation of award for Invitation to Bids or the final recommendation of ranking for Request for Letters of Interest and Request for Proposals on the Purchasing Division's website.

3. Any actual or prospective Vendor who has a substantial interest in and is aggrieved in connection with the proposed award of a contract which does not exceed the amount of the award authority of the Director of Purchasing, may protest to the Director of Purchasing. The protest shall be submitted in writing and received within three (3) business days from the posting of the recommendation of award for Invitation to Bids or the final recommendation of ranking for Request for Letters of Interest and Request for Proposals on the Purchasing Division's website.

4. For purposes of this section, a business day is defined as Monday through Friday between 8:30 a.m. and 5:00 p.m. Failure to timely file a protest within the time prescribed for a proposed contract award shall be a waiver of the Vendor's right to protest.

5. Protests arising from the decisions and votes of a Selection or Evaluation Committee shall be limited to protests based upon the alleged deviations from established committee procedures set forth in the Broward County Procurement Code and existing written guidelines. Any allegations of misconduct or misrepresentation on the part of a competing Vendor shall not be considered a protest.

6. As a condition of initiating any protest, the protestor shall present the Director of Purchasing a nonrefundable filing fee in accordance with the table below.

Estimated Contract Amount	Filing Fee
$30,000 - $250,000	$ 500
$250,001 - $500,000	$1,000
$500,001 - $5 million	$3,000
Over $5 million	$5,000

If no contract proposal amount was submitted, the estimated contract amount shall be the County's estimated contract price for the project. The County may accept cash, money order, certified check, or cashier's check, payable to Broward County Board of Commissioners.

T. Right of Appeal

Pursuant to Section 21.83.d of the Broward County Procurement Code, any Vendor that has a substantial interest in the matter and is dissatisfied or aggrieved in connection with the Selection or Evaluation Committee's determination of responsiveness may appeal the determination pursuant to Section 21.120 of the Broward County Procurement Code.

1. The appeal must be in writing and sent to the Director of Purchasing within ten (10) calendar days of the determination by the Selection or Evaluation Committee to be deemed timely.

2. As required by Section 21.120, the appeal must be accompanied by an appeal bond by a Vendor having standing to protest and must comply with all other requirements of this section.

3. The institution and filing of an appeal is an administrative remedy to be employed prior to the institution and filing of any civil action against the County concerning the subject matter of the appeal.

U. Rejection of Responses

The Selection or Evaluation Committee may recommend rejecting all submittals as in the best interests of the County. The rejection shall be made by the Director of Purchasing, except when a solicitation was approved by the Board, in which case the rejection shall be made by the Board.

V. Negotiations

The County intends to conduct the first negotiation meeting no later than two weeks after approval of the final ranking as recommended by the Selection or Evaluation Committee. At least one of the representatives for the Vendor participating in negotiations with the County must be authorized to bind the Vendor. In the event that the negotiations are not successful within a reasonable timeframe (notification will be provided to the Vendor) an impasse will be declared and negotiations with the first-ranked Vendor will cease. Negotiations will begin with the next ranked Vendor, etc. until such time that all requirements of Broward County Procurement Code have been met.

W. Submittal Instructions:

1. Broward County does not require any personal information (as defined under Section 501.171, Florida Statutes), such as social security numbers, driver license numbers, passport, military ID, bank account or credit card numbers, or any personal pin numbers, in order to submit a response for ANY Broward County solicitation. DO NOT INCLUDE any personal information data in any document submitted to the County. If any personal information data is part of a submittal, this information must be redacted prior to submitting a response to the County.

2. **Vendor MUST submit its solicitation response electronically and MUST confirm its submittal in order for the County to receive a valid response through BidSync.** It is the Vendor's sole responsibility to assure its response is submitted and received through BidSync by the date and time specified in the solicitation.

3. The County will not consider solicitation responses received by other means. Vendors are encouraged to submit their responses in advance of the due date and time specified in the solicitation document. In the event that the Vendor is having difficulty submitting the solicitation document through Bid Sync, immediately notify the Purchasing Agent and then contact BidSync for technical assistance.

4. Vendor must view, submit, and/or accept each of the documents in BidSync. Web-fillable forms can be filled out and submitted through BidSync.

5. After all documents are viewed, submitted, and/or accepted in BidSync, the Vendor must upload additional information requested by the solicitation (i.e. Evaluation Criteria and Financials Statements) in the Item Response Form in BidSync, under line one (regardless if pricing requested).

6. Vendor should upload responses to Evaluation Criteria in Microsoft Word or Excel format.

7. If the Vendor is declaring any material confidential and exempt from Public Records, refer to Confidential Material/ Public Records and Exemptions for instructions on submitting confidential material.

8. After all files are uploaded, Vendor must submit and **CONFIRM** its offer (by entering password) for offer to be received through BidSync.

9. If a solicitation requires an original Proposal Bond (per Special Instructions to Vendors), Vendor must submit in a sealed envelope, labeled with the solicitation number, title, date and the time of solicitation opening to:

   Broward County Purchasing Division
   115 South Andrews Avenue, Room 212
   Fort Lauderdale, FL 33301

   A copy of the Proposal Bond should also be uploaded into Bid Sync; this does not replace the requirement to have an original proposal bond. Vendors must submit the original Proposal Bond, by the solicitation due date and time.

Supplier: **Brown and Caldwell**

VENDOR QUESTIONNAIRE AND STANDARD CERTIFICATIONS
Request for Proposals, Request for Qualifications, or Request for Letters of Interest

Vendor should complete questionnaire and complete and acknowledge the standard certifications and submit with the solicitation response. If not submitted with solicitation response, it must be submitted within three business days of County's request. Failure to timely submit may affect Vendor's evaluation.

If a response requires additional information, the Vendor should upload a written detailed response with submittal; each response should be numbered to match the question number. The completed questionnaire and attached responses will become part of the procurement record. It is imperative that the person completing the Vendor Questionnaire be knowledgeable about the proposing Vendor's business and operations.

1. Legal business name:**Brown and Caldwell**
2. Doing Business As/ Fictitious Name (if applicable):
3. Federal Employer I.D. no. (FEIN):**94-1446346**
4. Dun and Bradstreet No.:**02-916-4357**
5. Website address (if applicable): **www.brownandcaldwell.com**
6. Principal place of business address: **201 North Civic Drive, Suite 300**
   Walnut Creek, CA 94596
7. Office location responsible for this project: **1560 Sawgrass Corporate Parkway, Ste 240**
   Sunrise, FL 33323
8. Telephone no.:**954.200.7611** Fax no.:**954.200.7612**
9. Type of business (check appropriate box):
   - ☑ Corporation (specify the state of incorporation):**California**
   - ☐ Sole Proprietor
   - ☐ Limited Liability Company (LLC)
   - ☐ Limited Partnership
   - ☐ General Partnership (State and County Filed In)
   - ☐ Other - Specify
10. List Florida Department of State, Division of Corporations document number (or registration number if fictitious name): **838321**
11. List name and title of each principal, owner, officer, and major shareholder:
    a) **Richard M. D'Amato, Chief Executive Officer, President**
    b) **Craig Goehring, Executive Chairman, Board of Directors**
    c) **Sharon Stecker, Senior Vice President**
    d) **Amy E. Fairbank, Senior Vice President, Treasurer**
12. AUTHORIZED CONTACT(S) FOR YOUR FIRM:

Name: **Albert L. Perez, PE**
Title: **Vice President**
E-mail: **ALPerez@brwncald.com**
Telephone No.: **305.418.4090**

Name: **Celia D. A. Earle, PhD**
Title: **Vice President**
E-mail: **CEarle@brwncald.com**
Telephone No.: **954.200.7611**

13.	Has your firm, its principals, officers or predecessor organization(s) been debarred or suspended by any government entity within the last three years? If yes, specify details in an attached written response.	☐ Yes ☑ No
14.	Has your firm, its principals, officers or predecessor organization(s) ever been debarred or suspended by any government entity? If yes, specify details in an attached written response, including the reinstatement date, if granted.	☐ Yes ☑ No
15.	Has your firm ever failed to complete any services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response.	☐ Yes ☑ No
16.	Is your firm or any of its principals or officers currently principals or officers of another organization? If yes, specify details in an attached written response.	☐ Yes ☑ No
17.	Have any voluntary or involuntary bankruptcy petitions been filed by or against your firm, its parent or subsidiaries or predecessor organizations during the last three years? If yes, specify details in an attached written response.	☐ Yes ☑ No
18.	Has your firm's surety ever intervened to assist in the completion of a contract or have Performance and/or Payment Bond claims been made to your firm or its predecessor's sureties during the last three years? If yes, specify details in an attached written response, including contact information for owner and surety.	☐ Yes ☑ No
19.	Has your firm ever failed to complete any work awarded to you, services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response.	☐ Yes ☑ No
20.	Has your firm ever been terminated from a contract within the last three years? If yes, specify details in an attached written response.	☐ Yes ☑ No
21.	Living Wage solicitations only: In determining what, if any, fiscal impacts(s) are a result of the Ordinance for this solicitation, provide the following for informational purposes only. Response is not considered in determining the award of this contract. Living Wage had an effect on the pricing. If yes, Living Wage increased the pricing by% or decreased the pricing by%.	☐ Yes ☐ No ☑ N/A

Cone of Silence Requirement Certification:
The Cone of Silence Ordinance, Section 1-266, Broward County Code of Ordinances prohibits certain communications among Vendors, Commissioners, County staff, and Selection or Evaluation Committee members. Identify on a separate sheet any violations of this Ordinance by any members of the responding firm or its joint ventures. After the application of the Cone of Silence, inquiries regarding this solicitation should be directed to the Director of Purchasing or designee. The Cone of Silence terminates when the County Commission or other awarding authority takes action which ends the solicitation.

The Vendor hereby certifies that: (check each box)

☑ The Vendor has read Cone of Silence Ordinance, Section 1-266, Broward County Code of Ordinances; and

☑ The Vendor understands that the Cone of Silence for this competitive solicitation shall be in effect beginning

upon the appointment of the Selection or Evaluation Committee, for communication regarding this solicitation with the County Administrator, Deputy County Administrator, Assistant County Administrators, and Assistants to the County Administrator and their respective support staff or any person, including Evaluation or Selection Committee members, appointed to evaluate or recommend selection in this RFP/RLI process. For Communication with County Commissioners and Commission staff, the Cone of Silence allows communication until the initial Evaluation or Selection Committee Meeting.

☑ The Vendor agrees to comply with the requirements of the Cone of Silence Ordinance.

Drug-Free Workplace Requirements Certification:
Section 21.31.a. of the Broward County Procurement Code requires awards of all competitive solicitations requiring Board award be made only to firms certifying the establishment of a drug free workplace program. The program must consist of:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the offeror's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;

2. Establishing a continuing drug-free awareness program to inform its employees about:
   a. The dangers of drug abuse in the workplace;
   b. The offeror's policy of maintaining a drug-free workplace;
   c. Any available drug counseling, rehabilitation, and employee assistance programs; and
   d. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

3. Giving all employees engaged in performance of the contract a copy of the statement required by subparagraph 1;

4. Notifying all employees, in writing, of the statement required by subparagraph 1, that as a condition of employment on a covered contract, the employee shall:
   a. Abide by the terms of the statement; and
   b. Notify the employer in writing of the employee's 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 of any state, for a violation occurring in the workplace NO later than five days after such conviction.

5. Notifying Broward County government in writing within 10 calendar days after receiving notice under subdivision 4.b above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

6. Within 30 calendar days after receiving notice under subparagraph 4 of a conviction, taking one of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
   a. Taking appropriate personnel action against such employee, up to and including termination; or
   b. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and

7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs 1 through 6.

The Vendor hereby certifies that: (check box)

☑ The Vendor certifies that it has established a drug free workplace program in accordance with the above requirements.

Non-Collusion Certification:
Vendor shall disclose, to their best knowledge, any Broward County officer or employee, or any relative of any such officer or employee as defined in Section 112.3135 (1) (c), Florida Statutes, who is an officer or director of, or has a material interest in, the Vendor's business, who is in a position to influence this procurement. Any Broward

County officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement. Failure of a Vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code.

The Vendor hereby certifies that: (select one)

☑ The Vendor certifies that this offer is made independently and free from collusion; or

☐ The Vendor is disclosing names of officers or employees who have a material interest in this procurement and is in a position to influence this procurement. Vendor must include a list of name(s), and relationship(s) with its submittal.

Public Entities Crimes Certification:
In accordance with Public Entity Crimes, Section 287.133, Florida Statutes, a person or affiliate placed on the convicted vendor list following a conviction for a public entity crime may not submit on a contract: to provide any goods or services; for construction or repair of a public building or public work; for leases of real property to a public entity; and may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for Category Two for a period of 36 months following the date of being placed on the convicted vendor list.

The Vendor hereby certifies that: (check box)

☑ The Vendor certifies that no person or affiliates of the Vendor are currently on the convicted vendor list and/or has not been found to commit a public entity crime, as described in the statutes.

Scrutinized Companies List Certification:
Any company, principals, or owners on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List is prohibited from submitting a response to a solicitation for goods or services in an amount equal to or greater than $1 million.

The Vendor hereby certifies that: (check each box)

☑ The Vendor, owners, or principals are aware of the requirements of Sections 287.135, 215.473, and 215.4275, Florida Statutes, regarding Companies on the Scrutinized Companies with Activities in Sudan List the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List; and

☑ The Vendor, owners, or principals, are eligible to participate in this solicitation and are not listed on either the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List; and

☑ If awarded the Contract, the Vendor, owners, or principals will immediately notify the County in writing if any of its principals are placed on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List.

I hereby certify the information provided in the Vendor Questionnaire and Standard Certifications:

Albert L. Perez, PE	**Vice President**	**04/30/2018**
*AUTHORIZED SIGNATURE/NAME	TITLE	DATE

Vendor Name: **Brown and Caldwell**

* I certify that I am authorized to sign this solicitation response on behalf of the Vendor as indicated in Certificate as to Corporate Principal, designation letter by Director/Corporate Officer, or other business authorization to bind on behalf of the Vendor. As the Vendor's authorized representative, I attest that any and all statements, oral, written or otherwise, made in support of the Vendor's response, are accurate, true and correct. I also acknowledge that inaccurate, untruthful, or incorrect statements made in support of the Vendor's response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code. I certify that the Vendor's response is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a response for the same items/services, and is in all respects fair and without collusion or fraud. I also certify that the Vendor agrees to abide by all terms and conditions of this solicitation, acknowledge and accept all of the solicitation pages as well as any special instructions sheet(s).

Supplier: **Brown and Caldwell**

Office of Economic and Small Business Requirements: CBE Goal Participation

A. In accordance with Broward County Business Opportunity Act of 2012, Ordinance No. 2012-33, Broward County Code of Ordinances, the County Business Enterprise (CBE) Program is applicable to this contract. All Vendors responding to this solicitation should utilize, or attempt to utilize, CBE firms to perform at least the assigned participation goal for this contract.

B. CBE Program Requirements: Compliance with CBE participation goal requirements is a matter of responsibility; required forms and information should be submitted with solicitation submittal. If not provided with solicitation submittal, the Vendor must supply information within three business days of the Office of Economic and Small Business Development's (OESBD) request. Vendor may be deemed non-responsible for failure to fully comply within stated timeframes.

1. Vendor should include in its solicitation submittal a **Letter Of Intent Between Bidder/Offeror and County Business Enterprise (CBE) Subcontractor/Supplier,** for each certified CBE firm the Vendor intends to use to achieve the assigned CBE participation goal.

2. If a Vendor is unable to attain the CBE participation goal, the Vendor should include in its solicitation submittal **Application for Evaluation of Good Faith Effort** and all of the required supporting information.

C. The Vendor shall only address the base solicitation amount for CBE goal participation. No alternate/optional item(s) shall be addressed. If the County chooses to exercise the right to award alternate/optional solicitation item(s), the CBE participation goal for this solicitation shall apply to the alternate/optional item(s) recommended to be awarded. The County shall issue a notice to the apparent successful Vendor requiring the Vendor to comply with the CBE participation goal for the alternate/optional item(s); Vendor shall submit all required forms prior to award. Failure to submit the required forms may result in rejection of the solicitation.

D. The Office of Economic and Small Business Development maintains an on-line directory of CBE firms. The on-line directory is available for use by Vendors at https://webapps4.broward.org/smallbusiness/sbdirectory.aspx

E. For detailed information regarding the County Business Enterprise Program contact the Office of Economic and Small Business Development at (954) 357-6400 or visit the website at: http://www.broward.org/EconDev/SmallBusiness/

F. Requirements for Contracts with CBE Goals: if awarded the contract, the Vendor agrees to and shall comply with all applicable requirements of the CBE Program in the award and administration of the contract.

1. No party to this contract may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation, pregnancy, or gender identity and expression in the performance of this contract.

2. Vendor shall comply with all applicable requirements of the Broward County Small Business Development Program in the award and administration of this contract. Failure by Vendor to carry out any of these requirements shall constitute a material breach of this contract, which shall permit County to terminate this contract or to exercise any other remedy provided under this contract, under the Broward County Code of Ordinances, or Administrative Code, or under applicable law, with all of such remedies being cumulative.

3. Vendor shall pay its CBE subcontractors and suppliers, within fifteen (15) days following receipt of payment from County for such subcontracted work and pay all other subcontractors and suppliers within thirty (30) days following receipt of payment from County for such subcontracted work or supplies. If Vendor withholds an amount from CBE subcontractors or suppliers as retainage, such retainage shall be released and paid within fifteen (15) days following receipt of payment of retained amounts from County. For all other subcontractors or suppliers, if Vendor withholds an amount as retainage, such retainage shall be released and paid within thirty (30) days following receipt of payment of retained amounts from County.

4. Vendor understands that the County will monitor compliance with the CBE requirements. Vendor must report monthly on its CBE participation commitment with its pay requests and is required as a condition of payment.

LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) SUBCONTRACTOR/SUPPLIER

This form(s) should be returned with the Vendor's submittal. If not provided with solicitation submittal, the Vendor must supply information within three business days of County's request. This form is to be completed and signed for each CBE firm. Vendor should scan and upload the completed, signed form(s) in BidSync.

Solicitation Number: PNC2115559P1

Project Title: Professional Engineering Services for Studies and Reports

Bidder/Offeror Name: **Please see "Letters of Intent" file attached**

Address: City: State: Zip:

Authorized Representative: Phone:

CBE Subcontractor/Supplier Name:

Address: City: State: Zip:

Authorized Representative: Phone:

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform subcontracting work on this project.
B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
C. By signing below, the above-named CBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm			
Description	NAICS*	CBE Contract Amount†	CBE Percentage of Total Project Value

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Subcontractor/Supplier Authorized Representative

(Signature) (Title) (Date)

Bidder/Offeror Authorized Representative

(Signature) (Title) (Date)

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
† To be provided only when the solicitation requires that bidder/offer include a dollar amount in its bid-offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

**APPLICATION FOR EVALUATION OF GOOD FAITH EFFORT
PURSUANT TO BUSINESS OPPORTUNITY ACT OF 2012, Sec. 1-81.5(e)**

If applicable, this form and supporting documentation should be returned with the Vendor's submittal. If not provided with solicitation submittal, the Vendor must supply information within three business days of County's request. Vendor should scan and upload the supporting documentation in BidSync.

SOLCITATION NO.: PNC2115559P1 PROJECT NAME: Professional Engineering Services for Studies and Reports

Brown and Caldwell
PRIME CONTRACTOR

1560 Sawgrass Corporate Parkway, Ste 240, Sunrise, FL 33323 **954.200.7611**
ADDRESS TELEPHONE

The undersigned representative of the prime contractor represents that his/her firm has contacted County Business Enterprise (CBE) certified firms in a good faith effort to meet the CBE goal for this solicitation but has not been able to meet the goal. Consistent with the requirements of the Business Opportunity Act of 2012 (the Act), the prime contractor hereby submits documentation (attached to this form) of good faith efforts made and requests to be evaluated under Section 1-81.5(e) of the Act.

The prime contractor understands that a determination of good faith effort to meet the CBE contract participation goal is contingent on both the information provided by the prime contractor as an attachment to this application and the other factors listed in Section 1-81.5(e) of the CBE Act, as those factors are applicable with respect to this solicitation. The prime contractor acknowledges that the determination of good faith effort is made by the Director of the Office of Economic and Small Business Development, and is not subject to appeal.

SIGNATURE: **Albert L. Perez, PE**

PRINT NAME / TITLE: **Albert L. Perez, PE, Vice President**

DATE: **5/18/2018**

Supplier: **Brown and Caldwell**

AFFILIATED ENTITIES OF THE PRINCIPAL(S) CERTIFICATION FORM

The completed form should be submitted with the solicitation response but must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

a. All Vendors are required to disclose the names and addresses of "affiliated entities" of the Vendor's principal(s) over the last five (5) years (from the solicitation opening deadline) that have acted as a prime Vendor with the County.

b. The County will review all affiliated entities of the Vendor's principal(s) for contract performance evaluations and the compliance history with the County's Small Business Program, including CBE, DBE and SBE goal attainment requirements. "Affiliated entities" of the principal(s) are those entities related to the Vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.

c. The County will consider the contract performance evaluations and the compliance history of the affiliated entities of the Vendor's principals in its review and determination of responsibility.

The Vendor hereby certifies that: (select one)

☑ No principal of the proposing Vendor has prior affiliations that meet the criteria defined as "Affiliated entities"

☐ Principal(s) listed below have prior affiliations that meet the criteria defined as "Affiliated entities"

Principal's Name:

Names of Affiliated Entities:

Principal's Name:

Names of Affiliated Entities:

Principal's Name:

Names of Affiliated Entities:

Authorized Signature Name: **Albert L. Perez, PE**

Title: **Vice President**

Vendor Name: **Brown and Caldwell**

Date: **5/18/2018**

Supplier: **Brown and Caldwell**

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☑ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: **Brown and Caldwell Constructors (BCC)** Or No ☐
Party	
Case Number, Name, and Date Filed	**Case No. 17-CV-132, Renfrow Brothers, Inc., Plaintiff v. The Haskell Company, Brown and Caldwell, Inc., David Froula, John Diedrich and Bush Brothers and Company, Defendants, 10/27/2017**
Name of Court or other tribunal	**Chancery Court for Jefferson County, Tennessee**
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	**subcontractor change order/cost claim**
Brief description of the Subject Matter and Project Involved	**Plaintiff alleges it is owed monies for additional work performed on a project for the construction of a wastewater facility**
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: **David Garst, Lewis Thomason King Krieg & Waldrop** Email: Telephone Number: **865-546-4646**

Vendor Name: Brown and Caldwell

Supplier: **Brown and Caldwell**

SUBCONTRACTORS/SUBCONSULTANTS/SUPPLIERS REQUIREMENT FORM
Request for Proposals, Request for Qualifications, or Request for Letters of Interest

The following forms and supporting information (if applicable) should be returned with Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit may affect Vendor's evaluation.

A. The Vendor shall submit a listing of all subcontractors, subconsultants and major material suppliers (firms), if any, and the portion of the contract they will perform. A major material supplier is considered any firm that provides construction material for construction contracts, or commodities for service contracts in excess of $50,000, to the Vendor.

B. If participation goals apply to the contract, only non-certified firms shall be identified on the form. A non-certified firm is a firm that is not listed as a firm for attainment of participation goals (ex. County Business Enterprise or Disadvantaged Business Enterprise), if applicable to the solicitation.

C. This list shall be kept up-to-date for the duration of the contract. If subcontractors, subconsultants or suppliers are stated, this does not relieve the Vendor from the prime responsibility of full and complete satisfactory performance under any awarded contract.

D. After completion of the contract/final payment, the Vendor shall certify the final list of non-certified subcontractors, subconsultants, and suppliers that performed or provided services to the County for the referenced contract.

E. The Vendor has confirmed that none of the recommended subcontractors, subconsultants, or suppliers' principal(s), officer(s), affiliate(s) or any other related companies have been debarred from doing business with Broward County or any other governmental agency.

If none, state "none" on this form. Use additional sheets as needed. Vendor should scan and upload any additional form(s) in BidSync.

1. Subcontracted Firm's Name: **Chen Moore and Associates**

   Subcontracted Firm's Address: **500 West Cypress Creek Road, Suite 630, Fort Lauderdale, FL 33309**

   Subcontracted Firm's Telephone Number: **954.730.0707**

   Contact Person's Name and Position: **Dan Davila, PE, Branch Manager**
   Contact Person's E-Mail Address: **ddavila@chenmoore.com**

   Estimated Subcontract/Supplies Contract Amount: **TBD**

   Type of Work/Supplies Provided: **Infrastructure/Landscape Architecture**

2. Subcontracted Firm's Name: **JLA Geosciences, Inc.**

   Subcontracted Firm's Address: **1907 Commerce Lane Suite 104, Jupiter, FL 33458**

   Subcontracted Firm's Telephone Number: **561.746.0228**

   Contact Person's Name and Position: **James Andersen, Principal Hydrogeologist**

   Contact Person's E-Mail Address: **jandersen@jlageosciences.com**

Supplier: **Brown and Caldwell**

LOBBYIST REGISTRATION REQUIREMENT CERTIFICATION FORM

The completed form should be submitted with the solicitation response but must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

The Vendor certifies that it understands if it has retained a lobbyist(s) to lobby in connection with a competitive solicitation, it shall be deemed non-responsive unless the firm, in responding to the competitive solicitation, certifies that each lobbyist retained has timely filed the registration or amended registration required under Broward County Lobbyist Registration Act, Section 1-262, Broward County Code of Ordinances; and it understands that if, after awarding a contract in connection with the solicitation, the County learns that the certification was erroneous, and upon investigation determines that the error was willful or intentional on the part of the Vendor, the County may, on that basis, exercise any contractual right to terminate the contract for convenience.

The Vendor hereby certifies that: (select one)

☐ It has not retained a lobbyist(s) to lobby in connection with this competitive solicitation; however, if retained after the solicitation, the County will be notified.

☑ It has retained a lobbyist(s) to lobby in connection with this competitive solicitation and certified that each lobbyist retained has timely filed the registration or amended registration required under Broward County Lobbyist Registration Act, Section 1-262, Broward County Code of Ordinances.

It is a requirement of this solicitation that the names of any and all lobbyists retained to lobby in connection with this solicitation be listed below:

Name of Lobbyist: **Bernie Friedman**
Lobbyist's Firm: **Becker and Poliakoff**
Phone: **954.987.7550**
E-mail: **Bfriedman@beckerlawyers.com**

Name of Lobbyist:
Lobbyist's Firm:
Phone:
E-mail:

Authorized Signature/Name: Albert L. Perez, PE Date: 5/18/2018

Title: Vice President

Vendor Name: Brown and Caldwell

Supplier: **Brown and Caldwell**

AGREEMENT EXCEPTION FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, it shall be deemed an affirmation by the Vendor that it accepts the terms and conditions of the County's Agreement as disclosed in the solicitation.

The Vendor must either provide specific proposed alternative language on the form below. Additionally, a brief justification specifically addressing each provision to which an exception is taken should be provided.

☑ There are no exceptions to the terms and conditions of the County Agreement as referenced in the solicitation; or

☐ The following exceptions are disclosed below: (use additional forms as needed; separate each Article/ Section number)

Term or Condition Article / Section	Insert version of exception or specific proposed alternative language	Provide brief justification for change

Vendor Name: **Brown and Caldwell**

Supplier: **Brown and Caldwell**

RFP-RFQ-RLI LOCATION ATTESTATION FORM (EVALUATION CRITERIA)

The completed and signed form and supporting information (if applicable, for Joint Ventures) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit this form and supporting information may affect the Vendor's evaluation. Provided information is subject to verification by the County.

A Vendor's principal place of business location (also known as the nerve center) within Broward County is considered in accordance with Evaluation Criteria. The County's definition of a principal place of business is:

1. As defined by the Broward County Local Preference Ordinance, "Principal place of business means the nerve center or center of overall direction, control and coordination of the activities of the bidder [Vendor]. If the bidder has only one (1) business location, such business location shall be considered its principal place of business."

2. A principal place of business refers to the place where a corporation's officers direct, control, and coordinate the corporation's day-to-day activities. It is the corporation's 'nerve center' and in practice it should normally be the place where the corporation maintains its headquarters; provided that the headquarters is the actual center of direction, control, and coordination, i.e., the 'nerve center', and not simply an office where the corporation holds its board meetings (for example, attended by directors and officers who have traveled there for the occasion).

The Vendor's principal place of business in Broward County shall be the Vendor's "Principal Address" as indicated with the Florida Department of State Division of Corporations, for at least six months prior to the solicitation's due date.

Check one of the following:

☐ The Vendor certifies that it has a principal place of business location (also known as the nerve center) within Broward County, as documented in Florida Department of State Division of Corporations (Sunbiz), and attests to the following statements:

1. Vendor's address listed in its submittal is its principal place of business as defined by Broward County;

2. Vendor's "Principal Address" listed with the Florida Department of State Division of Corporations is the same as the address listed in its submittal and the address was listed for at least six months prior to the solicitation's opening date. A copy of Florida Department of State Division of Corporations (Sunbiz) is attached as verification.

3. Vendor must be located at the listed "nerve center" address ("Principal Address") for at least six (6) months prior to the solicitation's opening date;

4. Vendor has not merged with another firm within the last six months that is not headquartered in Broward County and is not a wholly owned subsidiary or a holding company of another firm that is not headquartered in Broward County;

5. If awarded a contract, it is the intent of the Vendor to remain at the referenced address for the duration of the contract term, including any renewals, extensions or any approved

interim contracts for the services provided under this contract; and

6. The Vendor understands that if after contract award, the County learns that the attestation was erroneous, and upon investigation determines that the error was willful or intentional on the part of the Vendor, the County may, on that basis exercise any contractual right to terminate the contract. Further any misleading, inaccurate, false information or documentation submitted by any party affiliated with this procurement may lead to suspension and/or debarment from doing business with Broward County as outlined in the Procurement Code, Section 21.119.

If the Vendor is submitting a response as a Joint Venture, the following information is required to be submitted:

a. Name of the Joint Venture Partnership
b. Percentage of Equity for all Joint Venture Partners
c. A copy of the executed Agreement(s) between the Joint Venture Partners

☑ Vendor does not have a principal place of business location (also known as the nerve center) within Broward County.

Vendor Information:

Vendor Name: **Brown and Caldwell**

Vendor's address listed in its submittal is:

1560 Sawgrass Corporate Parkway, Suite 240
Sunrise, FL 33323

The signature below must be by an individual authorized to bind the Vendor. The signature below is an attestation that all information listed above and provided to Broward County is true and accurate.

Albert L. Perez, PE	**Vice President**	**Brown and Caldwell**	**5/18/2018**
Authorized Signature/Name	Title	Vendor Name	Date

Supplier: **Brown and Caldwell**

RFP-RLI-RFQ LOCAL PREFERENCE AND TIE BREAKER CERTIFICATION FORM

The completed and signed form should be returned with the Vendor's submittal to determine Local Preference eligibility, however it must be returned at time of solicitation submittal to qualify for the Tie Break criteria. If not provided with submittal, the Vendor must submit within three business days of County's request for evaluation of Local Preference. Proof of a local business tax must be returned with solicitation submittal to qualify for the Tie Break Criteria. Failure to timely submit this form or local business tax receipt may render the business ineligible for application of the Local Preference or Tie Break Criteria.

In accordance with Section 21.31.d. of the Broward County Procurement Code, to qualify for the Tie Break Criteria, the undersigned Vendor hereby certifies that (check box if applicable):

☑ The Vendor is a local Vendor in Broward County and:

a. has a valid Broward County local business tax receipt;

b. has been in existence for at least six-months prior to the solicitation opening;

c. at a business address physically located within Broward County;

d. in an area zoned for such business;

e. provides services from this location on a day-to-day basis, and

f. services provided from this location are a substantial component of the services offered in the Vendor's proposal.

In accordance with Local Preference, Section 1-74, et. seq.,Broward County Code of Ordinances, a local business meeting the below requirements is eligible for Local Preference. To qualify for the Local Preference, the undersigned Vendor hereby certifies that (check box if applicable):

☑ The Vendor is a local Vendor in Broward and:

a. has a valid Broward County local business tax receipt issued at least one year prior to solicitation opening;

b. has been in existence for at least one-year prior to the solicitation opening;

c. provides services on a day-to-day basis, at a business address physically located within the Broward County limits in an area zoned for such business; and

d. the services provided from this location are a substantial component of the services offered in the Vendor's proposal.

Local Business Address: **1560 Sawgrass Corporate Parkway, Suite 240**
Sunrise, FL 33323

Vendor does not qualify for Tie Break Criteria or Local Preference, in accordance with the above requirements. The undersigned Vendor hereby certifies that (check box if applicable):

☐ The Vendor is not a local Vendor in Broward County.

Albert L. Perez, PE	**Vice President**	**Brown and Caldwell**	**5/18/2018**
AUTHORIZED SIGNATURE/ NAME	**TITLE**	**COMPANY**	**DATE**

Supplier: **Brown and Caldwell**

DOMESTIC PARTNERSHIP ACT CERTIFICATION FORM (REQUIREMENT AND TIEBREAKER)

Refer to Special Instructions to identify if Domestic Partnership Act is a requirement of the solicitation or acts only as a tiebreaker. If Domestic Partnership is a requirement of the solicitation, the completed and signed form should be returned with the Vendor's submittal. If the form is not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes. To qualify for the Domestic Partnership tiebreaker criterion, the Vendor must currently offer the Domestic Partnership benefit and the completed and signed form must be returned at time of solicitation submittal.

The Domestic Partnership Act, Section 16 ½ -157, Broward County Code of Ordinances, requires all Vendors contracting with the County, in an amount over $100,000 provide benefits to Domestic Partners of its employees, on the same basis as it provides benefits to employees' spouses, with certain exceptions as provided by the Ordinance.

For all submittals over $100,000.00, the Vendor, by virtue of the signature below, certifies that it is aware of the requirements of Broward County's Domestic Partnership Act, Section 16-½ -157, Broward County Code of Ordinances; and certifies the following: (check only one below).

- ☑ 1. The Vendor currently complies with the requirements of the County's Domestic Partnership Act and provides benefits to Domestic Partners of its employees on the same basis as it provides benefits to employees' spouses
- ☐ 2. The Vendor will comply with the requirements of the County's Domestic Partnership Act at time of contract award and provide benefits to Domestic Partners of its employees on the same basis as it provides benefits to employees' spouses.
- ☐ 3. The Vendor will not comply with the requirements of the County's Domestic Partnership Act at time of award.
- ☐ 4. The Vendor does not need to comply with the requirements of the County's Domestic Partnership Act at time of award because the following exception(s) applies: (check only one below).

  - ☐ The Vendor is a governmental entity, not-for-profit corporation, or charitable organization.
  - ☐ The Vendor is a religious organization, association, society, or non-profit charitable or educational institution.
  - ☐ The Vendor provides an employee the cash equivalent of benefits. (Attach an affidavit in compliance with the Act stating the efforts taken to provide such benefits and the amount of the cash equivalent).
  - ☐ The Vendor cannot comply with the provisions of the Domestic Partnership Act because it would violate the laws, rules or regulations of federal or state law or would violate or be inconsistent with the terms or conditions of a grant or contract with the United States or State of Florida. Indicate the law, statute or regulation (State the law, statute or regulation and attach explanation of its applicability).

Albert L. Perez, PE	Vice President	Brown and Caldwell	5/18/2018
Authorized Signature/Name	**Title**	**Vendor Name**	**Date**

Supplier: **Brown and Caldwell**

VOLUME OF PREVIOUS WORK ATTESTATION FORM

The completed and signed form should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to provide timely may affect the Vendor's evaluation. This completed form must be included with the Vendor's submittal at the time of the opening deadline to be considered for a Tie Breaker criterion (if applicable).

The calculation for Volume of Previous Work is all amounts paid to the prime Vendor by Broward County Board of County Commissioners at the time of the solicitation opening date within a five-year timeframe. The calculation of Volume of Previous Work for a prime Vendor previously awarded a contract as a member of a Joint Venture firm is based on the actual equity ownership of the Joint Venture firm.

In accordance with Section 21.31.d. of the Broward County Procurement Code, the Vendor with the lowest dollar volume of work previously paid by the County over a five-year period from the date of the submittal opening will receive the Tie Breaker.

Vendor must list all projects it received payment from Broward County Board of County Commissioners during the past five years. If the Vendor is submitting as a joint venture, the information provided should encompass the joint venture and each of the entities forming the joint venture. The Vendor attests to the following:

Item No.	Project Title	Solicitation/ Contract Number:	Department or Division	Date Awarded	Paid to Date Dollar Amount
1	**Continuing Professional Services for Study Activities**	**R1008103R1**	**BCWWS**	**8/13/2013**	**893,779.03**
2	**Consultant Services for Engineering Services for Reclaimed Water**	**R1060205P1**	**BCWWS**	**12/9/2014**	**3,885,965.94**
3					
4					
5					
				Grand Total	**4,779,744.97**

Has the Vendor been a member/partner of a Joint Venture firm that was awarded a contract by the County? Yes ☐ No ☑

If Yes, Vendor must submit a **Joint Vendor Volume of Work Attestation Form**.

Vendor Name: Brown and Caldwell

Albert L. Perez, PE	**Vice President**	**5/18/2018**
Authorized Signature/ Name	**Title**	**Date**

VOLUME OF PREVIOUS WORK ATTESTATION JOINT VENTURE FORM

If applicable, this form and additional required documentation should be submitted with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit this form and supporting documentation may affect the Vendor's evaluation.

The calculation of Volume of Previous Work for a prime Vendor previously awarded a contract as a member of a Joint Venture firm is based on the actual equity ownership of the Joint Venture firm. Volume of Previous Work is not based on the total payments to the Joint Venture firm.

Vendor must list all projects it received payment from Broward County Board of County Commissioners during the past five years as a member of a Joint Venture. The Vendor attests to the following:

Item No.	Project Title	Solicitation/ Contract Number:	Department or Division	Date Awarded	JV Equity %	Paid to Date Dollar Amount
1						
2						
3						
4						
5						
				Grand Total		

Vendor is required to submit an executed Joint Venture agreement(s) and any amendments for each project listed above. Each agreement must be executed prior to the opening date of this solicitation.

Vendor Name:

Authorized Signature/ Name **Title** **Date**

1560 Sawgrass Corporate Parkway
Suite 240
Sunrise, FL 33323

T: 954.200.7611
F: 954.200.7612

May 18, 2018

Ms. Nancy Olesen
Broward County Purchasing Division
115 South Andrews Avenue, Room 212
Fort Lauderdale, Florida 33301

Subject: RFP No. PNC2115559P1 for Professional Engineering Services for Studies and Reports for Broward County Water and Wastewater Services

Dear Ms. Olesen:

We have a proven history of successfully meeting the County's consulting engineering needs. Our project leadership and supporting team members have multi-decade experience serving the varied utility consulting needs of Broward County Water and Wastewater Services (County or BCWWS) and other South Florida communities. Our Brown and Caldwell leadership team consists of Client Service Manager/Quality Assurance Manager, Dr. Celia Earle, Project Delivery Officer, Mr. Nigel Grace, and Principal-in-Charge, Mr. Albert Perez. They have successfully delivered for the County since the 1990's for a wide spectrum of assignments that span the utility enterprise. Consequently, our team offers the County a breadth of utility-specific knowledge and successful history that is unparalleled. This leadership team is supported by a team that was carefully selected to deliver locally-focused best in class capabilities, a proven history with BCWWS and knowledge of its needs, credibility and success with key regulatory agencies, and national perspectives that gives us a vision of emerging issues and technology applications that may benefit or otherwise impact BCWWS in the future.

Our subconsultant partners are McCafferty Brinson Consulting, LLC (CBE) – *Water Treatment Plant Process/Planning*, C-Solutions, Inc. (CBE) – *Pump Stations*, Cordova Rodriguez and Associates, Inc. (CBE) – *Civil/ Surface Water Management*, Stoner & Associates, Inc. (CBE) – *Land Surveyors and Mappers/Subsurface Investigation*, Bailey Engineering Consultants, Inc. (CBE) - *Electrical*, Chen Moore and Associates, Inc. – *Infrastructure/Landscape Architecture*, McNabb Hydrogeologic Consulting, Inc. – *Deep Injection Wells*, and JLA Geoscience, Inc. – *Hydrogeology/Water Supply*.

We appreciate the opportunity to present our proposal and look forward to clarifying any questions you may have and further sharing why we believe our team is best equipped to offer BCWWS a unique combination of continuity, responsiveness, service, high quality project, and impactful solutions. Please do not hesitate to contact Dr. Celia Earle or myself if you have any questions or require additional information.

Very truly yours,

Brown and Caldwell

Albert L. Perez, PE
Principal-in-Charge

Celia D. A. Earle, PhD
Client Service Manager

Brown AND Caldwell

PROPOSAL | Prepared for
Broward County Board of County Commissioners

BROWARD COUNTY FLORIDA

Professional Engineering Services for Studies and Reports

May 18, 2018 | Solicitation No. PNC2115559P1

Evaluation Criteria 1

Ability of Professional Personnel

The right team for this contract

Our proposed leadership team of Dr. Celia Earle, Mr. Nigel Grace, and Mr. Albert Perez, has successfully delivered continuing engineering assignments for Broward County Water and Wastewater Services since the mid 1990's. No other group of professionals has a comparable breadth of reach into the County's utility enterprise coupled with a track record of delivery excellence for each assignment. The graphic on the following page depicts a snapshot of this breadth.

Dr. Celia Earle, Client Service Manager/Quality Assurance Manager, Mr. Nigel Grace, PE, Project Delivery Officer, and Mr. Albert Perez, PE, Principal-in Charge, have over 70 years combined experience in South Florida, including Broward County Water and Wastewater Services (BCWWS or Broward County) where they have long-standing institutional knowledge across all segments of the utility and performed impactful projects for the Utility. Dr. Celia Earle and Mr. Nigel Grace are located in the Sunrise, FL office. The office locations of the key Brown and Caldwell personnel are found on Page 11. An Organizational Chart of our key personnel, as well as our subconsultants, five of which are CBEs, is listed on Page 3. The 46 resumes are included in an attachment entitled "Team Resumes".

The subconsultants that are being used on this project are McCafferty Brinson Consulting, LLC (CBE) – *Water Treatment Plant Process/Planning*, C-Solutions, Inc. (CBE) – *Pump Stations*, Cordova Rodriguez and Associates, Inc. (CBE) – *Civil/ Surface Water Management*, Stoner & Associates, Inc. (CBE) – *Land Surveyors and Mappers/Subsurface Investigation*, Bailey Engineering Consultants, Inc. (CBE) - *Electrical*, Chen Moore and Associates, Inc. – *Infrastructure/Landscape Architecture*, McNabb Hydrogeologic Consulting, Inc. – *Deep Injection Wells*, and JLA Geoscience, Inc. – *Hydrogeology/Water Supply*. The names and office locations of the cited subconsultants are found on Page 11. Resumes of these personnel are included in an attachment entitled "Team Resumes."

A representative sampling of projects successfully delivered by our proposed leadership team are presented in the exhibit below. Impactful studies and reports range from varied investigations to support the successful commissioning of the South County Regional Water Supply in the 1990's to planning efforts associated with the retail water and wastewater system, reuse, biosolids management, and alternative water supply development. Currently, the Brown and Caldwell team is building on this legacy with studies that are helping the County improve operational performance and efficiency, plan for expansion of its retail system while improving the use of its available resources, customer service and posture to meet existing and emerging challenges. Our team retains this effective local team of professionals while augmenting our capabilities with national expertise to draw on to ensure the delivery of our firm's best know-how for each assignment.

Our proposed team has received good to excellent ratings on all projects for which ratings have been assigned. This team is committed to continuing to support the County with the delivery of practical and sound studies to the challenges that lay ahead. Our team offers the County the following benefits:

1. Unsurpassed breadth of knowledge of the County's system
2. Momentum from several key project initiatives that carry forward – no learning curve
3. Demonstrated history of putting the interest of our client's first
4. Proactive and proven risk assessment and mitigation capabilities
5. Proven design and cost estimating acumen

Unparalleled Impact of the Brown and Caldwell Team on Broward County's Utility Program

1990s to 2000

- Biosolids master plan
- Biosolids pilot study (drying and composting)
- Regional Wellfield O&M Plan
- Corrosion Control Study
- Raw Water Supply Treatability Study
- Annual reports
- District 1A Generator Design
- District 1 and 2 Chlorination System Improvements
- Filtration System Improvement
- District 1A Nanofiltration Evaluation
- Consumer Confidence Report
- Water Supply Vulnerability Study
- D/DBP System Control Study
- Chaves Lake Flushing System Design
- Unaccounted-For Water Mitigation Plan
- Water and Wastewater MP
- Large User Raw Water Supply Negotiations

2000 to 2010

- District 2 Wells 8 and 9 Investigation and Rehab
- Alternative Water Supply Master Plan
- Twin Lakes NIP
- Risk Management Plans
- Process Safety Manuals
- Annual Reports
- Broadview Estates Sanitary Sewer Design
- 1A2 Ground storage tank BODR
- Treatment Facilities Lighting Improvements
- District 2A WTP 4-log DBP Testing Support
- District 2A WTP 4-log BODR
- 1A WTP Tank Replacement Design Report
- Utility Rates Structure Review
- Lift Station Power Supply Upgrades
- Stormwater Drainage Improvements

2010 to present

- AWS CIP Assessment
- Repump Station 4 log BODR (various)
- District 3B/C Storage/Repump Station 4 log BODR
- NRWWTP Effluent PS Electrical Improvements
- Surveys (various)
- WTP 3A Site Plan Permitting Assistance
- Annual Reports
- 1A and 2A WTPs Chemical Feed System
- North County Reuse Feasibility Study
- District 3A Collection System Hydraulic Model
- District 2 Chloride Infiltration Study
- Customer Service Call Center Assessment
- Master PS 462 Assessment
- 3BC Sewering Feasibility Study/TM
- District 1A rTCR Study

Organized to confidently deliver your projects

The structure of our team is built to deliver the highest value to Broward County.

For over 25 years, Nigel Grace, our Project Delivery Officer, has provided a wide array of engineering needs for Broward County, including master planning, water supply and treatment system expansion, water management improvements, reclaimed water planning, regulatory compliance, infrastructure assessment and planning, and ongoing distribution system water quality optimization.

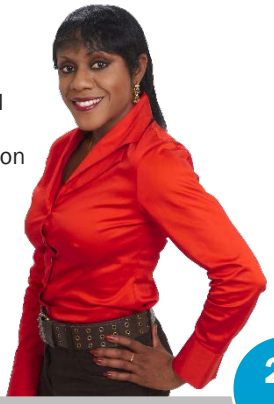
Proven leadership you know and trust

Broward County can be confident in our leadership. Celia, Nigel, and Albert have worked together for years to support you with responsive and successful project delivery.

Since the 1990's, our senior leadership team has successfully supported the County's utility system. They bring proven experience serving in their assigned roles on past projects. They will work in unison throughout the life of this contract to enable our entire team to meet our commitments and your expectations on every project assignment. Over the years, they have successfully led the delivery of diverse continuing engineering services to over many South Florida utilities through which they have developed the experience and credibility to meet any challenge that may emerge. They serve in complementary senior leadership roles in our firm, so they can draw in additional resources as needed.

Celia Earle, PhD

CLIENT SERVICE MANAGER/QUALITY ASSURANCE MANAGER (SUNRISE, FL)



Dr. Celia Earle brings more than 23 years of experience as an environmental engineer, environmental chemist, and microbiologist, and thus has a unique profile in the environmental arena. She has a breadth of knowledge that includes planning, design, and construction administration for water, wastewater and reclaimed water systems, non-revenue water reduction and management, energy efficiency assessments, condition assessments, compliance assessments, program management, design-build delivery and various feasibility studies and investigations. Celia has spent most of her career working for Broward County Water and Wastewater Services and currently serves as the Client Service Manager/Quality Assurance Manager. She will maintain this role and will serve as the main point of contact to ensure our continued responsiveness and manage our quality assurance process to ensure that the most impactful expertise is conveyed to each assignment.

23 years

Nigel Grace, PE

PROJECT DELIVERY OFFICER (SUNRISE, FL)

Nigel Grace brings almost 30 years of experience serving in wide-ranging roles in the management and direction of complex multi-disciplinary projects that draw on diverse skill sets in areas of technology applications, regulatory negotiations, and operational/process optimization. Additionally, he currently serves as one of the firm's water technology leaders and through this experience brings broad insights on emerging issues of concern and the complex challenges faced by the utility community. He has served a wide array of engineering needs for utilities across South Florida that has saved utilities hundreds of millions of costs, addressed complex compliance challenges and successfully implement practical and sustainable solutions. His experience with the County spans 25 years for diverse projects across the entire utility enterprise. His focus will be to ensure that we listen well, align our resources to your priorities and work with our delivery teams to ensure that the job gets done right for each project assignment.

28 years

Albert Perez, PE

PRINCIPAL-IN-CHARGE (CORAL GABLES, FL)

Albert Perez is a progressive and visionary leader with over 23 years of experience in the water and wastewater business sector. Prior to joining Brown and Caldwell, he served in the capacity of Utilities Director for the City of Hollywood. In his capacity, he developed a keen understanding of the needs and complex considerations associated with the diverse interests of key stakeholders, and processes for prioritizing the delivery of improvements. This background provides a unique perspective that will benefit Brown and Caldwell's delivery efforts for the County. A selection of his project experience includes Broward County Water and Wastewater Services Master Plan, Water Treatment Plant Expansion for City of Sunrise, and Water Plant Expansion Program for the City of North Miami Beach. He is currently responsible for overseeing Brown and Caldwell's Florida Operations and, in this capacity, is well positioned to ensure that appropriate resources are committed to the County's projects.

23 years

Experienced Project Team

Our project team brings strong relationships with Broward staff, unmatched knowledge of the County, and a proven track record performing on previous contracts.

We have assembled a local team of professionals that bring together the mix of capabilities to address the diverse needs that could potentially emerge under this contract. Our key staff are supported by specialists and staff that will help us efficiently apply the best know-how of the firm to develop solutions that are effective and sustainable. Experience highlights of select key staff are summarized below.

43 years

Robert Abordo, PE

Electrical Systems (Sunrise, FL)

EXPERIENCE SUMMARY

43 years of electrical system evaluation and design experience. Includes planning through design of power systems and control components for water and wastewater treatment facilities, emergency power generation and distribution, pumping stations and water supply and distribution assets. Studies include safety evaluations, planning studies, condition and functional assessments.

PROJECTS PERFORMANCE

- Reclaimed Water Plant Expansion (BCWWS)
- Districts 1 & 2 WTP Chemical feed systems electrical & controls assessment (BCWWS)
- WTP Electrical Assessment (West Palm Beach, FL)
- Electrical system condition assessment for ECR WRF and 5 Master PSs (West Palm Beach, FL)
- Electrical systems planning & design for numerous utilities including Miami-Dade WASD, Sunrise, PBCWUD)

22 years

Jennifer Leone, PE

Water Treatment Plants/Distribution Water Quality (Sunrise, FL)

EXPERIENCE SUMMARY

Over 22 years of experience relating to water treatment systems. Areas of expertise include plant pumping systems, master planning, hydraulic modeling, lime softening treatment plants, membrane softening treatment plants, raw water systems, remote storage and booster pump stations, and regulatory compliance.

PROJECTS PERFORMANCE

- Reclaimed Water Plant Expansion (BCWWS)
- Design of new water supply wells, transfer pumps,

  high service pumps and process design for 10.5 mgd nanofiltration membrane plant (Deerfield Beach, FL)
- Design of new transfer pumps and project engineer for 40 mgd nanofiltration membrane plant (Boca Raton, FL)

10 years

Ruth Burney, PE

Wastewater Treatment Plants/Reclaimed Water/Permitting (Sunrise, FL)

EXPERIENCE SUMMARY

10 years of varied experience conducting condition assessments and implementing improvements for utility assets inclusive of pump stations, buried infrastructure, and treatment systems. Wide ranging experience includes planning, report writing, permitting, system evaluations, design and construction support.

PROJECTS PERFORMANCE

- Analysis of Forcemain Alternatives (BCWWS)
- Condition assessment of the ECR WRF and 5 Master PSs (West Palm Beach, FL)
- Coastal brackish groundwater infiltration (Hollywood, FL)
- Planning/design for removal of 42 to 64-inch PCCP process piping (Fort Lauderdale, FL)

13 years

Diego Herrera, PE

Water Distribution System/Sewer Collection System Infrastructure (Sunrise, FL)

EXPERIENCE SUMMARY

Over 13 years of experience in the planning, assessment and design of wastewater collection and lift station improvement projects. He has completed over 100 collection system and pump station projects. He additionally brings experience in the design of water distribution infrastructure, as well as permitting and construction administration.

PROJECTS PERFORMANCE

- 3BC Septic Tank Elimination Analysis (BCWWS)
- MPS 462 Analysis (BCWWS)
- Collection system evaluation & design (many)
- Force main improvements (10 projects)
- Lift station improvements (over 20 projects)
- Vacuum sewer systems design (4 projects)
- Water main improvements (several projects)

A Reliable Team with a History of Delivery

Our experts will be able to handle any assignment you give our team.

Each key member of our team was selected based on his/her availability, expertise, and connection to our relevant project experience. Individually, they bring specific experience relevant to performing these projects. Together, they provide a strong, cohesive unit with a proven history delivering impactful results for Broward County and other local utilities. Therefore, our technical team requires no learning curve and is ready to continue its established momentum on a range of important initiatives for Broward County.

Experience Summary	Performance on Related Projects

Larry Vicars, PE, CGC (Sunrise, FL)

WATER TREATMENT PLANTS/DISTRIBUTION WATER QUALITY

Engineer and licensed General Contractor with over 19 years of professional experience in water treatment and pumping system processes. He has an excellent track record in process control measures including development of control logic, circuit analysis, trouble shooting and acceptance testing initiatives. Experience includes understanding of construction techniques, mechanical equipment, startup procedures and acceptance testing.

- Design Engineer responsible for all treatment processes associated with the expansion of Martin County Utility Tropical Farms Water Treatment Plan (Martin County, FL)
- Design Engineer for the expansion of the Village of Royal Palm Beach Water Treatment Plant (Village of Royal Palm Beach, FL)
- Design Engineer for membrane analysis and selection, membrane replacement, and startup services for Indian River County's four existing reverse osmosis (RO) treatment trains (Indian River County, FL)
- Design Engineer responsible for engineering treatment processes associated with the expansion of various Martin County Utilities' Water Treatment Plants (Martin County, FL)

Brian Scott, PE (Sunrise, FL)

HYDRAULIC MODELING/WATER DISTRIBUTION SYSTEM/ SEWER COLLECTION SYSTEM INFRASTRUCTURE/ GIS/PUMPING SYSTEM

10 years of experience with the design, modeling and optimization of transmission system hydraulics. His expertise includes the evaluation and optimization of unidirectional flushing programs, the study of water quality issues in distribution systems, and the use of hydraulic modeling software such as InfoWorks, InfoWater, InfoSWMM, H2OMAP Water, WaterGEMS, SewerGEMS, and DHI Mike Urban.

- Water system modeling, performance troubleshooting and system vulnerability assessments (West Palm Beach, FL)
- Various lift station rehabilitation design projects (Sunrise, FL and West Palm Beach, FL)
- Various operational assessments of integrated force main/pump station systems to facilitate various objectives (West Palm Beach, FL)
- Neighborhood water main replacement design (Hollywood, FL)
- Assessment of distribution system operating characteristics and impacts on water quality (Hollywood, FL and Palm Beach County Water Utilities Department)

Dane Jablonsky, PE

National Expert **(Virginia Beach, VA)**

INFORMATION TECHNOLOGY

30 years of experience in applying information technology towards solutions in the fields of science and engineering. He has managed IT projects for environmental clients nationally and specializes business intelligence tools and their application in the fields of program and asset management.

- Technical Lead for the City of Hollywood Billing System Assessment and Migration Planning for the upgrading of Migration of the billing function system from the City's Treasury Department to Utilities. (Hollywood, FL)
- Task Leader for Orange County CMMS Improvements, which was a year-long effort that involved development of maintenance goals and associated performance metrics. Business process mapping, both as-is and to-be, were developed for key asset and maintenance processes. (Orange County Public Utilities, Orlando, FL)

Experience Summary

Performance on Related Projects

Jeff Theerman, PE

National Expert **(St. Louis, MO)**

INFORMATION TECHNOLOGY

35 years of experience in municipal and private sector performance optimization, automation, and improvement. Jeff serves as the National Utility Performance leader for Brown and Caldwell. His extensive hands-on management experience and in-depth knowledge of the management, operations and maintenance requirements of wastewater and storm water systems allows him to develop and support numerous related programs and projects.

- Lead Utility Management Specialist that evaluated and improved operations staffing at the East Central Regional Water Reclamation Facility (ECRWRF). (West Palm Beach, FL)
- Lead Technical Consultant on the development of an employee skills development program for Gwinnett County Department of Water Resources (GCDWR) that crafted career progressions for ten separate job areas within the water, wastewater, and stormwater utility. (Gwinnett County, GA)

Lance Salerno, QEP

National Expert **(Irvine, CA)**

OPERATIONS/CONDITON ASSESSMENT

27 years of O&M consulting experience, including conducting wastewater plant operability reviews, commissioning and startup leadership roles, staff training, municipal wastewater operations, industrial wastewater field operations, unit process operations, wastewater permitting and client service. As a startup manager and O&M expert, he has led numerous construction contract startups at large municipal wastewater plants.

- Led O&M review of the headworks design for the North District Wastewater Treatment Plant. Work including meeting with site staff to obtain Operations and Maintenance staff input for design and operability considerations. (Miami-Dade, FL)
- O&M Task Lead for the third-party review & value engineering study for the 60% design documents for of a new biosolids facility at East Central Regional Water Reclamation Facility (ECRWRF, West Palm Beach, FL)
- Technical lead for condition assessment of major assets at the ECRWRF. (West Palm Beach, FL)

Viviana Villamizar, EI **(Coral Gables, FL)**

HYDRAULIC MODELING/GIS

6 years of experience in research, development and design in the areas of environmental and water resources engineering and management; hydrology, hydraulics, GIS mapping and geo-data processing; wastewater reuse; waste management; and sustainability.

- Project Engineer for North County Reuse Feasibility Project, Broward County Water and Wastewater Services. (Broward County, FL)
- Project Engineer that developed an ICPR model to evaluate existing conditions and proposed drainage improvements, 100 percent design drawings, specification, drainage analysis report, permitting and cost estimates. These were for drainage improvements throughout Miami-Dade County. (Miami-Dade County, FL)

Harry Tomlinson, PE **(West Palm Beach, FL)**

CONSTRUCTION MANAGEMENT/ STORMWATER/DRAINAGE/ SURFACE WATER MANAGEMENT

26 years of civil engineering experience with concentrations in geotechnical engineering and surface water management. He is proficient in two-dimensional groundwater flow modeling and slope stability analysis. He has laboratory and in situ soil testing experience and extensive construction management experience.

- Construction services associated with a 4-mgd High Level Disinfection Facility (Sunrise, FL)
- Led the South Florida Water Management District Compartment B Stormwater Treatment Area Project. (Palm Beach County, FL)
- Led the design effort for restoration and improvement of a 900-acre system of eight interconnected industrial wastewater treatment ponds (Palatka, FL)

Experience Summary

Performance on Related Projects

Hector Serrano, PE (Sunrise, FL)

ELECTRICAL/I&C

15 years of electrical engineering/instrumentation and controls (I&C) experience. Areas of expertise include the design of power systems, control and security components for water and wastewater treatment facilities and pumping stations, emergency power generation and distribution, and water supply and distribution.

- Responsible for assessing and evaluating the condition of existing electrical equipment in sewage lift stations (Miami-Dade, FL)
- Installation contract deliverables, SCADA integration, and site inspection (SFWMD, FL)
- Electrical plans for the temporary power supply, installation and operation of a cost effective alternative water supply Experimental Pilot Study Program (Sunrise, FL)

Ian Krujlac (College Station, TX)

COST ESTIMATING

11 years of experience supervising mechanical and civil trades in maintaining and constructing refineries, chemical plants, power plants, food grade mechanical installations and civil highways. Ian is performing both construction management and cost estimating for our many projects in South Florida and across the nation.

- Lead Estimator for the cost estimates associated with the design gates (30%, 60%, 90% and Final) for the expansion of Broward County's reclaimed water plant from 10 mgd to 26 mgd. (Broward County, FL)
- Lead Estimator for the cost estimates for the designs associated with converting a wet pit/dry pit station to a submersible lift station at a highly constrained site. These were for Lift Stations 114, 123, 125, 132, and 148. (City of Sunrise, FL)

Robert Hrabovsky, PE (Orlando, FL)

STRUCTURAL

30 years of experience in management, structural design, and construction of public utility and public works facilities. He provided structural engineering and design for everything from water and wastewater treatment plants and infrastructure to solid waste facilities and roadway construction. He has served as the Structural Engineer of Record for many
Florida projects.

- Structural design and office engineering services during construction of the rehabilitation of the screenings and grit facility at the Sawgrass WWTP (Sunrise, FL)
- Structural design and office engineering services during construction for the $11 million greenfield 0.3 mgd wastewater treatment plant (FKAA, FL)
- Structural design review of the headworks renovation (Miami-Dade, FL)

Richard Stahr, PE

National Expert (Charlotte, NC)

QUALITY CONTROL/TECHNICAL ADVISOR - BUSINESS SYSTEMS

29 years of experience in asset management programs, developing wet weather management plans, SSO reduction programs, hydraulic modeling, wastewater collection system assessments, CMOM programs, information technology selection and implementation and regulatory negotiations for clients across the United States.

- Assessment of Existing Asset Management Practices and Improvement Plan, Assessment of Information Systems. Establishment of an Asset Management Steering Committee, Asset Management Training Sessions, and Improvement Plan Implementation. (West Palm Beach, FL)
- Led development of a multifaceted project with major components that include a work and asset management system, concurrency management program, peer review of the development of the City's WW InfoWorks hydraulic model. (Largo, FL)

Successful History with Our Subconsultants

We have worked successfully with most of our teaming partners to deliver projects in South Florida, including several projects with Broward County.

McCafferty Brinson Consulting, LLC. (MBC) is a CBE engineering consulting firm founded in Broward County, Florida, in 2006. MBC offers environmental consulting, engineering design, and construction administration services related to potable water, reclaimed water, and wastewater treatment systems, pumping and transmission systems, and utility infrastructure, as well as permitting and regulatory compliance consulting.

Audra McCafferty, PE, LEED AP - MBC (Fort Lauderdale, FL)

Frank Brinson, PE - MBC (Fort Lauderdale, FL)

Cordova Rodriguez & Associates, Inc. (CRA) is a CBE multi-disciplinary firm with experience in all aspects of civil engineering, analysis and design, planning-current and long range; redevelopment/urban planning and design and sustainable design. Their qualified professionals have experience in design, preparation of contract documents, government approvals and permitting, bidding assistance, construction administration and review services. They are a small firm where each of the principals is personally involved in the projects. Through their experience with similar projects, they have gained vast knowledge in completing projects under aggressive schedules to meet project deadlines. They have the experience to deal with complex infrastructure in terms of utilities, both known and unknown, thus creating the need to adapt our design to conditions encountered in the field. CRA is committed to sustainability and quality projects. Their team is also uniquely qualified in LEED and Sustainable Design with a strong understanding of design and related code requirements.

Rosana D. Cordova, PE, AICP, LEED AP - CRA (Pembroke Pines, FL)

Luis E. Rodriguez, PE - CRA (Pembroke Pines, FL)

Established in 2005, **C Solutions Inc. (CS)** is a CBE minority owned and certified local small business corporation specializing in water and wastewater engineering with offices in Broward, Miami-Dade, Palm Beach and Orange Counties. Their vision is to provide senior professionals with ability to focus on a client's need. They believe that providing the right solution relies on quality of the client relationship and are committed to a shared understanding of the challenge, the need and the desired result. Their expertise includes the planning, design, permitting, and construction management of water, wastewater and reclaimed water infrastructure projects for public municipalities in Florida. Their experience in providing studies and reports for South Florida municipal clients includes: Broward County's Retail Water and Wastewater Masterplan, Palm Beach County's Wastewater Masterplan, and RBUD Utility Water and Wastewater Masterplan as well as multiple preliminary design and value engineering reports for water and wastewater treatment facilities and pump stations.

Mark Drummond, PE, BCEE - CS (Fort Lauderdale, FL)

Stoner & Associates, Inc. (SA) is a CBE Professional Land Surveying Consultant, located in Jupiter, Florida and, is a Palm Beach County certified Small Business Enterprise (SBE). The firms mission is to provide quality Land Surveying services, while utilizing the latest technology and techniques. Stoner & Associates, Inc. has performed Land Surveys for most municipalities and numerous governmental agencies and private clients within the Tri-County Area. The company's client list includes both private and municipal clients. Representative recent project clients include Coral Springs Improvement District, Fort Pierce Utilities Authority, City of Port St. Lucie, Martin County Utilities, Palm Beach County Water Utilities Department, East Central Regional Water Reclamation Facility in West Palm Beach, Okeechobee Utility Department, City of Lake Worth, City of Key West, and Florida Power & Light.

James Stoner, PSM – SAI (Davie, FL)

Bailey Engineering Consultants, Inc. (BEC) is a CBE multi-disciplined consulting engineering firm specializing in electrical, instrumentation and SCADA system design. They provide consulting engineering services to the public and private sectors with preferential services for municipal and governmental clients. In April 1992, Bailey Engineering Consultants, Inc. was formed. They are a second-generation consulting engineering firm located in Cooper City, Florida. Our experience includes projects with emphasis on electrical and SCADA system designs for water, wastewater, collection facilities, drainage projects and movable bridges located throughout Florida. Bailey Engineering Consultants, Inc. is staffed to provide electrical and instrumentation engineering services from inception through design, bid, and construction completion.

Stephen Bailey, PE - BEC (Cooper City, FL)

Jay Libo-On, EI - BEC (Cooper City, FL)

Chen Moore and Associates (CMA) is a multi-disciplinary consulting firm with offices in Broward, Miami-Dade, Palm Beach, Orange and Alachua Counties. Founded in 1986, Chen Moore and Associates specializes in civil and environmental engineering; landscape architecture; planning; GIS analysis and mapping; transportation, streetscaping and traffic improvements; construction administration; wastewater collection, transmission, treatment, reuse and disposal; pump station design and rehabilitation; water supply, treatment, and distribution; stormwater system design and master plans; and modeling and permitting of drainage, water distribution, and sewer collection. Dr. Chen founded Chen Moore and Associates with a belief that relationships are the key to the planning, design and construction of successful projects. The firm is committed to providing responsive quality services while meeting the schedules and specific project needs of our clients.

Peter Moore, PE, ENV SP, LEED AP -CMA (Fort Lauderdale, FL)

Safiya Brea, PE, LEED AP - CMA (Fort Lauderdale, FL)

McNabb Hydrogeologic Consulting, Inc. (MHC) is a Southeast Florida-based hydrogeologic consulting firm specializing in deep injection well design, permitting, resident construction observation, and reporting services. Their focus is to provide efficient, value-oriented services to every one of our clients. The staff at McNabb Hydrogeologic Consulting offer over 35 years of Florida hydrgeology consulting experience, most of which has been focused on deep injection well systems. Company staff's strong rapport with regulators and a thorough understanding of regualtory issues related to injection well design, permitting, testing, construction and operation allow us to minimize permitting time and capital costs for their clients.

David McNabb, PG – MHC (Jupiter, FL)

JLA Geosciences, Inc. (JLA) was established in 2003 to provide clear solutions for its clients based on an in-depth knowledge of hydrogeology, groundwater, well systems, regulations and issues that affect water supply development. Their firm's success has been largely due to their absolute "hands on" approach and involvement in every project. The principal hydrogeologists and professional geologists at JLA have the experience and local presence to make the right choices when and where it is needed: on time and on site. JLA maintains the firm belief that hydrogeology is a field science and that a successful hydrogeologic consultant must consistently provide excellence in the field.

James Anderson, PG – JLA (Jupiter, FL)

Paul M. Stout, PhD, PG – JLA (Jupiter, FL)

The Brown and Caldwell Team Resumes

Our committed team and key local management staff clearly and uniquely understand the County's vision, goals, and needs.

Full resumes are included with our Bid sync submittal as an attachment named "Team Resumes." These individuals are available to serve Broward County immediately and bring successful experience in their proposed roles.

Prime Consultant Resumes

1. Albert Perez, PE (Coral Gables, FL)
2. Celia Earle, PhD (Sunrise, FL)
3. Nigel Grace, PE (Sunrise, FL)
4. Kelly Comstock, PE, BCEE (Atlanta, GA)**
5. Wendy Broley, PE (San Diego, CA)**
6. Bill Eleazer, PE (Coral Gables, FL)
7. Jose Jimenez, PhD, PE (Orlando, FL)**
8. Al Sehloff, PE (Saint Paul, MN)**
9. Richard Stahr, PE (Charlotte, NC)**
10. Eli Tilen, PE (Coral Gables, FL)
11. Ruth Burney, PE (Sunrise, FL)
12. George Bloom, PE (West Palm Beach, FL)
13. Larry Vicars, PE, GC (Sunrise, FL)
14. Jennifer Leone, PE (Sunrise, FL)
15. Victor Hurlburt, PE (Sunrise, FL)
16. Diego Herrera, PE (Sunrise, FL)
17. Brian Scott, PE (Sunrise, FL)
18. Viviana Villamizar, EI (Coral Gables, FL)
19. Ana Velanca DeMelo, PE (West Palm Beach, FL)
20. Harry Tomlinson, PE (West Palm Beach, FL)
21. Lance Salerno, QEP (Irvine, CA)**
22. Simon Watson, PE (Murrieta, CA)**
23. Dane Jablonsky, PE (Virginia Beach, VA)**
24. Jeff Theerman, PE (St. Louis, MO)**
25. Robert Abordo, PE (Sunrise, FL)
26. Hector Serrano, PE (Sunrise, FL)
27. Robert Hrabovsky, PE (Orlando, FL)
28. David Crawford, RA, LEED AP, ENV SP
29. Ravi Ravisangar, PE (Atlanta, GA)
30. Melissa Jauregui, EI (Coral Gables, FL)
31. Mauricio Lara, PE (West Palm Beach, FL)
32. Ian Kruljac (College Station, TX)
33. Jennifer Myers, PE (Cleveland, OH)

***National Experts*

Subconsultant Resumes

34. Audra McCafferty, PE, LEED AP - MBC (Fort Lauderdale, FL)
35. Frank Brinson, PE - MBC (Fort Lauderdale, FL)
36. Rosana D. Cordova, PE, AICP, LEED AP - CRA (Pembroke Pines, FL)
37. Luis E. Rodriguez, PE - CRA (Pembroke Pines, FL)
38. Mark Drummond, PE, BCEE - CS (Fort Lauderdale, FL)
39. James Stoner, PSM – SAI (Davie, FL)
40. Stephen Bailey, PE - BEC (Cooper City, FL)
41. Jay Libo-On, EI - BEC (Cooper City, FL)
42. Peter Moore, PE, ENV SP, LEED AP -CMA (Fort Lauderdale, FL)
43. Safiya Brea, PE, LEED AP - CMA (Fort Lauderdale, FL)
44. David McNabb, PG – MHC (Jupiter, FL)
45. James Anderson, PG – JLA (Jupiter, FL)
46. Paul M. Stout, PhD, PG – JLA (Jupiter, FL)

Evaluation Criteria 2

Project Approach

A selection of projects that demonstrate our ability to proactively identify risks, work collaboratively with operational and regulatory stakeholders to solve complex challenges, and develop practical solutions that achieve desired results through planning and evaluation studies are summarized below and on the following page.

Hollywood Ocean Outfall Legislation Compliance

The Ocean Outfall Legislation (OOL) eliminates non-peak flow use of ocean outfalls for effluent disposal after 2025 and mandates the reuse of a minimum of 60 percent of the outfall Baseline Flow. The City's FDEP-approved Compliance Plan (developed by others) provided for the implementation of a Floridan aquifer recharge program to meet the City's 20.4 mgd reuse requirement at an estimated cost of approximately $300 million. Leveraging our historical integrated water supply planning role for the City, we raised concerns about the appropriateness of committing to recharge the Floridan aquifer. These concerns included, the lack of water supply need, competition between expanded reuse and other alternative water supplies (AWS) to which the City was committed, and the risks associated with the unprecedented step of using one AWS (reuse) to offset/recharge another AWS (Floridan aquifer). These considerations, led the City to re-engage the Florida Department of Environmental Protection (FDEP), with assistance from Brown and Caldwell, to develop a modified compliance plan.

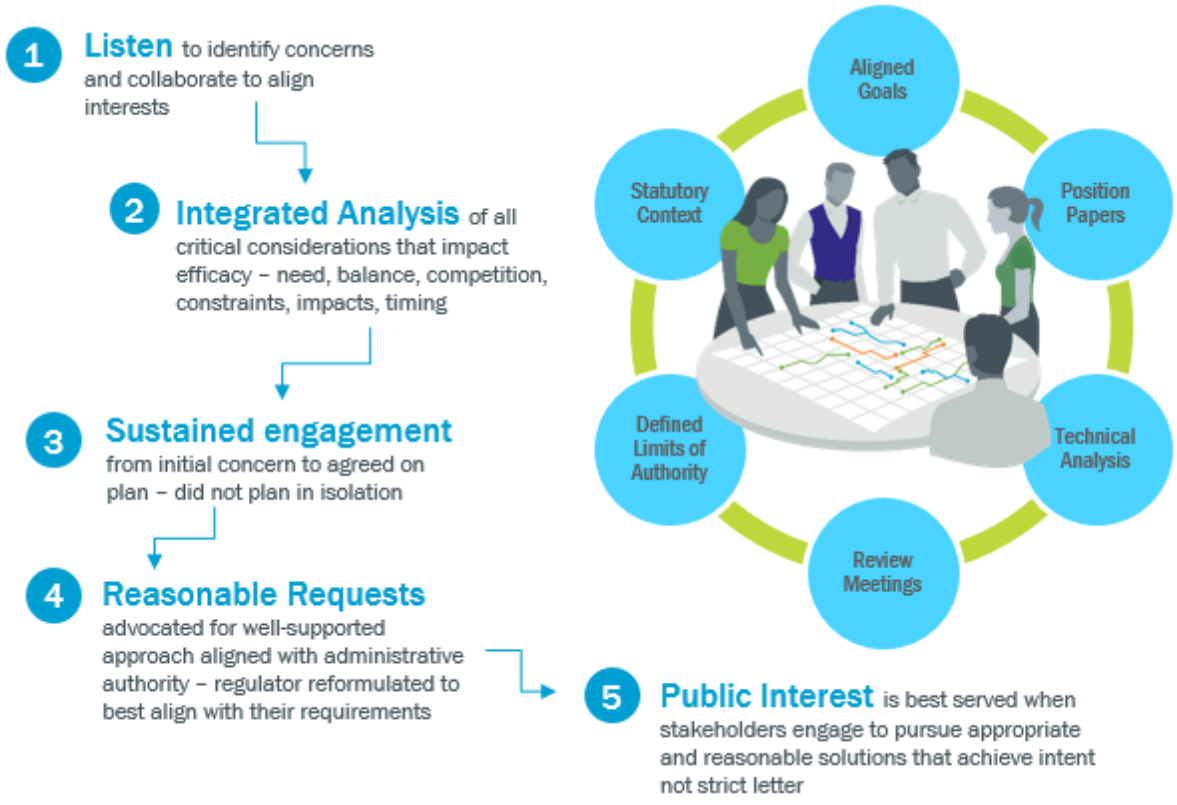
At the onset, the decision was made to create an open and collaborative engagement with the FDEP so they could, early in the process, develop a clear understanding of the City's concerns and weigh in with their expectations and requirements. This resulted in frequent conference calls among the key stakeholders that allowed Brown and Caldwell to focus its efforts on preparing studies and reports that addressed the most important factors that would be weighed in decisions regarding the approved modifications. The approach was a tremendous success. At the end of the process, 10.4 mgd of the City's reuse goal was determined to be infeasible. The remaining feasible reuse was to be achieved from a combination of contracted reuse with another entity, expansion of actual reuse that is not impacted by brackish groundwater influences and credits for in-process reuse of brackish reclaimed effluent. Collectively, the modified plan reduced the City's estimated compliance cost by approximately **$200 million** (67 percent).

This collaboration is continuing with the ongoing efforts to permit the construction of two injection wells that will allow the City of Hollywood to implement an integrated system for the disposal of its fluid water treatment residuals and effluent. This approach promises to greatly simplify residuals handling operations, improve reliability of the City's disposal infrastructure, increase reserve disposal capacity and further lower costs while enhancing environmental protection. Subconsultant – McNabb Hydrogeologic Consulting, Inc. (MHC)

Other examples of our approach and resulting impacts are summarized in the table on the following page.

Utility	Project	Approach	Impact
City of Hollywood	Distribution system water quality improvements	Collaborated with O&M and lab staff to assess and guide operational modifications (refer to detailed project description in Table 2b)	Increased chloramine residuals fivefold (to approx. 2 mg/L)
City of West Palm Beach	Master PS 5 and Interceptor Risk Assessment	Collaborated with FDOT and its engineer to assess risk of planned construction on City's Master PS.	FDOT incorporated supplemental asset protection measures
City of West Palm Beach	42/48 in. Force Main Condition Assessment	Engaged large user and O&M staff to develop/ model an operating plan to sustain flows required to transport inspection tool approx. 8 miles.	Complex operating scheme successfully implemented
Broward County WWS	Master Pump Station Assessment	Technical data driven assessment identified facility design and operating characteristics that promote ragging and inefficient operation.	Identified solution to improve performance and efficiency
City of St. Petersburg	SW WRF Peak Capacity Upgrades BODR	Emergency abatement of overflow vulnerabilities required expedited completion of design report for major process upgrades. Mobilizing over 20 specialists with very short notice.	Delivered design report in 6 weeks – 3 months ahead of schedule

The graphic below depicts the approach that was utilized for the Hollywood Ocean Outfall Compliance Project.



Our Innovative Mindset Guides our Technical Approach

In a dynamic utility operating environment, the complex interaction among the physical asset, operating staff, oversight stakeholders, and performance enabling systems/protocols has a great impact on outcomes. In recognition of this complex interplay – Brown and Caldwell employs an integrated problem-solving approach that centers on root cause analysis and collaboration with your team to yield practical and sustainable solutions. We find that collaboration in the analysis, lowers cost and create a strong sense of ownership of the solution that results in practical and successful outcomes.

Keys to our consistent success lie in getting the right expertise involved in the project at the very onset and consistently applying our proven project delivery protocols that are managed though our internally developed WorkSmart System.

Our Proven Systems and Protocols Produce Consistent Results

Continuing Engineering contracts require a broad range of technical experience and capability; availability of staff resources; responsiveness to the client's needs; ability to perform multiple, simultaneous projects; and a "can-do" attitude. The Brown and Caldwell team has a multidisciplinary staff and the local resources to handle virtually any size, type, or complexity of assignment. Brown and Caldwell has a proven delivery approach to work authorizations that is defined and methodical. This approach has been proven in our successfully delivery of projects locally and around the state. Our **"listen first" philosophy**, ensures that each project meets the County's goals and objectives. Delivery begins with our Client Service Manager, Dr. Celia Earle, who is the main point of contact, as well as our Project Delivery Officer, Mr. Nigel Grace, who is the second point of contact. They listen to your needs, understand the scope and desired outcome and engage the appropriate subject matter expert, and project manager. From that point forward, every work authorization will undergo the same delivery approach. This consistency of approach is extremely beneficial when managing multiple work authorizations because it adds accountability.

Celia Earle, PhD
Client Service Manager/
Quality Assurance Manager

Nigel Grace, PE
Project Delivery Officer

BROWARD COUNTY FLORIDA

- Clear Reporting of Budget & Schedule Performance
- Complete Accountability
- Financial & Resource Balancing
- Continuous Reporting on Project Status

Five-Step Work Authorization Management Approach

Brown and Caldwell's Work Authorization management approach has been proven on hundreds of successful contracts. It is designed to ease schedule and budget management and build in consistency and accountability.

1. Listen	2. Engage	3. Prepare	4. Execute	5. Close Out
Brown and Caldwell leadership confirms understanding of project scope, goals, key stakeholders, and critical success factors with the County.	Celia and appropriate to work authorization manager engage the optimum delivery team to align with the County's project goals, objectives, and critical success factors.	Celia and Brown and Caldwell work authorization manager leads development of scope, PMP, QA/QC Plan, RIsk Register and Health and Safety Plan (HSP).	Brown and Caldwell work authorization manager uses internal tools to execute the project, achieving stakeholder buy-in on critical decisions and delivery.	Leadership and team measure and celebrate success. Honest feedback and performance evaluation improve future project delivery.

1. Listen

The first step in our work authorization management approach is simple: once a new work authorization is identified, Brown and Caldwell will conduct a meeting with the County's team to review work authorization details to fully understand the assignment before taking action. For example: why was the project created, the purpose, what are the desired results, who are the stakeholders, and what are the expectations of the finished project?

Our leadership team will work with County staff to gain a clear understanding of drivers and desired outcomes, develop a collaborative mission, and reaffirm the critical success factors (CSFs) that are important to the stakeholders.

Development of the work authorization-specific CSFs at the onset of each work authorization assignment allows the Brown and Caldwell team to work with County to identify the most pressing issues and concerns — and County's desired results beyond the scope of work. The CSFs become a part of the preliminary scope statement so that the hand-off to the appropriate project manager and team is seamless. Typically, if we focus our solutions on meeting the CSFs, the project is a success.

2. Engage

Step two involves engaging the right team—from assigning the most fitting project manager, to drawing from the best technical expertise early in the project when it can make the most impact, to collaborating with the right stakeholders throughout the course of the project. Once Brown and Caldwell has committed a project team, the team will remain intact for the life of the project. We have found that having a committed team from beginning to end results in all team members having a clear understanding of the objectives and allows Brown and Caldwell to deliver the work authorization assignment in the most cost-effective manner. After initial mobilization, Brown and Caldwell will continue to engage all team stakeholders to ensure effective communication and responsiveness through the phases of the project.

3. Prepare

Creating a Rock-Solid Scope, Schedule, and Budget

Our assigned project manager will utilize our internal project management system, called WorkSmart, to access financial and schedule information each week (or daily for small, rapid burn projects) to monitor actual expenditures and progress against what was planned. WorkSmart is based on the Project Management Institute's Project Management Body of Knowledge, and is fully integrated with our company's accounting system. WorkSmart tracks a job—from before the proposal is submitted to the client—through project close-out. This multi-faceted tool integrates everything in one place, from the scope of client service, project team communications, document sharing and resource allocating, to evaluating risk, managing schedule, and monitoring budget.

After our project team has developed the work plan, Brown and Caldwell conducts multiple reviews for consistency, accuracy, and adequacy. We first conduct discipline reviews to garner strong buy-in by key staff that will be leading or working on portions of the work authorization assignment. Our Leadership Team will work together to confirm the alignment of the budget with the scope and committed resources to promote the success of the work authorization assignment. These reviews will happen before presenting the fee to the County at which time a Sunshine meeting will be held with the County's project management staff to review our proposal.

Completing these reviews is more than just a requirement; it is the way Brown and Caldwell proactively keeps focus on your priority, balances resources, and avoids preventable scope creep and change orders.

Implementing World-Class Controls

Prior to submitting the scope, schedule, and budget to the County for baseline approval and the work authorization assignment is authorized, the assignment's selected project manager will complete the launch of internal project controls by creating a profile in our project delivery system, WorkSmart. This profile will include critical milestones, work authorization/staff loaded budgets, quality control accountability measures, communication plan, health and safety plan, risk management controls, and other requirements that are necessary to promote a successful delivery. Before the County receives a draft of the scope and fee estimate, the Brown and Caldwell internal machinery will have been engaged to plan the project and commit the resources required deliver a successful project outcome.

Preparing Required Plans

During the initial stage, the project manager will also collaborate with County's staff to prepare required plans for the assignment. After the plans are approved by the County, Brown and Caldwell's project manager will update the WorkSmart Profile with the approved work authorization where they will serve as guides to the team to maintain compliance with the County's project delivery requirements and keep the work authorization assignment on track.

Our WorkSmart platform is the system that ties all the elements of our Project Management program together to yield consistent results that will surpass your expectations. Our assigned project managers will manage the projects using our internal WorkSmart program. WorkSmart simplifies, automates and coordinates project financials, schedule, the QA/QC process and invoicing. By integrating planning and tracking tools with relevant project requirements, WorkSmart helps project teams deliver projects on time, on budget and helps apply project management principles consistently across all projects.

Brown and Caldwell's WorkSmart™ System Provides Project Controls

Brown and Caldwell invested in and implemented a fully-integrated project delivery system called WorkSmart to simplify, automate, and coordinate project financials, schedules, QA/QC processes, and invoicing.

This system serves as a dashboard control tool, allowing our team to run queries and present data to Broward County on a real-time basis for any task at any time. Accessed via Brown and Caldwell's company intranet, WorkSmart is a proprietary project management platform that integrates with our firm's accounting, staffing, and resource scheduling systems. This system is used by all Brown and Caldwell project managers to implement the firm's best processes and practices across projects nationwide.

A single gateway through which all project attributes are entered and updated, WorkSmart employs an interactive web-based question and answer tool to identify requirements for independent reviews, QC checks, applicable Brown and Caldwell standards, expert involvement, and more. Our project managers use this tool to document each project's characteristics, requirements, and critical success factors.

This system additionally provides a single location for reviewers to coordinate and collaborate with the project manager and team. Quality reviewers and other internal stakeholders have full access to create, submit, and modify new project-specific requirements throughout the life of the project. A notification system keeps the entire team up-to-date on changes and new requirements related to each project, providing an easy means of communication, which ensures a cohesive and successfully delivered project.

Brown and Caldwell's integration of planning and tracking tools with relevant project requirements through the WorkSmart platform allows Brown and Caldwell project managers to deliver projects on time, within budget, and at a level of quality that exceeds client and industry standards.

Many collaboration tools, such as our risk register, are used to proactively anticipate and mitigate potential impacts to each project. Risk management discussions are included in meeting and workshops, especially constructability reviews and studies that incorporate significant uncertainties. This standardized approach, a key element of our ability to consistently deliver impactful results, is discussed further on the following pages.

4. Execute

Overall Contract Administration

Responsible for the management of the overall GEC Contract, Dr. Celia Earle, will lead the ongoing contract administration effort, which includes reporting of budget and schedule performance up to the County and internal financial and resource balancing to confirm that every work authorization assignment is on track.

Project Management Plan (PMP), Quality Management Plan (QMP), Risk Register (RR), and Health and Safety Plan (HSP)

Brown and Caldwell will follow our standard procedures to develop a PMP, QMP, RR, and HSP that will facilitate development of successful, quality County projects that proactively anticipate and mitigate surprises before they impact budget and schedule.

Forecasting, Monitoring, and Reporting

Tactics to monitor all concurrent work authorization assignments and forecast scope, schedule, budget, and risk factors include holding well-run weekly and month-end close meetings with key input by the work authorization managers. This allows our leadership team to proactively anticipate and resolve issues. Brown and Caldwell's monthly progress reports will follow the County's outline and include all information needed for monthly reports, including scope, schedule, and budget data.

Accountability

Clear performance expectations will be set to define clear roles and responsibilities, coach work authorization managers on County's priorities, and motivate project teams to accomplish the work. Nigel Grace will keep his finger on the pulse of all work authorization assignments, keeping each project manager focused and supported with the appropriate resources, and each team moving forward efficiently. Weekly project delivery officer briefings, roadblock reports, and month end close meetings with monthly progress reports are all accountability touch points. He will hold project managers accountable for executing the planning, design, and/ or construction phase work, but ultimately, he will serve as the single point of accountability to the County.

Scalability

Our approach is completely scalable and flexible. For example, depending on forecasted work authorization assignments and project-specific requirements, Nigel may lead individual work authorizations on his own.

Weekly project delivery officer briefings, roadblock reports, and month-end close meetings with monthly progress reports are all accountability touch points.

5. Closeout

In the closeout phase, the leadership team, project team, and stakeholders will measure and share feedback to improve future project delivery as well as celebrate success. Brown and Caldwell believes that proper project closeout will provide information and data for use in future projects. This promotes continuous learning and positions us to enhance the efficient delivery of impactful solutions with each new assignment.

Contract and administrative closeout

Brown and Caldwell will complete internal closeout procedures including:

- Prepare a complete set of indexed project records for archiving by the appropriate parties
- Archive final project deliverables
- Meet with the project team to capture lessons learned
- Update project-specific or program-wide historical databases
- Notify the accounting department to close the project from all time and expense charges and submit a final invoice

Final project documentation, closeout, and follow-up is initiated 1 to 4 weeks after final project deliverables are submitted.

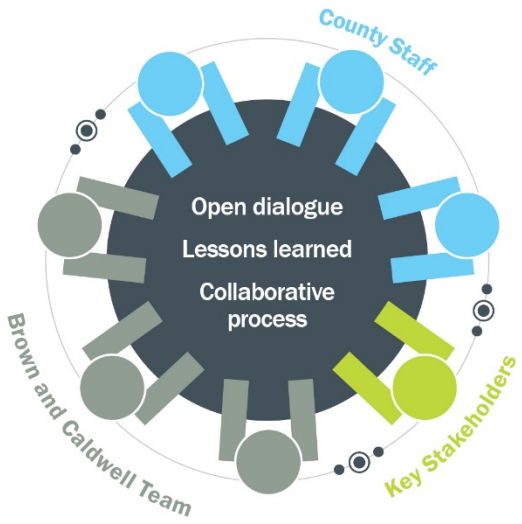
Feedback and knowledge transfer for continual improvement

Brown and Caldwell will maximize the value we deliver to the County by holding ourselves accountable and monitoring our own performance. We will share and document lessons learned for all stakeholders so that the close of each work authorization assignment brings knowledge gained on proven business practices, technical information, and management tools for continued use on future assignments.

Celebrating success with you

When a work authorization assignment has been successfully delivered, our leadership team will identify noteworthy accomplishments to celebrate with the County to recognize key contributions and recognize the furtherance of the County's goals achieved. Pausing to celebrate success is not only an important activity to refresh and reinvigorate project teams, but it also reinforces direction and helps to build commitment to the County's long-term vision.

The Brown Caldwell team will establish and maintain open communication throughout each project to ensure the County and key stakeholders are well informed.



Evaluation Criteria 3

Past Performance

Brown and Caldwell's Recognition

- #7 ENR Top 20 Design Firms in Sewer
- #14 ENR Top 20 Design Firms Water
- #12 ECM Top 40 Electrical Design Firms
- #13 Top 20 Environmental Firms in WWTP
- #47 ENR Top 500 Design Firms

Delivery and Performance, You Can Count On

Our team has demonstrated an unparalleled blend of proven knowledge of the County's utility system derived from experienced professionals who are well positioned to continue to advance the County's goals. Brown and Caldwell has worked alongside County staff and has considered itself to be a partner with Broward County in dealing with challenges faced by the County. Our team has relevant experience solving similar challenges for other Florida systems. Our team offers valuable continuity that will assure responsive and impactful results that build upon lessons learned from the past.

A Proven Partner in Florida Operations

Since the early 1980's, Brown and Caldwell has supported the engineering needs of several Florida utility systems across a diverse array of service areas. We have delivered impactful results in planning, compliance, operational optimization, asset management and implementation of improvements that are well aligned with the County's needs.

Brown and Caldwell's Florida municipal continuing contract clients

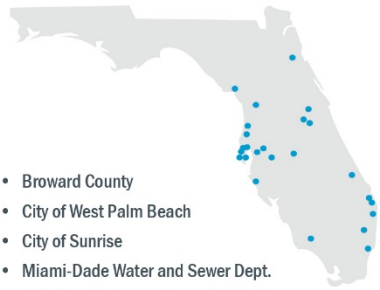
Brown and Caldwell provides similar continuing contract services to more than 25 Florida public clients. A partial list of these clients and related map is shown to the right. Our client focus is on cities, counties and governmental agencies. The list contains a broad array of municipal clients and three of the five Water Management Districts throughout Florida. We have an excellent track record of performing under continuing professional services contracts and our firm-wide service areas align perfectly with the County's needs. We invite you to contact our references to hear firsthand from our clients about our successful delivery.

Recent and relevant municipal experience

With a solid track record of delivering water, wastewater, reclaimed water and water resource projects in Florida and throughout the U.S., we understand the challenges that public utilities are facing as they comply with regulations; address population growth and impacts of climate change; and grapple with aging infrastructure. Brown and Caldwell has a comprehensive resume of in-house services that we can offer to the County. On the following pages, we have included featured projects within the last five years that demonstrate our expertise in the following categories:

- Water treatment plant projects
- Water distribution and sewer collection projects
- Water management infrastructure projects
- Information technology projects
- Wastewater regulatory issues
- Water supply and treatment regulatory issues

Brown and Caldwell provides similar continuing contract services to more than 25 Florida cities, counties and utilities. A partial list is included below.



- Broward County
- City of West Palm Beach
- City of Sunrise
- Miami-Dade Water and Sewer Dept.
- Palm Beach County Water Utilities Department
- East Central Regional Water Reclamation Board
- South Florida Water Management District
- Southwest Florida Water Management District
- City of Hollywood
- City of St. Petersburg
- Pinellas County
- Sarasota County
- Pasco County
- City of Tampa
- City of Clearwater
- City of Largo
- City of Haines City
- Orange County Utilities Department
- City of Sanford
- City of Tavares
- Reedy Creek Improvement District
- Hernando County
- Collier County
- Tampa Bay Water
- Indian River County

For Broward County, we have performed the following within the past five years:

Water Treatment/Quality

- 4-Log Virus Inactivation Study for District 3A
- 3B and 3C 4-Log Evaluation
- Water Treatment Plants 1A and 2A Chemical System Evaluation - BODR

Water/Wastewater Operational Assessments

- Master Pump Station 462 Assessment Study
- Technical Review of District 1A rTCR Compliance Program

Wastewater/Reclaimed Water

- Basis of Design Report, Detailed Design, Permitting and Bidding for the Reclaimed Water Plant Expansion Project
- North County Reuse Feasibility Study
- Effluent Pump Station Electrical Assessment

Water Supply and Management

- Assessment of Alternative Water Supply Plans in Multi-Year CIP
- Aquifer Storage and Recovery Feasibility Study
- Alternative Water Supply Master Plan Update for District 1A (upcoming)

Buried Infrastructure

- 3BC Sanitary Sewer System Feasibility Study
- 3A Collection System Hydraulic Model
- Collection System Chloride Infiltration Study
- Hillsboro Pines NIP Survey
- Gen. Incidental Services (Update of WTP 1A Electrical Option)
- Sanitary System Survey
- NRWWTP Disposal System Survey
- Analysis of Alternatives for implementing a replacement for Intracoastal Waterway Forcemain Crossing
- 3BC Septic Elimination Memorandum (underway)
- Modeling of Reclaimed Water Transmission System

Planning/General Assessments

- Water and Wastewater Systems Annual Reports 2013, 2014, 2015, 2016, and 2017 (underway)
- WTP 3A Site Plan Assistance
- Customer Service Call Center Assessment
- Independent QA/QC Peer Review
- Phase 1 – Advanced Metering Infrastructure (AMI) Assessment (upcoming)

Brown and Caldwell's Service Areas

BC's comprehensive in-house practice areas most relevant to the County are summarized below.

Service Areas

Wastewater Treatment
- Wastewater Treatment Plant (WWTP) Facility Design & Improvements
- Wastewater Operating Systems
- Wastewater Collection, Treatment & Disposal
- Biosolids Management & Odor Control
- Treatment Optimization
- Hydraulic, Process, & Water Quality Modeling
- Energy Recovery & Use
- Pilot & Full-Scale Investigations
- Permitting & Regulatory Assistance

Public Utility Infrastructure
- Pipeline Planning, Design & Rehabilitation
- Pumping Stations
- Water Storage Systems
- Trenchless Technology Applications
- System Master Plans
- Condition Assessments (Pipeline/Structure/Mechanical)
- Infiltration/Inflow Assessments (SSES)
- Hydraulic Modeling

Sustainable Development
- Climate Change Adaptation
- Combined Heat & Power
- Green & Sustainable Remediation
- Greenhouse Gas Management
- Sustainable Development
- Triple Bottom Line Analysis

Electrical & Process Automation Services
- Electrical Engineering Design
- Instrumentation Engineering Design
- Arc Flash Hazard Analysis
- Electrical & Power System Analysis
- Control System & SCADA
- Energy Audits

Operation & Maintenance Services
- CMOM
- Maintenance Assessment
- Operational Management System
- Reliability Centered Maintenance
- Operations & Maintenance (O&M) Documents

Reclaimed Water/Reuse
- Feasibility Investigations
- Treatment Technology Evaluation
- Treatment, Pumping, Storage & Distribution Design
- Policy & Institutional Arrangements
- Permitting & Regulatory Assistance
- Market Assessment & End-User Interface
- Public Involvement & Public Communications Program Development

Utility Business Consulting
- Organization Management
- Master Planning
- Asset Management & CMOM Compliance
- Security Assessments
- Grant Assistance
- Bond Engineering
- Outsourcing/Procurement Advisory Services
- Public Education & Awareness
- Emergency Response Planning

Construction Management/ Administration
- Field Inspection
- Field Testing
- Construction Schedule Review
- Cost Estimating & Control
- Document & Information Management
- Facility Start-up
- Value Engineering

Environmental Services
- Soil & Groundwater Remediation
- Environmental Assessments & Investigations
- Management Systems
- Air Quality Management
- Industrial Water Quality
- Fuel System Management
- Pollution Prevention

Information Technology
- Information Systems Planning & Implementation
- Business Intelligence Solutions
- Business Process Optimization
- Geographic Information Systems (GIS)

Potable Water Treatment
- Water Treatment, Transmission & Distribution
- Water Supply Blending
- Hydraulic & Water Quality Monitoring
- Permitting & Regulatory Assistance

Water Supply Development
- Groundwater, Surface Water & Alternative Sources
- Aquifer Storage & Recovery (ASR)
- Wellfield Development
- Wellhead Protection Plans
- Demand Offset (Reuse) & Conservation
- Permitting Assistance

Alternative Energy Services
- Geothermal
- Waste-to-Energy Plants
- Landfill Methane Gas Recovery Energy
- Manure Digestion Energy
- Biodiesel Fuels
- Biomass & Digestion Energy
- Ethanol/Methanol
- Fats, Oils & Grease
- Low-Impact Hydroelectric
- Wind Energy & Solar Power/Photovoltaic Energy

Traditional Energy Services (Heat & Power)
- Feasibility Studies & Permitting
- Electric Power Plants
- CNG/LNG
- Cogeneration/Combined Heat & Power Plants
- Wastewater Digesters

Stormwater Management
- Stormwater Drainage Systems/Facilities Engineering
- Best Management Practices (BMPs)
- Permitting & Compliance Assistance
- Wetland Mitigation, Rehabilitation & Management

3a. Water Treatment Plants

Describe experience and provide specific examples of projects designing, permitting and providing construction management for on water treatment plants of a capacity greater than 5 million gallons per day (peak capacity) in the state of Florida within the last ten (10) years. For each project listed, identify your firm's role as a prime consultant or as a sub-consultant.

Table 3a. Water Treatment Plants

	Project Name/Role	Reference	Project Description
Broward County	**3B and 3C 4-Log Evaluation** Role | Prime Duration | 2015-2016 On time | Yes On budget | Yes	Broward County Water and Wastewater Services 2555 W Copans Road Pompano Beach, FL Greg Balicki, PE T | 954.831.0903 E | gbalicki@broward.org	The 3B and 3C water storage and pumping facilities receive and distribute treated water from the City of Hollywood, which relies on compliance monitoring for ground water rule compliance. Each service area has a storage tank and high service pump station, and the 3C tank has permanent booster chlorination and ammoniation facilities. Each site is relatively constrained, with limited space available to perform breakpoint chlorination to achieve the required CT for virus reduction, with the 3B site being somewhat larger than the 3C site. BCWWS requested that Brown and Caldwell develop a conceptual-level analysis of specific alternatives for providing 4-log virus treatment at the 3B and 3C facilities. Brown and Caldwell had previously developed this for the County's 3A facility.
Broward County	**District 1A and 2A Facilities Chemical Feed Systems Upgrades** Role | Prime Duration | 2015-2016 On time | Yes On budget | Yes	Broward County Water and Wastewater Services 2555 W Copans Road Pompano Beach, FL Greg Balicki, PE T | 954.831.0903 E | gbalicki@broward.org	BCWWS Districts 1A (16 mgd) and 2A (40 mgd) water treatment plants utilize conventional lime softening of the Biscayne aquifer water supply for the removal of hardness and dissolved organics. Certain chemical systems (ferric chloride, polymer, fluoride, and certain portions of the sodium hypochlorite system) at both facilities require varying degrees of rehabilitation. Also, BCWWS is considering converting both facilities from anhydrous (gas) ammonia to either 19 percent aqua ammonia or liquid ammonium sulfate (LAS) to reduce the risk profile of its facilities. Brown and Caldwell evaluated the potential conversion from gas to aqua ammonia at both facilities, and developed a Basis of Design Report covering rehabilitation of the ferric chloride, fluoride, polymer, and sodium hypochlorite systems at the 2A facility.
Palm Beach County Water Utility Department	**PBCWUD Water Quality** Role | Prime Duration | 2016-2018 On time | Yes On budget | Yes	Palm Beach County Water Utilities Department 8100 Forest Hill Blvd West Palm Beach, FL 33413 Ali Bayat T | 561.493.6128 E | abayat@pbcwater.com	PBCWUD retained Brown and Caldwell to assess the cause, develop strategies and implement improvements to address chloramine residual decay in certain areas of the distribution system. Brown and Caldwell implemented a comprehensive phased approach that initially looked at the main system (supplied by 4 WTPs) operating dynamic and progressively narrowed the focus to the 30 mgd System 8 treatment plant and service area. The scope of the analysis ranged from the raw water supply to the customer connections and included modeling, operational assessment, specialized testing, data analysis, development of operating/maintenance protocols, process optimization and development of recommended capital improvements. Highlights included: Assessed wellfield water quality and its impact on treatment performance; identified and implemented process operating, control modifications, and process monitoring improvements that improved residual stability across the WTP; worked collaboratively with PBCWUD staff and its design engineer on its anion exchange expansion project; and identified capital improvements to improve residual control and filtration performance.
Winter Haven	**Van Fleet Water Production Facility Expansion and Well APT** Role | Prime Duration | 2011 - 2015 On time | Yes On budget | Yes	Polk County Utilities 1011 Jim Keene Blvd. Winter Haven, FL 33880 Mark Addison, PE T | 863.298.4214 E | markaddison@polk-county.net	This project consisted of the field investigations, design, permitting, bid phase support and construction engineering-inspection services for the construction of a water production facility expansion from a peak capacity of 3.0 mgd to 14.5 mgd. The water production facility, which is supplied by a wellfield, is located in the Polk County Northeast Regional Utility Service Area (NERUSA). Based on the age and condition of the equipment, improvements to the Van Fleet WPF were recommended in the Polk County NERUSA Master Plan. The design effort for these improvements included replacing the high service pumps, well pump controls and backup generator fuel tanks, as well as adding a new electrical building and exterior concrete pump slab (for the new high service pumps), and evaluating the existing High Service Pump building and other site infrastructure. In addition to the design effort, an Aquifer Performance Test (APT) and associated report of the Van Fleet Production Well was to be conducted and submitted to the South West Florida Water Management District (SWFWMD).

3b. Water Distribution System and Sewer Collection System

Describe experience and provide specific examples of projects designing, permitting and providing construction management for municipal water distribution system and sewer collection system infrastructure in the state of Florida within the last five (5) years. For each project listed, identify your firm's role as a prime consultant or as a sub-consultant. Further identify your firm's role in the project for discipline, expertise, and work element provided. Provide references for all cited projects – completed and active.

Table 3b. Water Distribution System and Sewer Collection System

	Project Name/Role	Reference	Project Description
City of Hollywood	**Water Main Replacement Projects** Role | Prime Duration | 2013-present On time | Yes On budget | Yes	City of Hollywood 1621 N. 14th Avenue Hollywood. FL 33022 Steve Joseph, PE T | 954.921.3522 E | sjoseph@hollywoodfl.org	Brown and Caldwell provided design, permitting, and construction management services for water distribution system improvements for approximately 29,000 linear feet of new potable water main. This project involved work within a busy Florida Department of Transportation (FDOT) right-of-way, advanced permitting requirements, complex maintenance of traffic (MOT) considerations, the use of trenchless construction methods such as horizontal directional drill (HDD), and work with existing large diameter pre-stressed concrete cylinder pipe (PCCP). This project was successfully implemented with no change orders. Brown and Caldwell is in the process of surveying, geotechnical investigations, design, permitting, bidding, and limited construction administration services for the replacement of approximately 60,500 linear feet of water mains. Included is the replacement of all water mains located within the Hollywood Boulevard right-of-way including FDOT permit applications for Roadway Right-of-Way construction. It also includes the design of five horizontal directional drills.
City of West Palm Beach	**Water and Wastewater General Engineering Consulting (GEC) Services** Role | Prime Duration | 2014-present On time | Yes On budget | Yes	City of West Palm Beach 401 Clematis Street West Palm Beach, FL 33402 Jay Kwag, PE T |561.494.1041 E | hjkwag@wpb.org	The City retained Brown and Caldwell to serve as one of its GEC Consultants. In that role, Brown and Caldwell has provided wide-ranging services in support of the operation, planning and upgrades of its water and wastewater system. Examples of the diverse projects conducted under this contract include: Condition assessment of Master Pump Station #5 and influent gravity sewer; lift station rehabilitation design to convert to submersible configuration; lift station relocation and sewer realignment; preparation of a Water System Capacity Analysis Report; Lift Station (LS) 5 system modeling and force main size analysis to determine required upgrades for reconfigured operation; hydraulic modeling of Ibis collection system basin to troubleshoot operation challenges; design of major water main tie-in in a high-risk corridor; and design of force main relocation using trenchless technologies.
City of Hollywood	**As Needed Services: Distribution System Water Quality Improvements** Role | Prime Duration | 2016-present On time | Yes On budget | Yes	City of Hollywood 1621 N. 14th Avenue Hollywood. FL 33022 Steve Joseph, PE T | 954.921.3522 E | sjoseph@hollywoodfl.org	The City of Hollywood observed declining chlorine residuals within a limited area of its system. Although the City took prompt action to remedy this problem, the maintenance of residual levels remained a challenge. After being engaged by the City, Brown and Caldwell rapidly mobilized to characterize system operational factors that could impact observed performance. Recommended improvements were identified and implemented that resulted in significant improvement in residual levels. Distribution system operating protocols were modified to establish appropriate measures to take in response to observed excursions. Brown and Caldwell worked closely with City staff at all levels to fully characterize the issues and develop solutions that were realistic, readily implementable and addressed optimization opportunities from treatment to distribution system operations. Chlorine residuals in the most challenging area of the system have increased from less than 0.5 mg/L to approximately 2 mg/L.

3c. Surface Water Management

Describe experience and provide specific examples of projects designing, permitting and providing construction management for drainage, canal, and surface water management structures in south east Florida within the last five (5) years. For each project listed, identify your firm's role as a prime consultant or as sub-consultant. Further identify your firm's role in the project for discipline, expertise, and work element provided. Provide references for all cited projects – completed and active (Name, email, phone and address).

Table 3c. Surface Water Management

	Project Name/Role	Reference	Project Description
South Florida Water Management District	**Pump Station S-5A Repowering and Automation** Role | Prime Duration | 2016-present On time | Yes On budget | Yes	South Florida Water Management District 3301 Gun Club Road, B-2, 3rd Floor West Palm Beach, FL 33406 Jerry Flynn, Lead Construction Manager T | 561.682.2609 E | gflynn@sfwmd.gov	Design of improvements for refurbishment, repowering and automation of Pumping Station S-5A, a 4,800-cfs pump station that is critical to the South Florida Water Management District's mission of providing flood control in South Florida. The project included a Pre-Design Technical Evaluation to identify the best alternatives for replacing or refurbishing the six 1600-HP diesel engines, double chain drive speed reduction units, and 116-inch diameter horizontal axial flow pumps at the 50-year old pump station. Based upon this evaluation, a decision was made to refurbish the existing engines, chain drives and pumps rather than replace them. Project also included mechanical, structural, architectural, civil/site, electrical, and instrumentation and control improvements to modernize the pump station and bring it up to current District standards in all areas.
South Florida Water Management District	**C-44 Reservoir/S-401 Pump Station Construction Management** Role | Prime Duration | 2016-present On time | Yes On budget | Yes	South Florida Water Management District 3301 Gun Club Rd. West Palm Beach, FL 33406 Jennifer Gent, Project Manager T |561.682.2668 E | jgent@sfwmd.gov	Brown and Caldwell provided construction management services for the construction of the S-401 Pump Station for the C-44 Reservoir/STA Project. The S-401 Pump Station construction contract includes the construction of a 21,000-square foot, fully operational, three-story pump station building with four 275 cubic feet per second (cfs) electric pump systems and the remaining 600 feet of the C-400 Intake Canal. Brown and Caldwell's scope included full time construction inspection, materials testing, and acting as the owner's representative. The project achieved substantial completion in March 2018. Brown and Caldwell has been recognized by SFWMD for outstanding performance and has ensured that all documentation, technical review, and correspondence is complete and accessible and provided on time in accordance with Contract requirements.
South Florida Water Management District	**Compartment B Stormwater Treatment Area Project** Role | Prime Duration | 2006-2012 On time | Yes On budget | Yes	South Florida Water Management District 3301 Gun Club Rd. West Palm Beach, FL 33406 Matt Alexander, SFWMD T | 5616822580 E | malexand@sfwmd.gov	The SFWMD implemented an extensive program to improve water quality, timing, and delivery to the Everglades. As a part of this program, the District utilizes a network of large constructed wetlands known as Stormwater Treatment Areas to achieve a reduction in total phosphorus concentrations from runoff associated with agricultural operations. The Compartment B Project is a component of the Revised Part 2 of the Long-Term Plan for Achieving Water Quality Goals (Long-Term Plan) that allowed the State of Florida and the District to fulfill their obligations under the Everglades Forever Act (EFA, F.S. 373.4592) to further assist the existing STAs in improving the quality of water entering the Everglades Protection Area. Brown and Caldwell successfully met a fast-track project schedule to comply with a legal mandate for a flow-capable system. We designed this project from conceptual phase through final phase and provided engineering during construction for the five separate contracts required to build Compartment B.

3d. Information Technology Solutions for Water and Sewer Utility

Describe experience and provide specific examples of projects designing, specifying, implementing, or supporting information technology solutions with specific applications to the municipal water and sewer utility industry in Florida within the last five (5) years. For each project listed, identify your firm's role as a prime consultant or as sub-consultant. Further identify your firm's role in the project for discipline, expertise, and work element provided. Provide references for all cited projects – completed and active (Name, email, phone and address).

Table 3d. Information Technology (IT) Solutions for Water and Sewer Utility

	Project Name/Role	Reference	Project Description
City of Hollywood	**Billing System Assessment and Migration Planning** Role | Prime Duration | 2012-2013 On time | Yes On budget | Yes	City of Hollywood 1621 N. 14th Avenue Hollywood. FL 33022 Steve Joseph T | 954.921.3522 E | sjoseph@hollywoodfl.org	The City of Hollywood Utilities engaged Brown and Caldwell to assist with the assessment of the existing Utilities Billing System and planning for the upgrading and migration of the billing function and system from the City's Treasury Department to Utilities. As part of this effort, Brown and Caldwell conducted a gap assessment of the existing system, identified upgraded capabilities to incorporate into the new system and provided overall guidance regarding the preparation and approach that was necessary to facilitate a smooth transition.
Orange County Utilities	**Automation Master Plan** Role | Prime Duration | 2012-2014 On time | Yes On budget | Yes	Orange County Utilities 9150 Curry Ford Rd Orlando, FL 32825 Ray Hanson T |407.254.9550 E | ray.hanson@ocfl.net	Brown and Caldwell was tasked to develop and assist in the implementation of a Utility-wide Automation Master Plan (AMP) to leverage improvements in automation technology for the improvement of compliance assurance, data management and cost-control. This project included a comprehensive review and assessment of existing assets and systems, operational protocols, IT policies and security restrictions, and potential program costs. Brown and Caldwell then applied our team's industry-leading technical expertise to apply advanced and cutting-edge technologies and methods to improve automation and advance a number of utility goals. Key to the overall program were a number of IT and data-sharing issues, including recommendations on mobile technology and data-management software, interconnection of servers and systems between facilities and departments, integration of new systems with County cyber-security and software standards, and proposed training programs to ensure seamless transition and efficient system use. The final deliverable included a prioritized list of projects to achieve the utility's goals, as well as one-page summaries of each proposed project to streamline staff assignments and promote project and program clarity into the future.
Miami-Dade Water and Sewer Department	**Plant Wide Electrical Improvements – BODR** Role | Prime Duration | 2008-2017 On time | Yes On budget | Yes	Miami-Dade Water and Sewer Department 3071 SW 38th Avenue Miami, FL 33146 Humberto Codispoti T | 305.275.3124 E | HCP@miamidade.gov	Brown and Caldwell completed a Basis of Design Report for a brand new 44,000 square foot Electrical Switchgear/Generator facility to serve the entire North District WWTP. The existing electrical service facilities, including the main switchgear building, power distribution and standby power facilities, have exceeded their useful life. More critically, the existing electrical facility and standby generators are at one of the lowest elevations at the plant site and significantly below the required elevation to meet recently developed sea level rise and storm surge requirements memorialized in the Ocean Outfall Legislation Compliance Plan. This project consisted of developing the electrical, structural, architectural, civil and building mechanical basis of design criteria to replace the existing Main Electrical Switchgear Building and Standby Generators with a brand new Electrical Switchgear/Generator Building. The proposed building will house 10 (ten) 2865kW emergency generators, a main switchgear room, transformer rooms, a control room and a break room.

3e. Regulatory Issues Related to Wastewater Treatment and Disposal

Describe experience and provide specific examples of familiarity with regulatory issues related to wastewater treatment and disposal specific to south east Florida utilities. At a minimum, cite specific examples of the following: experience with ocean outfalls, experience with reclaimed water, or experience with Class I deep injection wells. For each example listed, identify your firm's role as a prime consultant or as a sub-consultant. Further identify your firm's role in the project for discipline, expertise, and work element provided. Provide references for all cited projects – completed and active (Name, email, phone and address).

Table 3e. Regulatory Issues Related to Wastewater Treatment and Disposal

	Project Name/Role	Reference	Project Description
Broward County Water and Wastewater Services	**Broward County Water and Wastewater Services' (BCWWS) North Regional WWTP Reclaimed Water Plant Expansion** Role | Prime Duration | 2015-present On time | Yes On budget | Yes	Broward County Water and Wastewater Services 2555 W Copans Road Pompano Beach, FL Greg Balicki, PE T |954.831.0903 E | gbalicki@broward.org	Besides curtailing the use of the ocean outfall as a primary means of disposal, the Ocean Outfall Rule also mandates the implementation of a wastewater reclamation program with a minimum capacity of 60 percent of the facility's Baseline Flow above and beyond current reclaimed water application. Broward County tasked Brown and Caldwell to perform pre-design, detailed design, bidding and permitting services, and engineering services during construction for the expansion of the existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The bids received on the project were within 1 percent of our estimated $53 million construction cost. Major project elements include construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include: integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-ins, modeling of operating conditions from startup to buildout, coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.
City of Hollywood	**As-Needed Services: Ocean Outfall Rule - Reuse Compliance Strategy Development** Role | Prime Duration | 2015-present On time | Yes On budget | Yes	City of Hollywood 1621 N. 14th Avenue Hollywood. FL 33022 Steve Joseph T | 954.921.3522 E | sjoseph@hollywoodfl.org	Among other requirements, the Ocean Outfall Legislation, mandates the implementation of a wastewater reclamation program with a minimum capacity of 60 percent of the facility's Baseline Flow above and beyond current reclaimed water application. The City of Hollywood's compliance plan (developed by others) and approved by the FDEP provided for the implementation of a Floridan Aquifer recharge program to meet the City's reuse requirement. The original program (estimated to cost approximately $300 Million), while technically feasible, faced challenges relative to environmental and economic factors. Since that time, Brown and Caldwell has worked with the City, in conjunction with the FDEP, to develop an integrated strategy that has resulted in agreement on a feasible reclaimed water compliance approach that leverages contracted reuse opportunities and maximizes the use of effluent that is not impacted by brackish groundwater influences. Because of this effort, the aquifer recharge element of the original plan was eliminated and the actual reuse to be implemented was limited only to the amount determined to be technically, environmentally and economically feasible. Thus, due to the realignment of its compliance plan, the City has realized an estimated cost savings of approximately $200 Million from its baseline plan.

City of Hollywood

Assessment of Alternatives for Backup Disposal of Concentrate

Role | Prime
Duration | 2016-2017
On time | Yes
On budget | Yes

City of Hollywood
1621 N. 14th Avenue
Hollywood. FL 33022
Steve Joseph
T | 954.921.3522
E | sjoseph@hollywoodfl.org

Until the construction and commissioning (in 2014) of a concentrate disposal well at the WTP that was designed for the co-disposal of concentrate and secondary effluent, the City relied exclusively on the ocean outfall for disposal of its concentrate. Since the commissioning of the concentrate disposal well, the Outfall has served as a backup disposal method. Once the outfall is closed; the City will be left with no backup method of disposing of its water treatment concentrate. Without a backup means of disposal, the City could be constrained in its ability to run its nanofiltration and reverse osmosis processes during periodic mechanical integrity testing activities on the concentrate deep injection well. Furthermore, the existing effluent disposal wells at the City's wastewater treatment plant (WWTP) cannot serve as an alternate means of disposal because they are not appropriately equipped, as required under the EPA Underground Injection Control Rule, to accommodate concentrate waste streams. The City's desire is to maintain the ability to co-dispose of its concentrate and wastewater effluent at the WWTP. The City's most recent outfall closure plan does not specifically address the concentrate disposal needs. Consequently, Brown and Caldwell developed and evaluated alternative methods of providing for backup disposal of concentrate once the outfall is closed. This analysis provides for concentrate disposal requirements to be addressed in an integrated and coordinated manner with other required secondary effluent disposal improvements.

Subconsultant: McNabb Hydrogeologic Consulting, Inc.

Miami-Dade Water and Sewer Department

Surface Water Quality Monitoring Plan (SWQMP)

Role | Prime
Duration | 2012-2015
On time | Yes
On budget | Yes

Miami-Dade Water and Sewer Department
3071 SW 38th Avenue
Miami, FL 33146
Humberto Codispoti
T | 305.275.3124
E | HCP@miamidade.gov

On February 20, 2012, the Florida Department of Environmental Protection (FDEP) issued the Miami-Dade Water and Sewer Department (MDWASD) a Domestic Wastewater Facility Permit Renewal (Permit No. FL0032182), to modify and operate its North District Wastewater Treatment Plant (NDWWTP). The NDWWTP provides secondary treatment with disinfection before discharge to the ocean outfall in order to provide sufficient treatment to meet permit requirements. This permit was accompanied by Administrative Order No. AO 06-006-DW 13-SED, issued under the authority of Sections 403.086(9) and 403.088 of the Florida Statutes, and pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. This Administrative Order establishes an enforceable compliance schedule consistent with the requirements of Permit Conditions and those of the referenced sections of the Florida Statutes. Compliance with the Administrative Order is a specific requirement of the permit renewal (MDWASD, Annual Compliance Report, July 2013). Item 5 of the Administrative Order requires that MDWASD prepare and submit a SWQMP associated with the ocean outfall. MDWASD, with assistance from Brown and Caldwell, prepared and submitted a preliminary SWQMP to the FDEP for review on May 18, 2012. This was subsequently approved by the FDEP on September 15, 2012. The testing performed under this SWQMP, which commenced in October 2013 and has been completed, satisfies the minimum requirements of the Administrative Order as detailed in the approved test plan. The testing performed along the Southeast Florida Coastal Region will be utilized by the FDEP in support of their development of numeric nutrient criteria.

3f. Water Supply and Treatment

Describe experience and provide specific examples of familiarity with regulatory issues related to water supply and treatment specific to south east Florida utilities. For each example listed, identify your firm's role as a prime consultant or as a sub-consultant. Provide references for all cited projects – completed and active (Name, email, phone and address).

Table 3f. Water Supply and Treatment

	Project Name/Role	Reference	Project Description
Broward County Water and Wastewater Services	**Broward County Water and Wastewater Services rTCR Assessment** Role | Prime Duration | 2018 On time | Yes On budget | Yes	Broward County Water and Wastewater Services 2555 W Copans Road Pompano Beach, FL Greg Balicki, PE T | 954.831.0903 E | gbalicki@broward.org	Broward County WWS' District 1A service area receives supply from the 1A WTP. The 1A WTP employs conventional lime softening followed by filtration and free chlorine disinfection to the degree necessary to achieve compliance with overall 4-log virus reduction standards prior to distribution. In an attempt to identify opportunities to optimize the stability of secondary residual and control of microbial activity, the County conducted a self-assessment and subsequently requested that Brown and Caldwell conduct an independent review of their historical and current practices. From the analysis conducted, Brown and Caldwell was successful in identifying improvements to process control and stored water inventory management practices that are expected to further improve overall performance.
City of Hollywood	**Water Supply Ten Year Facility Plan Update** Role | Prime Duration | 2015 On time | Yes On budget | Yes	City of Hollywood 1621 N. 14th Avenue Hollywood. FL 33022 Steve Joseph T | 954.921.3522 E | sjoseph@hollywoodfl.org	The City of Hollywood retained Brown and Caldwell to prepare a 2014 Water Supply Facilities Work Plan Update Amendment (WFPUA) that will become adopted into the City's Comprehensive Plan as required by Subsection 163.3177(6)(c)3 of the Florida Statutes. The WFPUA included public and regional water supply facilities that serve existing and new development within the City of Hollywood's service area. Water supply facilities include raw water supply infrastructure, treatment facilities, and transmission, distribution and associated storage infrastructure. This update is required by law to coordinate the City's water supply plan element with the most recent regional water supply plan update.
City of West Palm Beach	**WPB Capacity Analysis Report 2015** Role | Prime Duration | 2015-2016 On time | Yes On budget | Yes	City of West Palm Beach 401 Clematis Street, 2nd Floor West Palm Beach, FL 33402 Jay Kwag, PE T | 561.822.1400 E | hjkwag@wpb.org	Brown and Caldwell prepared the Capacity Analysis Report (CAR) for the City to address the status and capacity adequacy of source water supply, treatment, transmission/distribution systems and storage facility. A review of 10-year historical flows was conducted together with a 10-year forecast of water demand and other relevant parameters.
City of Sunrise	**Water Use Permit Modification** Role | Prime Duration | 2012-2013, present On time | Yes On budget | Yes	City of Sunrise 777 Sawgrass Corporate Parkway Sunrise, FL 33325 Tim Welch | 954.888.6037 T | 954.888.6037 E | twelch@sunrisefl.gov	Brown and Caldwell assisted the City of Sunrise in developing an updated Water Use Permit Application for their groundwater supply. The purpose of this application was to request a modification of Water Use Permit No. 06-00120-W for the City of Sunrise (City). This was not submitted upon development as the City wanted the opportunity to assess potential future alternative water supplies that were being discussed. The project included gaining additional Biscayne Aquifer capacity by strategically using reclaimed water, additional Floridan aquifer capacity, evaluation of groundwater withdrawal impacts, developing operational/rotational schedules for well fields and submitting a permit application and Basis of Review report to the South Florida Water Management District. We are currently integrating the C-51 Reservoir into the permit application.

Evaluation Criteria 4

Workload of the Firm

Brown and Caldwell performs thousands of projects nationwide. As such, for this proposal, we will not list the firmwide projects, but focus on most of those performed within Florida within the past two years. The table below shows the projects handled by Brown and Caldwell's Florida offices including project name, client, and completion date. Ongoing projects on which our key proposed staff (Client Service Manager and Project Delivery Officer) are actively involved are in blue. This shows that while Brown and Caldwell is engaged with diverse projects around the state, our proposed leadership team is highly focused on a few South Florida projects of which will be completed by October 2018. The analysis that follows demonstrates that our proposed team has the capacity to continue supporting the County's continuing engineering needs.

Project name	Client name	Completion Date
Cleanup at GIT St. Petersburg, FL	Advanced Information Systems-GDAIS	4/28/2018
PC GD-GIT St Petersburg	Advanced Information Systems-GDAIS	3/26/2018
Broward Co_Reuse Plant Expansion	Broward Co Water & Wastewater Serv	9/5/2021
Tech Rev Dist 1A rTCR Comp Program	Broward Co Water & Wastewater Serv	4/19/2018
3A Hydraulic Model	Broward Co Water & Wastewater Serv	2/2/2018
Chloride Profile Study	Broward Co Water & Wastewater Serv	12/5/2017
ASR Viability Study	Broward Co Water & Wastewater Serv	4/28/2018
MPS 462 Ragging Assessment	Broward Co Water & Wastewater Serv	3/26/2018
Customer Service Call Center Assess	Broward Co Water & Wastewater Serv	11/13/2017
3BC Septic Tank Elimination Anal. Memo.	Broward Co Water & Wastewater Serv	8/2/2018
FY 17 Annual Report	Broward Co Water & Wastewater Serv	7/28/2018
Lakes Eva & Henry Restoration Study	City of Haines City	4/26/2018
Misc Engineering Services 2018	Clearwater, City of (FL)	4/28/2018
NEWRF Clarifier Leak Repair	Clearwater, City of (FL)	4/26/2018
ECR Headworks Construction Services	East Central Regional Wastewater Tr	3/22/2018
On-Call ECRWRF Electrical Services	East Central Regional Wastewater Tr	3/29/2018
As-needed Engineering Services 2018	Flagler Beach, City of	3/27/2018
SEP Task Orders-Ongoing	Gulf Consortium	4/28/2018
FY 17 Engineering Services	Hernando, Cnty of, Waste Mgmt (FL)	3/22/2018
2018 Eng and Reg Support Services	Hernando, Cnty of, Waste Mgmt (FL)	4/10/2018
Site Investigations for CD LF Exp	Hernando, Cnty of, Waste Mgmt (FL)	4/9/2018
CD Landfill Expansion Design	Hernando, Cnty of, Waste Mgmt (FL)	4/19/2018
Countryway Blvd. Odor Control Eval	Hillsborough County Public Util(FL)	4/26/2018
Falkenburg Headwork Screen BDR	Hillsborough, County Water Dpt (FL)	4/30/2018
Reject Pumping - Valrico WWRF	Hillsborough, County Water Dpt (FL)	4/28/2018
Water Main Design and CMS	Hollywood, City of (FL)	8/15/2020
As-Needed Services 2	Hollywood, City of (FL)	2/9/2018
Backup Concentrate Disposal Plan	Hollywood, City of (FL)	3/10/2018
Water Main Replacement 3	Hollywood, City of (FL)	10/15/2019
2017 GEC As Needed 1	Hollywood, City of (FL)	7/28/2018
Largo Wet Weather Monit. & Pump Sys	Largo, City of (FL)	4/28/2018
POCTS I and I Reduction Plan	Largo, City of (FL)	10/25/2017
I-9 Sanitary Sewer Sys Improvements	Largo, City of (FL)	1/4/2018
As Needed Water Hydraulic Modeling	Largo, City of (FL)	12/22/2017

NDWWTP Chlorine and Toxicity Study	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
NDWWTP Disinfection System Restart	Miami-Dade, Cnty Water & Sewer (FL)	1/3/2020
NDWWTP DIW PS Design Improvements	Miami-Dade, Cnty Water & Sewer (FL)	7/2/2018
PSIP - PS 449	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
PSIP - PS 331	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
NDWWTP Headworks Svcs During Const	Miami-Dade, Cnty Water & Sewer (FL)	7/2/2018
PSIP - PS 440 (Phase 2)	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
PSIP PS 672	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
PSIP PS 336	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
PSIP - PS 1026	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
PSIP - PS 1065	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
PSIP PS 596	Miami-Dade, Cnty Water & Sewer (FL)	12/31/2018
Reuse Compliance Assistance (TA 1)	Miami-Dade, Cnty Water & Sewer (FL)	7/27/2018
NDWWTP Effluent PS Electrical BODR	Miami-Dade, Cnty Water & Sewer (FL)	6/14/2019
New Electrical Building PreDesign	Miami-Dade, Cnty Water & Sewer (FL)	2017
OOL-SDWWTP-Design Package 1	Miami-Dade, Cnty Water & Sewer (FL)	11/15/2019
Three Mile Creek I and I Modeling	Mobile Area Water and Sewer System	10/01/16
Utility Master Plan Update	Mobile Area Water and Sewer System	3/13/2018
Three Mile Upgrade Design Support	Mobile Area Water and Sewer System	09/28/18
2016 Orange City SRF Comp Support	Orange, City of (FL)	09/28/18
OC-TA 18 CIP Tracking	Orange County Utilities Dept (FL)	12/31/16
OC TA 26 Gravity Project 3	Orange County Utilities Dept (FL)	09/15/15
OC-TA 30 Gravity Project 4	Orange County Utilities Dept (FL)	05/30/17
OCU TA 07 Gravity 5	Orange County Utilities Dept (FL)	07/31/16
OC-TA 33 Force Main 3	Orange County Utilities Dept (FL)	04/30/17
OC DB Cmp Phase II Project III	Orange County Utilities Dept (FL)	06/01/19
OC TA 16 Gravity 11-20	Orange County Utilities Dept (FL)	09/30/17
Automation and Energy MP Phase II	Orange County Utilities Dept (FL)	05/01/17
OC - TA 08 Field Service Division	Orange County Utilities Dept (FL)	09/28/17
OC-TA 010 Gravity 6	Orange County Utilities Dept (FL)	04/09/18
OC-TA 11 SWAP Phase 3	Orange County Utilities Dept (FL)	09/28/17
OC-TA 014 Program Mgt. Svcs 2016	Orange County Utilities Dept (FL)	02/25/17
OC-TA 015 On-Site Dev Engr Svcs Sp	Orange County Utilities Dept (FL)	11/30/17
OCU - TA 020 Maximo Assistance	Orange County Utilities Dept (FL)	08/24/17
OC - TA 027 SCADA Technical Support	Orange County Utilities Dept (FL)	04/15/17
OC - TA 013 Data Management	Orange County Utilities Dept (FL)	03/30/17
OC-TA 023 CMOM_EMS Assistance	Orange County Utilities Dept (FL)	06/12/18
OC-TA 022 CS and F-O Business Plan	Orange County Utilities Dept (FL)	05/25/17
OCU-TA 28 MP Station Inspection	Orange County Utilities Dept (FL)	4/26/2018
OC-TA 029 Standards Manual Update	Orange County Utilities Dept (FL)	12/31/16
OC-TA-30-Berry Dease FM Inspection	Orange County Utilities Dept (FL)	05/30/18
OC-TA35 Project Management 2018	Orange County Utilities Dept (FL)	9/17/2018
OC - TA 31 Pump Station Preliminary	Orange County Utilities Dept (FL)	10/05/2018
Maximo Impl Assist	Orange County Utilities Dept (FL)	4/23/2018
OC-TA 036 SWAP Implementation	Orange County Utilities Dept (FL)	6/20/2018
OC-TA 034 Radio Study	Orange County Utilities Dept (FL)	9/20/2018
Lift Station 5 Improvements Ph II	Orlando, City of (FL)	03/01/18
System 8 DS WQ Improvement Support	Palm Beach Cnty, Wtr Util Dept (FL)	1/10/2018
Pahokee WWTF Facility Planning(TA2)	Palm Beach Cnty, Wtr Util Dept (FL)	7/16/2018
WRNWWTF Process & Hydraulic Modeling	Palm Beach Cnty, Wtr Util Dept (FL)	6/4/2018

McMullen SR580 Water Main Design	Pinellas, County of (FL)	10/27/18
2017 Sewer Flow Metering	Pinellas, County of (FL)	11/30/17
2017 Annual EAOR SCBWRF	Pinellas, County of (FL)	4/20/2018
So. Svc Area Material Recovery Fac	Reedy Creek Improvement District	12/30/17
North Water Tower Park LID Design	Sarasota, County of (FL)	09/05/18
47th Street Drainage Improvements	Sarasota, County of (FL)	09/05/18
Reclaimed Water Main Interconnect	Sarasota, County of (FL)	4/28/2019
Box Turtle Circle Drainage Improvement	Sarasota, County of (FL)	04/30/17
Development Review and Model Update	Sarasota, County of (FL)	6/23/2019
CMOM Program Assessment	Sarasota, County of (FL)	4/30/2018
Palm Plaza Force Main Improvements	Sarasota, County of (FL)	4/26/2018
C-44 Reservoir-STA S- 401 PS CMS	South Florida Water Management Dist	09/30/18
PS 5-5A Repowering and Autom EDC	South Florida Water Management Dist	12/31/21
SFWMD SCADA EE Proj Manager	South Florida Water Management Dist	01/29/18
Technical Review Support	South Florida Water Management Dist	09/30/17
SFWMD BBCW L31E Culverts CMS	South Florida Water Management Dist	4/18/2018
Ch H-Duck Lake WMP Peer Review	Southwest Florida Water Mgmt Dist	10/26/18
Ch D-Charlie Cr SEFA Analysis	Southwest Florida Water Mgmt Dist	10/26/18
Ch D-Horse Cr SEFA Analysis	Southwest Florida Water Mgmt Dist	10/26/18
Ch D WAP Assessments	Southwest Florida Water Mgmt Dist	10/26/18
Ch D-FDOT Monitg-CircleBBar Reserv	Southwest Florida Water Mgmt Dist	10/26/18
Ch D-FDOT Monitoring-Ekker Tract	Southwest Florida Water Mgmt Dist	10/26/18
St Pete Biosolids Construction Ph	St. Petersburg, City of (FL)	06/30/19
SWWRF Capacity Expansion	St. Petersburg, City of (FL)	4/28/2018
Wet Weather Improvement Plan	St. Petersburg, City of (FL)	07/15/17
Sawgrass HLD– Phase 1_CMS	Sunrise, City of (FL)	8/28/2018
LS 117 and 307 Rehabilitation	Sunrise, City of (FL)	6/15/2018
CoS Reuse Distribution Sys Support	Sunrise, City of (FL)	4/10/2018
Springtree WWTP Headworks Design	Sunrise, City of (FL)	3/23/2018
Sawgrass WWTP Train A Design	Sunrise, City of (FL)	1/27/2018
LS 114, 123, 125, 132, 148 CA Svcs.	Sunrise, City of (FL)	6/28/2019
Anaerobic Treatment for Wastewater	Water Environment & Reuse Foundation	4/13/2018
LS 52 and 53 Rehabilitation	West Palm Beach, City of (FL)	7/13/2018
Water Main and FM Rerouting Design	West Palm Beach, City of (FL)	8/15/2018
LS 127 Modeling Ibis Basin FM Network	West Palm Beach, City of (FL)	10/12/2018
WM Tie-In CAS	West Palm Beach, City of (FL)	7/15/2018

The Brown and Caldwell team has the required staff availability to support any project assignment, large or small, within any reasonable time frame established by Broward County.

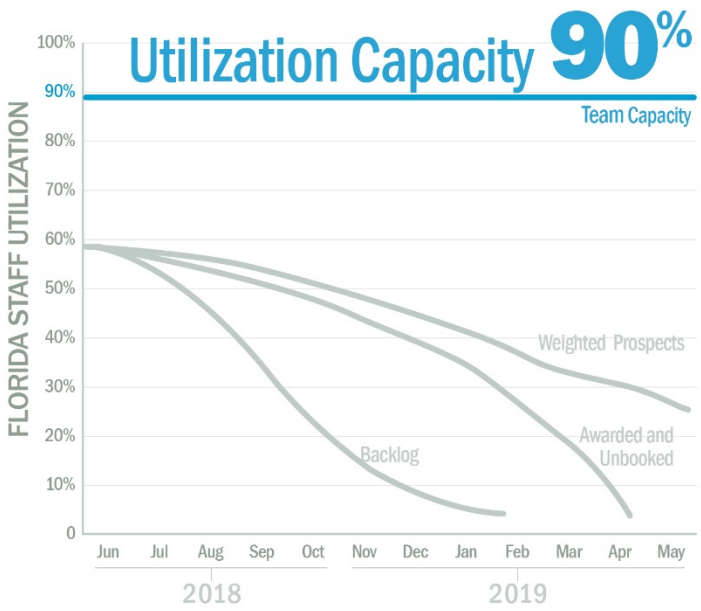
All service delivery initiatives begin and end with our Client Service Manager (CSM), Dr. Celia Earle, who has daily engagement with County staff across multiple parallel projects. She has the authority and a proven history of mobilizing the firm's technical resources needed to meet project specific needs. With ongoing engineering support of the County's utility needs that reaches back several years, the continuity of service will be assured.

Brown and Caldwell's past performance record with our clients demonstrates that we can successfully complete multiple work orders simultaneously. It is not unusual for us to manage multiple simultaneous work orders with similar performance schedules. We have achieved this high level of performance with dedicated project managers and project teams committed to each work order, allowing us to handle all work orders efficiently and effectively.

As a national firm with many clients, our project managers are accustomed to managing more than one project at a time. When a project need emerges, the first action will be for Dr. Earle and our Project Delivery Officer, Nigel Grace, to engage the County to understand the project requirements and establish a profile of the project management and technical resources to draw on. Depending on the project specific needs, a subject matter expert will be engaged to provide input regarding aligned firm experience, special considerations, scope development and quality assurance support. This team works collaboratively with County staff to define the scope in sufficient detail to ensure that your expectations are clearly understood and the team is positioned to "solve the right problem". Project delivery is built around our local team of Brown and Caldwell staff and subconsulting partners who are committed to support the County's engineering needs.

In assembling this local delivery team, Brown and Caldwell carefully considered current and projected workload as well as breadth of expertise needed when selecting the right team for this contract. As part of the Brown and Caldwell team development, each team member's workload was carefully reviewed to ensure availability and commitment for the duration of the County's contract. In summary, our team has advanced tools, established processes, discipline, and strong commitment to the County to meet the daily scope of services as required for the dynamic workload expected through this GEC contract. You have our commitment that they will be available to support County projects at the necessary time. Our Principal-in-Charge, Albert Perez, also has operational responsibility for the firm's Florida Operations and has the authority to make binding staff commitments. Brown and Caldwell will consider individual commitments when proposing team members for specific assignments. The Projected Florida Staff Utilization Graph, shows Brown and Caldwell's overall commitment/availability as a function of time. Our anticipated workload (i.e. backlog - currently authorized projects) is the lowest line of the three.

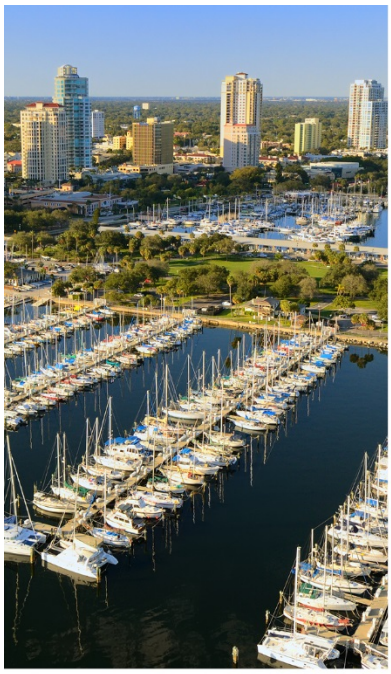
In preparing this proposal, we projected the availability of the Brown and Caldwell staff who will likely contribute to the work effort on County projects over the first 12 months following approval of the contract (anticipated August 2018). We are providing committed capacity to accommodate any size or type assignment from the County.



The Brown and Caldwell team proposed for this contract maximizes the use of locally available staff. Brown and Caldwell has over 1,600 personnel on staff that can augment our local team as needed for backup staffing capability to meet fast-track schedules. The graphic at left highlights Brown and Caldwell's Florida staff (i.e. backlog) commitment for one year after the estimated contract NTP.

As demonstrated throughout this section, Brown and Caldwell has more than adequate staffing capacity to complete any of the required services on schedule. **Even more important is that Brown and Caldwell, with more than 1,600 employees, has backup staffing capability in the event of unforeseen circumstances. The graph shown on the previous page is a real example of our depth and breadth of resources.**

Proven Partnership. Trusted Solutions.



Southwest Water Reclamation Facility Peak Capacity Upgrades BODR, City of St. Petersburg, Florida

Utilization of Brown and Caldwell's full resource capabilities throughout the firm helped deliver this fast-track project in 6 weeks - 3 months ahead of a schedule

As a result of significant wet weather events in 2015 and 2016, the City of St. Petersburg's Southwest Water Reclamation Facility received influent flows in excess of the facilities treatment capabilities and experienced significant overflows. The City selected Brown and Caldwell to expedite the investigation and recommendations to increase treatment solutions and the subsequent design. Upon approval of the scope of work, Brown and Caldwell delivered the Preliminary Design Report with design recommendations within 6 weeks which identified 8 fast track projects that would increase the peak hour flow through the facility from 40 MGD to 70 MGD. Utilizing Brown and Caldwell's national expertise and resources we supplemented the Tampa staff with an additional 20 + engineers, designers, coordinators, technical writers and administration from around the country to establish process area teams to focus on practical solutions and seamlessly accomplish this orchestrated effort and deliver the PDR ahead of the already fast-track schedule. Brown and Caldwell has recently completed the final signed and sealed design for all 8 fast track projects, within 10 weeks of the City's approval and is currently working with the City's Construction Manager for construction.

Broward County is a priority client to Brown and Caldwell – not just for our local office, but for the company. As such, we affirm that assignments under this continuing contract will be a priority for each key member of our team and our responsiveness will be second to none, as we have previously demonstrated to the County. As a Proven Partner, we remain committed to your success and look forward to working with County staff under this contract to provide Trusted Solutions for your projects while engineering an optimal future. Our proposed Leadership Team has been committed to Broward County for several years and is personally committed to continue placing the delivery of responsive and high-quality service as its primary goal.

Evaluation Criteria 5

Location

Brown and Caldwell excels in bringing the right resources to our clients.

Brown and Caldwell's principal place of business for our Broward County operation is located at:

1560 Sawgrass Corporate parkway, Suite 240, Sunrise, FL 33323

Our Client Service Manager/Quality Assurance Manager, Dr. Celia Earle, leads our Broward County operation and has responsibility for personnel, operations, and client delivery performance, as well as delegated authority to bind the firm's resources. Our Project Delivery Officer, Nigel Grace, is also located in that office.

We have organized our team to be nimble and responsive to the County's needs. Brown and Caldwell has three local offices in Broward County, Miami-Dade County, and Palm Beach County that collectively support our South Florida operations; they work seamlessly as one office. Service delivery for your projects will be managed out of our Broward County office under the leadership of our Client Service Manager/Quality Assurance Manager, Dr. Celia Earle, Project Delivery Officer, Nigel Grace, and our local supporting team.

Dr. Celia Earle will continue to serve as the main of point of contact for Broward County and additionally manage our quality assurance program and lead our planning efforts. Supporting the leadership team of Nigel and Celia will be several seasoned Brown and Caldwell Project Managers with the experience and track record to successfully execute projects.

In addition to the South Florida offices, Brown and Caldwell has three additional Florida offices. Beyond these local and regional resources, Broward County will have access to Brown and Caldwell's deep bench of technical expertise nationwide, as well as additional resources to be sure every milestone is met and the deliverable is completed on time.

Brown and Caldwell's Florida operations offers a strong local team, as well as a deep bench of national technical experts to ensure you have the resources needed to complete your projects.

Evaluation Criteria 6

Willingness to Meet Time and Budget Requirements

Brown and Caldwell is committed to delivering high-quality projects on or ahead of schedule and within your budget.

We can consistently meet our schedules and budgets by following a proven approach that uses 1) certified PM/highly qualified staff, 2) advanced tracking tools, 3) control processes, and 4) proactive risk mitigation. Our approach allows us to keep projects on track while enabling the project team members to focus their technical expertise to the best advantage. Our experience consistently has shown that the key to meeting schedules and budgets is careful planning combined with closely monitoring execution. Our team also recognizes the importance and value of problem prevention. Brown and Caldwell has successfully integrated several internal systems into our firm's culture that simplify, automate, and coordinate the project delivery process to reduce the risks associated with our projects. Our robust project management protocols (discussed in Evaluation Criteria 2) coupled with competent staff who are adhering to our proven methods further positions us to consistently meet our schedule commitments. The exhibits to the right, highlight our track record meeting schedule and budget commitments for complex and challenging projects. Our history with Broward County on dozens of projects of varied size and complexity, however, provide the best evidence of our commitment to meeting your budget and schedule expectations.

Early detection and mitigation of issues through scope, schedule, budget, and risk management leads to successful project delivery.

Our project management staff specializes in improving project value and reducing your risk by controlling the project's time, cost, and quality. We have developed proven project management methods over many years of conducting complex design and construction projects. These methods include initial project planning, project management information systems, value engineering assessments, cost estimating, regular construction inspections, on-site construction supervision, and continuous change order and claims management activities.

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Brown and Caldwell reduced review time and streamlined the approvals process through workshops with Miami-Dade Water and Sewer Department for the fast-track South District WWTP Cogeneration Facility. With our contractor partner, we delivered the $25M project on time and on budget.

For the recent $23M MDWASD North District WWTP Headworks Upgrades project, Brown and Caldwell delivered on time, on budget, and with an engineer's estimate that accurately predicted the construction bids opened in late 2015.

Brown and Caldwell helped the City of St. Petersburg significantly reduce fuel consumption, carbon footprint and realize forecasted savings of $20M over 20 years.

Evaluation Criteria 7

Volume of Previous Work

VOLUME OF PREVIOUS WORK ATTESTATION FORM

The completed and signed form should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to provide timely may affect the Vendor's evaluation. This completed form must be included with the Vendor's submittal at the time of the opening deadline to be considered for a Tie Breaker criterion (if applicable).

The calculation for Volume of Previous Work is all amounts paid to the prime Vendor by Broward County Board of County Commissioners at the time of the solicitation opening date within a five-year timeframe. The calculation of Volume of Previous Work for a prime Vendor previously awarded a contract as a member of a Joint Venture firm is based on the actual equity ownership of the Joint Venture firm.

In accordance with Section 21.31.d. of the Broward County Procurement Code, the Vendor with the lowest dollar volume of work previously paid by the County over a five-year period from the date of the submittal opening will receive the Tie Breaker.

Vendor must list all projects it received payment from Broward County Board of County Commissioners during the past five years. If the Vendor is submitting as a joint venture, the information provided should encompass the joint venture and each of the entities forming the joint venture. The Vendor attests to the following:

Item No.	Project Title	Solicitation/ Contract Number:	Department or Division	Date Awarded	Paid to Date Dollar Amount
1	Continuing Professiona	R1008103R1	BCWWS	8/13/2013	893,779.03
2	Consultant Services for	R1060205P1	BCWWS	12/9/2014	3,885,965.94
3					
4					
5					
				Grand Total	4,779,744.97

Has the Vendor been a member/partner of a Joint Venture firm that was awarded a contract by the County?

Yes ☐ No ☑

If Yes, Vendor must submit a **Joint Vendor Volume of Work Attestation Form**.

Vendor Name: Brown and Caldwell

Albert L. Perez, PE	Vice President	5/18/2018
Authorized Signature/ Name	**Title**	**Date**

Experience Summary

Mr. Perez is a progressive and visionary leader with over 23 years of experience in the water and wastewater business sector. Mr. Perez is a business manager with strong technical and financial competencies, and a demonstrated track record of leading large organizations. He is an experienced consultant with keen business acumen and a proven track record in utility management consulting, business development, program management, water and wastewater project delivery, and construction administration.

Prior to working with Brown and Caldwell, he served in the capacity of Utilities Director for the City of Hollywood, where he was responsible for the administration of the Southern Regional Wastewater Treatment Plant which provides wastewater service to several cities within Broward County. In his capacity as a utility administrator he has been directly involved in the implementation of large capital improvements projects including the development of key programmatic elements such as development of funding plans and alternative project delivery. Mr. Perez has been intimately involved in various regional initiatives of importance within Broward County including his role as chair of the Broward County Water Task Force Technical Team, and also direct involvement with Broward County and Miami-Dade County in a multi-year effort to address changes to Senate Bill (SB) 1302 also known as the Ocean Outfall Legislation. In addition to his experience in the area of utility administration, he has also been involved in the delivery of various projects throughout South Florida.

Assignment

Principal-in-Charge

Education

BS, Civil Engineering, Florida International University

Registration

Professional Engineer, Florida

Experience

23 years

Relevant Expertise

- *Utility Management Consulting*
- *Operations Performance Management and Optimization*
- *Capital Improvements Planning*
- *Alternative Project Funding Strategies*
- *Utility Master Planning*
- *Strategic Planning for Business Development*
- *Program Management*
- *Construction Management*

Studies and Reports, General Engineering Services, Broward County Water and Wastewater Services (BCWWS), Broward County, Florida

Principal-In-Charge. BC currently has a General Engineering Contract with BCWWS for Studies and Reports. Studies performed under this contract have included surveying, septic elimination, alternatives for intracoastal crossing, basis of design reports (BODRs), collection system modeling, and numerous others.

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Principal-In-Charge. BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

Ocean Outfall Legislation – Reuse Compliance Strategy, City of Hollywood, Florida

Principal-In-Charge. Development of an integrated Ocean Outfall Legislation strategy that has resulted in agreement on a feasible reclaimed water compliance approach that leverages contracted reuse opportunities and maximizes the use of effluent that is not impacted by brackish groundwater influences. Working closely with the City and FDEP, the aquifer recharge element of the original plan was eliminated and the actual reuse to be implemented was limited only to the amount determined to be technically, environmentally and economically feasible. The City has realized an estimated cost savings of approximately $200 Million from its baseline plan of approximately $300 Million.

General Engineering Services, Sunrise, Florida
Principal-In-Charge. BC currently has a General Engineering Contract with the City of Sunrise. Projects performed under this contract include a comprehensive Reuse Plan that will allow the City to more efficiently use their existing Biscayne aquifer supply, and multiple projects at the Sawgrass WWTP, including: headworks improvements, high-level disinfection facilities, and an aeration system efficiency study.

Pump Station Improvements Program, MDWASD, Miami, Florida
Accountable Approver. A program for compliance with an EPA Consent Order to bring the sewer pump stations into regulatory compliance. The program involved EPA Consent Order, program management, wastewater pump station design.

Infrastructure R&R Improvements and Asset Management Program, Orange County, Florida
Principal-In-Charge. Continuing services contract to establish a R/R program strategy for wastewater collection, water distribution and reclaimed water infrastructure. Scope includes evaluating the entire system and assisting the County to develop the strategy to make key decisions about which assets to rehab/replace and when and apply available funding to meet system needs. Services including condition strategic planning and utility performance consulting, assessments, evaluation, recommendations for improved processes and procedures, data management and tracking, R&R prioritization, and preliminary design.

Water and Wastewater Master Plan, City of West Palm Beach, Florida
Principal-In-Charge. Developed a comprehensive Water/Wastewater Master plan that models the City's systems and prepares a Capital Improvement Plan that includes deferred asset maintenance and repairs, as well as new infrastructure needed to serve the community for the next 20 years. This Plan is unique in that it fully integrates the CIP scheduling process with a rate model to assign and demonstrate financial feasibility for all projects – not only capital needs, but the associated O&M requirements for existing and future projects.

Distribution System Water Quality Improvements, Hollywood, Florida
Principal-In-Charge. The City of Hollywood had observed declining chlorine residuals along the north part of the barrier island during its routine water sampling activities. The source of the issue was identified, immediate actions were recommended, and longer-term solutions were proposed.

Potable Water Main Replacement Projects, City of Hollywood, Florida
Principal-In-Charge. Design, permitting, and construction management services for water distribution system improvements for approximately 29,000 linear feet of new potable water main. A second project that is in process involves the surveying, geotechnical investigations, design, permitting, bidding, and limited construction administration services for the replacement of approximately 60,500 linear feet of water mains.

Sawgrass Wastewater Treatment Plant (WWTP) Headworks Upgrades, Sunrise, Florida
Principal-In-Charge for the upgrade to the Headworks at the 15mgd (ADF), 42 mgd (PHF) Sawgrass WWTP. The upgrade consists of the replacement of existing screening systems with three perforated plates screens, new screenings compactors, replacement of mechanical equipment for the vortex degritting systems, new flow splitting systems for the aeration basins feed and new odor control collection and treatment systems for the headworks area.

Asset Management Program, City of West Palm Beach, Florida
Principal-In-Charge. The City of West Palm Beach Public Utilities Department manages, operates and maintains a 55 mgd Wastewater Treatment Plant, a 47 mgd Water Treatment Plant, over 1,000 miles of water and sewer mains, and 125 lift stations. The City contracted with BC to embark on the development of an Asset Management Program with a vision to develop an effective asset management organization that reduces the life cycle cost and impacts of asset ownership and enhances customer service through: Effective and Efficient Processes, Enhanced Systems, Highly Trained and Motivated Staff, and Commitment to Continuous Improvement. Specific tasks to be accomplished include: Assessment of Existing Asset Management Practices and Improvement Plan, Assessment of Information Systems (including Datastream CMMS), Establishment of an Asset Management Steering Committee, Asset Management Training Sessions, and Improvement Plan Implementation.

Experience Summary

Dr. Celia Earle is a degreed environmental engineer, environmental chemist, and microbiologist, and thus has a unique profile in the environmental arena. She has a breadth of knowledge and experience that includes planning, design, and construction administration for water, wastewater and reclaimed water systems, non-revenue water reduction and management, energy efficiency assessments, condition assessments, compliance assessments, program management, design-build delivery and various feasibility studies and investigations. She has consistently served as the firm's client service manager for Broward County Water and Wastewater Services, as well as the project manager for Broward County projects.

Assignment

Client Service Manager/Quality Assurance Maneger

Education

BS, Environmental Engineering University of Florida

BS, Microbiology & Cell Sciences University of Florida

MS Environmental Engineering University of Florida

PhD Environmental Chemistry University of Florida

Certifications

CSI-Certified Construction Documents Technologist (CDT)

Risk Assessment Methodology for Water (RAM-W^{SM})

Experience

23 years

Relevant Expertise

- *Drinking Water*
- *Reclaimed Water*
- *Infrastructure*
- *Master Plans*
- *Feasibility Studies*

Studies and Reports, General Engineering Services, Broward County Water and Wastewater Services (BCWWS), Broward County, Florida

Project Manager. BC currently has a General Engineering Contract with BCWWS for Studies and Reports, which allows it to serve needs across its utility. It excludes design and construction administration. Studies performed under this contract have included: surveying, 3BC septic tank elimination, alternatives for intracoastal crossing, Basis of Design Reports (BODRs) for the District 1A and 2A Water Treatment Plants, as well as the 4-Log implementation at the respective plants, collection system modeling, North County Reuse Feasibility, Alternative Water Supply CIP Assessment and Update, District 1A rTCE Compliance Analysis, Coastal Brackish Groundwater Infiltration Study and Mitigation Plan, Customer Service Center Analysis, and annual reports that are required by Bond Covenants, and others.

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Project Manager responsible for the BODR, detailed design, bidding and permitting services, and engineering services during construction for the expansion of BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed $53 Million expansion includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

Ocean Outfall Legislation – Reuse Compliance Strategy, City of Hollywood, Florida

Project Manager responsible for the development of an integrated Ocean Outfall Legislation strategy that has resulted in agreement on a feasible reclaimed water compliance approach that maximizes the use of effluent that is not impacted by brackish groundwater influences, as well as leverages contracted reuse opportunities. Brown and Caldwell, working in concert with the City and FDEP, resulted in the elimination of the aquifer recharge element of the original plan. In addition, the actual reuse to be implemented was limited to only the amount determined to be technically, environmentally and economically feasible. This is significant as the City has now realized an estimated cost savings of approximately $200 Million from its baseline plan of approximately $300 Million.

Alternative Water Supply Master Plan, Broward County Water and Wastewater Services, Florida

Project Manager for development of a scenario-based alternative water supply master plan for the County. This included development of water demand forecasts, needs estimation, development of various scenarios based on specific criteria, assessment of alternative water supply sources, evaluation/development of potential regionalization options, and mapping of the alternatives via a "what-if-then" model.

North County Reuse Feasibility, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Project Manager responsible for assessing the feasibility of extending reclaimed water into Lighthouse Point utility service area. This project established reclaimed water demand and equalization recommendations; assessed water quality constraints and available source water for "scalping" applications; evaluated reclaimed water treatment alternatives; conceptually laid out transmission and distribution infrastructure; and developed conceptual cost estimates for the implementation alternative.

Twin Lakes Neighborhood Improvements, Broward County Water and Wastewater Services, Broward County, Florida

Project Manager responsible for the development of contract documents for the Twin Lakes Neighborhood. This included sewer, stormwater, sidewalks, landscaping; everything except for water, which is handled by another City. This also included permitting services.

3B and 3C 4-Log Evaluation Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Project Manager responsible for the development of a conceptual-level analysis of specific alternatives for providing 4-log virus treatment at the 3B and 3C facilities; had previously developed this for the County's 3A facility. The 3B and 3C water storage and pumping facilities receive and distribute treated water from the City of Hollywood, which relies on compliance monitoring for ground water rule compliance. Each service area has a storage tank and high service pump station, and the 3C tank has permanent booster chlorination and ammoniation facilities. Each site is relatively constrained, with limited space available to perform breakpoint chlorination to achieve the required CT for virus reduction, with 3B site being somewhat larger than the 3C site.

Water Resources Regional Wellfield Operation and Maintenance Plan, Broward County Water and Wastewater Services, Florida

Deputy Project Manager responsible for establishment/documentation of baseline water quality and physical characteristics for individual wells; transient water quality variability during startup/shutdown of individual wells; an operating strategy for the raw water system that will attempt to balance the competing preferences of large users; assessment of possible causes for the elevated turbidity and development of a suitable plan for the initial purge and follow-up monitoring/flushing; and development of a maintenance plan aimed at maintaining the efficiency of the well fields, equipment mechanical integrity and water quality characteristics.

Evaluation of Alternative Intracoastal Waterway Crossings, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Project Director responsible for evaluation of several conceptual routing alternatives to establish a feasible redundant force main (FM) transmission corridor. In the vicinity of the Hillsboro Mile area, BCWWS operates four retail lift stations discharge to a Master Pump Station (MPS 220). From there, the wastewater is re-pumped through a 16-inch FM that crosses the Intracoastal Waterway (IWW) to emerge in the City of Lighthouse Point. The FM is the only transmission main in place to cross the IWW. The County's objective was to establish an alternative means of transmitting wastewater from the barrier island.

Filtration System Improvements for District 1A Water Treatment Plant, Broward County Water and Wastewater Services, Florida

Project Manager responsible for evaluation of existing filters, filter underdrain comparisons, investigation for implementation of air-assisted filter backwash, filtration media recommendations, and rehabilitation recommendations for structural and aesthetic defects in filter and clearwell walls.

Experience Summary

Nigel Grace brings more than 28 years of experience serving in wide-ranging roles in the management and direction of complex multi-disciplinary projects that draw on diverse skill sets in areas of technology applications, regulatory negotiations, and operational/process optimization. He also serves as one of the firm's water technology leaders and through this experience brings broad insights on emerging issues of concern and the complex challenges faced by the utility community. For over 25 years, he has served a wide array engineering needs for Broward County Water and Wastewater Services inclusive of master planning, water supply and water treatment system optimization, design, master planning and regulatory advocacy, and ongoing distribution system water quality optimization

Assignment

Project Delivery Officer

Education

BS, Chemical Engineering, University of Florida

ME, Environmental Engineering, University of Florida

Registration

Professional Engineer: 46605, Florida, 1992

Diplomate, American Academy of Environmental Engineers (BCEE), 2003

Risk Assessment Methodology for Water (RAM-WSM℠), 2002

Experience

28 years

Joined Firm

2011

Relevant Expertise

- *Water Quality Assessments*
- *Water, Wastewater, and Reuse Systems Planning, Design, and CA*

Water Supply/Wellfield Rehabilitation

1. Water Use Permitting – Project Delivery Officer

a. City of Miramar – obtained WUP that provided for utilization of the Floridan aquifer and expanded use of the Biscayne Aquifer with substitution offset credits
b. City of Hollywood – supported permitting with modeling of the Floridan Aquifer

2. Wellfield Assessment and Rehabilitation – Project Delivery Officer

a. City of Sunrise – led Springtree wellfield assessment and rehabilitation planning
b. Broward County WWS – assessment and rehabilitation BODR for District 2A Wells 8 and 9; development of wellfield operating plan for South County Regional Wellfield
c. North Miami Beach – contaminant plume migration modeling, monitoring and operational mitigation measures. Rehabilitation of failing wells.

Water Treatment – Process Optimization, Expansion and Rehabilitation

1. Lime Softening – various roles served

a. City of Sunrise – Springtree WTP 12 mgd expansion with lime softening, filtration, pumping and auxiliary systems
b. City of North Miami Beach – rehabilitation structural members of lime softening plant, upgrades to lime slaking/delivery system, filtration system improvements, air stripping and transfer pumping, raw water bypass treatment and softening process optimization demonstration testing
c. Broward County WWS – chemical feed systems assessment and BODR for District 1A and 2 A WTPs; District 2A 4 log disinfection upgrades and process assessment
d. Miami-Dade WASD – lime softening process optimization (Orr WTP); filtration improvements (Hialeah WTP); pilot testing of process improvements
e. West Palm Beach – Oversaw pilot investigation and implementation of comprehensive upgrades at 47 mgd WTP

2. Membrane Process Upgrades/Expansion (Project Director)

a. City of Hollywood WTP – Expansion of Floridan wellfield and RO process; upgraded existing nanofiltration and RO process; pilot tested process upgrades
b. City of Miramar RO WTP – expansion of existing nanofiltration process with RO membranes including design of Floridan wells.

Water Quality Improvement/Optimization

1. Distribution System Water Quality (Project Delivery Officer or Technical Director)

a. Broward County WWS – analysis of treatment and distribution system operational considerations contributing to rTCR compliance challenges in one service district
b. PBCWUD – extensive evaluation of treatment and distribution system operational factors contributing to low chloramine residuals. Implemented effective strategies.
c. West Palm Beach (WPB) – evaluated distribution system WQ and improvement strategy. Significantly improved monitoring and operational coordination among tanks systemwide.
d. Miami-Dade WASD (also WPB and several other systems) –corrosion control evaluation to develop optimum corrosions control strategy

e. City of Hollywood – evaluated treatment and distribution operations to develop and successfully implement strategies to improve chloramine residuals system-wide
f. City of Lauderhill – Total Coliform Rule compliance evaluation
g. North Miami Beach – conducted DS blending analysis to assess impact of introducing membrane treated water to system
h. Varied national studies to address optimization of DBPs, disinfectant residuals, corrosion/red water challenges, DS operational challenges, and varied WQ issues – Tampa, FL Houston, TX, Birmingham, AL, Columbus, GA, Virginia Beach, VA, among others.

2. Process Studies and Pilot Testing (various roles)
   a. West Palm Beach – WQ Enhancement Initiative/pilot testing of ozonation and biological filtration coupled with desktop evaluation of UV advanced oxidation for taste and odor control
   b. Broward WWS – raw water treatability study/bench-scale testing
   c. PBCWUD – biological regrowth control and ozone/biofiltration pilot investigation
   d. MDWASD – pilot evaluation of alternative treatment strategies to improve WQ (Preston WTP)
   e. Hollywood – pilot testing of alternative nanofiltration membranes

Water and Wastewater Buried Infrastructure Modeling Evaluation and Design

1. Water Pipelines - Planning and Modeling Evaluations (Project Direction)
   a. West Palm Beach – extensive modeling for master planning, water quality, fire flow, operational trouble shooting, construction impact analysis, and developer review applications
   b. PBCWUD – modeling for system operational optimization objectives
   c. Hollywood – system-wide modeling for planning and system-wide operational optimization
2. Buried Infrastructure Condition Assessment/Design (Project Direction)
   a. West Palm Beach – conducted modeling and operational plan for system-wide LSs in support of the condition assessment of the 42/48-inch ECR force main; support SSES surveys of collection system; inspection/assessment of major gravity interceptor; design water main tie-in closing of critical corridor and force main relocation using trenchless technologies.
   b. Hollywood – multiple projects involving the replacement of over 100,000 ft of water mains
   c. Miramar – design of approx. 5 miles of a 20/24 in diversion force main
   d. Pompano Beach – design of reclaimed water distribution system (8 to 24 in pipes)

Wastewater, Reclaimed Water, Residuals Planning & Assessments

1. Master Planning & Assessments (Project Direction)
   a. Charlotte County Utilities – oversaw development wastewater system Master Plan
   b. Broward County WWS – Project Engineer for development of Biosolids Master Plan
   c. Broward County WWS – Project Engineer for development of Class A biosolids product market assessment
   d. West Palm Beach – Oversaw preparation of Water and Wastewater Master Plan – including modeling of collection and force main system, sanitary sewer evaluation and condition assessment
   e. Coconut Creek – Oversaw development of reclaimed water master plan
2. Reclaimed Water/Ocean Outfall Legislation Compliance (Project Direction)
   f. Broward County WWS – Quality Assurance Manager for preparation of BODR for implementation of $53 million reclaimed water system expansion.
   g. Hollywood – Oversaw development of City's reuse compliance strategy (detailed below)
   h. Miami-Dade WASD – Oversaw development of County's reuse compliance strategy
   i. Pompano Beach – Technical oversight for design of reclaimed water transmission/distribution system expansion

Ocean Outfall Legislation – Reuse Compliance Strategy, Hollywood, Florida

Project Delivery Officer. The City of Hollywood's compliance plan (developed by others) and approved by the FDEP provided for the implementation of a Floridan Aquifer recharge program to meet the City's reuse requirement was estimated at approximately $300 Million originally. Nigel led the firm's efforts with working closely with the City, in conjunction with the FDEP, to develop an integrated strategy that has resulted in agreement on a feasible reclaimed water compliance approach that leverages contracted reuse opportunities and maximizes the use of effluent that is not impacted by brackish groundwater influences. Due to the realignment of its compliance plan, the City has realized an estimated cost savings of approximately $200 Million from its baseline plan.

Vice President

Kelly K. Comstock, PE, BCEE

Experience Summary

Kelly has over 21 years of experience in the planning, design, and construction of municipal water and wastewater treatment, conveyance, and storage facilities. He has extensive experience with assisting utilities in facility optimization, technology evaluation and implementation, and capital improvements. Kelly has led multi-disciplined design teams on projects with a combined capital value of over $500 million. He has experience with traditional design-bid-build as well alternate delivery. Kelly has extensive experience in conducting pilot studies and testing for filtration plants as well as in the design of disinfection systems. He conducted pilot testing, predesign, and final design for several of the largest drinking water systems in the Southeast.

Assignment

Quality Control/Technical Advisor (Water)

Education

MS, Environmental Engineering, Georgia Institute of Technology

BS. Environmental Engineering, University of Central Florida

Registration

Professional Engineer 73183, Florida, 2011

Professional Engineer 25047, Georgia, 1999

Professional Engineer 27286, South Carolina, 2009

Professional Engineer 038816, North Carolina, 2012

Experience

21 years

Relevant Expertise

- *Water and Wastewater Treatment*
- *Water and Wastewater Conveyance*
- *Water and Wastewater Storage Facilities*
- *Facility Optimization, Technology Evaluation and Implementation*
- *Pilot Studies and Testing*
- *Advanced Disinfection Selection and System Design*

Lake Moultrie Regional WTP Expansion, Moncks Corner, South Carolina

Lead Engineer. Designed a 12 mgd expansion for the 30 mgd Lake Moultrie Water Treatment Plant. Design components included a new intake, new raw water pump station, new superpulsator clarifiers and filters, new finished water pumping capacity, new chemical systems, including alum, PAC, sodium hypochlorite, liquid ammonium sulfate, fluoride, liquid slurry lime, corrosion inhibitor, and a new belt filter press for dewatering.

Sustainable Water Plan; Philadelphia Water, Philadelphia, PA.

Lead Engineer. This project includes the development of a 25-year water supply and distribution master plan and a framework for future defensible decision-making and a sustainable planning methodology. This includes working collaboratively with utility staff to develop and evaluate solutions for oversized water treatment plants, buried infrastructure condition, and other deficiencies. Responsibilities include leading facility evaluation, evaluating infrastructure alternatives and developing a phased capital improvement plan that meets the performance criteria.

Water and Wastewater Master Plan Update, Gwinnett County Department of Water Resources, Georgia

Project Engineer. Evaluated current and future water and wastewater conveyance and treatment system configurations and capacities. Included developing criteria for accurate prediction of future population, employment, water demand, and wastewater generation through the year 2050. Recommended alternative actions to be taken to operate existing plants and conveyance systems at optimum levels, and to ensure that future water demand and wastewater flows are accommodated. Developed needs for future water and wastewater treatment capacity, pump stations, gravity interceptors, wastewater collection and potable water distribution system piping, and implementation schedules, as well as financial requirements needed for future improvements, were provided. A WaterCAD hydraulic model of the water distribution system was developed to identify major water distribution system improvements required through 2050. Revenue increases to meet the County's future cash flow requirements were projected, as well as debt encumbrance, debt service, and general financial management goals.

Richland Creek Reservoir Program Management, Paulding County, Georgia

Program Manager. BC is performing program management services for all phases of this $215 million project including design and construction of a reservoir, river intake and raw water pipeline, water treatment plant, and distribution system improvements. In addition, BC is providing utility performance services including asset management, stakeholder engagement and communication, organizational alignment, data management and usage, workforce development, and additional funding development and justification.

Naval Submarine Base Kings Bay Nanofiltration Plant, Naval Facilities Engineering Command (NAVFAC), Georgia

Project Manager. Design and construction services for a new 3.0 mgd nanofiltration water treatment plant. Project included decommissioning of an existing high-lime treatment process and implementation of nanofiltration for treatment of groundwater with high levels of organics.

Distribution System Chlorine and Ammonia Gas Replacement Feasibility Study, Greenville Utilities, South Carolina

Study Manager. Investigated alternatives for replacement of chlorine and ammonia gas feed facilities at 11 remote sites in the Greenville distribution system. Evaluated liquid sodium hypochlorite and ammonium hydroxide feed, onsite sodium hypochlorite generation, and tablet chlorination. Developed present worth cost comparisons of alternatives and made recommendations for a phased implementation plan based on level of risk and potential impact.

Myrtle Beach Water Treatment Plant Capacity Analysis, Pilot Testing and Expansion, Grand Strand Water & Sewer Authority, South Carolina

Project Manager. Comprehensive hydraulic and process capacity analysis, high rate pilot test, and design for expansion of the 40 mgd Myrtle Beach Water Treatment Plant to a capacity of 45 mgd. Also developed alternatives to cost-effectively expand the facility to 60 mgd, implementing innovative technologies including ozone disinfection and membrane filtration.

Onsite Hypochlorite Generation System Evaluation, City of Greensboro, Greensboro, North Carolina

Lead Engineer. Conducted an evaluation of onsite hypochlorite generation (OSHG) for the 30 mgd Townsend WTP and the 24 mgd NL Mitchell Filter Plant. The study included determining system sizing, layout, and cost of implementation. A present worth cost including capital, operations, and maintenance cost was developed for onsite generation and compared to current bulk hypochlorite usage. A trigger value for bulk hypochlorite pricing was developed for use in the future to be able to identify when the return on investment would be favorable for OSHG implementation.

Lanier Filter Plant Expansion, Gwinnett County Department of Water Resources, Georgia

Project Engineer. Expansion for the Lanier Filter Plant to 150 mgd. Project included a 50 mgd treatment capacity expansion as well as installation of pre-ozonation, two new clearwells, a new high service pump station, new chemical feed systems, and a new SCADA system. Construction value of the project was $35 million

In-Tank Aeration for the Reduction of DBPs, Clayton County Water Authority, Clayton County, Georgia

Project Manager. Provided the design for in-tank spray stripping systems for aeration of THMs at five different ground storage tanks ranging in size from 2.5 to 5 million gallons in volume. Systems reduced concentrations of preformed THMs by more than 20 percent to allow for meeting the new Stage 2 Disinfection By-Product Rule.

Southwest Area Water Distribution Study, City of Atlanta, Georgia

Study Manager. Conducted a study into the Southwest Atlanta water distribution system to identify areas of high water age. Developed recommended alternatives for operational and infrastructure improvements to improve distribution system performance and produce better water quality during period of low demand. Project included an update of the City of Atlanta distribution system hydraulic model to reflect current conditions and demands.

Disinfection By-Product Compliance Assistance, Newnan Utilities, Georgia

Project Manager. Assisted Newnan Utilities with developing a standard monitoring plan for an Initial Distribution System Evaluation (IDSE) associated with the Stage 2 Disinfection By-Products Rule. Identified IDSE sampling locations and developed required sampling plan.

Wendy Broley, PE

Experience Summary

Wendy Broley is a licensed professional engineer with more than 17 years of experience in water and wastewater engineering and operations. As Brown and Caldwell's Water Reuse leader, she works with clients to evaluate alternative water uses and develop diverse and resilient water portfolios. She also works as staff engineer for the California Urban Water Agencies. Her expertise includes integrated One Water planning, process engineering for a wide range of membrane and advanced treatment systems in potable reuse, surface water treatment, and groundwater desalination applications. Wendy has supported the operation and optimization of several pilot-scale and full-scale advanced water purification systems for non-potable and potable reuse in the United States and Australia.

Assignment

Quality Control/Technical Advisor (Reclaimed Water)

Education

BS, Chemical Engineering, University of California at San Diego

Registration

Chemical Engineer CH6277, California, 2007

Experience

17 years

Relevant Expertise

- *Water reuse, brackish groundwater desalination, surface water treatment*
- *Procurement, design, and submittal review*
- *Pilot and demonstration testing*
- *Start-up and commissioning*
- *Electronic data control*
- *Integrated One Water Planning*
- *Facilitation*

WRF 4660: Blueprint for One Water, Water Research Foundation

Co-Principal Investigator. This project was intended to access the state of science and practical experience in One Water and Integrated Water Management to develop a blueprint for the practical application of a One Water framework. Wendy co-facilitated a workshop with representatives from research foundations, associations, and 20 utilities from across the country to identify the critical steps to take in the development of a One Water framework including potential challenges, available tools, and key outcomes or milestones to work toward. Wendy led the development of a Blueprint for One Water that established a roadmap with tactical steps that any utility can take to develop an integrated, One Water management plan.

WRF 4677: Integrated Treatment Process Management, Water Research Foundation

Co-Principal Investigator. As part of the Water Research Foundations efforts to advance the concept and application of One Water, this project was created to establish a research roadmap for Integrated Treatment Process Management (ITPM). ITPM is a holistic approach to water management where agencies work collaboratively to develop treatment practices that seek to minimize overall cost and maximize environmental and community benefits while protecting public health. Wendy facilitated a 2-day workshop with more than 20 professionals from water and wastewater utilities, consulting firms, and research institutions to discuss ITPM and define research priorities. The workshop resulted in a prioritized research agenda with several fully developed project concepts to advance ITPM.

Program Management, California Urban Water Agencies, California

Staff Engineer. Wendy serves as staff engineer for the California Urban Water Agencies (CUWA, www.cuwa.org) through a Program Management contract. CUWA is a non-profit corporation of 10 major urban water agencies in California. They are committed to studying and promoting reliable, high-quality water supplies for the State's urban water needs. She currently supports the CUWA Board and the Water Reuse Committee. For the latter, she facilitates all meetings, tracks the Division of Drinking Water's expert panel and advisory group, and leads external outreach with the State Water Resources Control Board, WaterReuse California, AWWA CA-NV, and other relevant organizations. Wendy led the development of a White Paper establishing a Framework for Potable Reuse Operator Training and Certification in California with collaborative partners and key stakeholders in the industry. Wendy has also supported the Water Accessibility and Affordability Committee including the development of Water Affordability Policy Principles and a fact sheet on water accessibility and affordability issues for disadvantaged communities in California.

South District Water Reclamation Facility, Miami-Dade, Florida

Project Engineer. Wendy developed an RO pilot test protocol to evaluate the ability of candidate membranes to achieve the project objectives. She established permeate quality and permeability criteria in order to qualify

acceptable membrane models for future membrane procurement. She provided review and monitoring of the RO pilot unit performance to ensure adequate completion of test objectives. Wendy evaluated system performance and offered recommendations for full scale design criteria. She performed membrane autopsies for the evaluation of physical damage and identification of membrane foulants. She also contributed to the RO portion of the pilot report.

Groundwater Replenishment System, Orange County Water District, Fountain Valley, California

Project Engineer. Wendy assessed performance and provided optimization recommendations for a groundbreaking, 70-mgd advanced treatment system. The system accepts secondary treated wastewater and produces potable water for indirect reuse. She prepared monitoring reports for the MF and RO performances for management and operations staff, and provided recommendations regarding system operating conditions, membrane cleaning, troubleshooting, maintenance, and process optimization. This is a multi-award winning project, including the **2008 Excellence in Environmental Engineering Award** from the Academy of Environmental Engineers.

SP-173 Effluent Reuse Study, Orange County Sanitation District, Fountain Valley, California

Project Engineer. The OCSD Effluent Reuse study identified how the District will deliver to the Orange County Water District (OCWD) enough treated wastewater effluent—and at an adequate water quality—to satisfy the Groundwater Replenishment System's initial and final expansions. In addition to the necessary treatment and conveyance modifications including pump stations, pipelines, flow equalization, and wastewater treatment process modifications to improve effluent quality, the study evaluated environmental impacts and permit modifications attributed to the GWRS expansion. Wendy managed several task-specific teams, facilitating alternatives assessments and client workshops to achieve key decisions on for the development of system-wide alternatives that will maximize reuse potential for the District and OCWD.

Pure Water San Diego Program, City of San Diego, California

Technical Advisor. This program is intended to reduce dependence on imported water, resulting in the production of 83-mgd of advanced purified water. Facilities are being built at three locations, the first of which is at North City Advanced Water Purification Plant (NCAWPF). The 34-mgd plant will augment the potable water supply at the San Vicente Reservoir. Wendy performed a senior technical design review of the engineering report for 10-percent design of the NCAWPF and continues to advise on advanced water purification processes and recycled water upgrades as needed.

Valero Corpus Christi Refinery West Plant City Wastewater Reuse Project, Valero Refining Texas L.P., Corpus Christi, Texas

Supervising Engineer. Texas' drought made freshwater supply less available and reliable in the Corpus Christi area as water demands increased. In response, the client entered into a Reservation Agreement with the City of Corpus Christi to reuse effluent from one of the City's wastewater treatment plants as a reliable, sustainable water supply. BC secured a sole-source contract to develop a preliminary design and upfront study to send reclaimed water from a publicly owned treatment works to our client via an 8- to 10-mile long pipeline. BC finalized Phase 2 while preparing for Phase 3: detailed (70 percent) design. Wendy led the evaluation of reclaimed water quality and development of the reclaimed water quality specification to mitigate downstream impacts on piping and equipment related to cooling towers, boilers, and major users of process water. She reported to the team on potential impacts of incorporating reclaimed water and opportunities for modifications at the publicly owned treatment works or within the refinery to optimize the water quality.

Western Corridor Recycled Water Project, Veolia Water Australia, Brisbane, Queensland, Australia

Project Engineer. Wendy assisted the Scheme Operator (Veolia Water Australia) in reviewing the design for a project scheme consisting of three separate MF/RO/ultraviolet/advanced oxidation process plants treating secondary effluent to produce 50-mgd of recycled water from six wastewater treatment plants to ensure a full-scale operational perspective in the advancement of the program.

William E. Eleazer, PE

Experience Summary

Bill Eleazer has twenty years of experience in municipal wastewater treatment engineering. His experience includes project engineering and project management for conceptual, preliminary and detailed design of wastewater treatment plants including all process elements with specialty design experience with headwork's screenings and grit removal systems, chlorine and ultraviolet disinfection systems, advanced oxidation systems for groundwater recharge, and solid stream processes including thickening, anaerobic digestion and dewatering systems. Bill is the technical leader of Brown and Caldwell's Headworks Community of Practice and in this role is a national resource for all Headworks projects within Brown and Caldwell. He also has a broad range of pumping station design experience.

Assignment

Quality Control/Technical Advisor (Wastewater)

Education

BS, Civil Engineering, North Carolina State University

MS, Civil Engineering, North Carolina State University

Registration

Professional Engineer:

- *Georgia (25053) 1999*
- *Ohio (E-64875) 2000*
- *Kentucky (21096) 2001*
- *Virginia (0402 038351) 2003*
- *Louisiana (32288) 2006*
- *Florida (65154) 2006*
- *South Carolina (29480) 2011*

Experience

20 years

Professional References

Humberto Codispoti
Engineering Support Services Manager, Miami-Dade Water and Sewer Department
305-275-3124

Charles Wise
Manager of Water Reclamation
St. Petersburg Water Resources
727-892-5687

Ray M. Shimokubo
Director of Environmental Services
Florida Keys Aqueduct Authority
(305) 747-0334

North District Wastewater Treatment Plant, Miami, Florida

Project Manager for the long term rehabilitation and replacement project at the 85 mgd (ADF), 240 mgd (PHF) North District WWTP. This is an ongoing comprehensive mulit-year planning, design and construction management project for the $100+ million infrastructure re-investment program for the core components of one of the three Miami-Dade Water and Sewer District's wastewater treatment plants. This project has currently finished the initial plant evaluation phase which investigated each process and is currently in the detail design phase of two of the planned ten major rehabilitation projects. One project is the estimated $15 million renovation of the headworks screening systems, sludge degritting systems, and sludge transport systems and is currently at the 90% design point. The second is the $10 million renovation of the disinfection system to convert the systems from chlorine gas to sodium hypochlorite and is currently at the 90% design point.

Sawgrass Wastewater Treatment Plant Headworks Upgrades, Sunrise, Florida

Project Manager for the upgrade to the Headworks at the 15mgd (ADF), 42 mgd (PHF) Sawgrass WWTP. The upgrade consists of the replacement of existing screening systems with three perforated plates screens, new screenings compactors, replacement of mechanical equipment for the vortex degritting systems, new flow splitting systems for the aeration basins feed and new odor control collection and treatment systems for the headworks area.

Sawgrass Wastewater Treatment Plant Reuse Plant, Sunrise, Florida

Area Task Manager for disinfection systems and chemical support facilities for a 4 mgd reuse facility at the Sawgrass WWTP. The disinfection system consists of sodium hypochlorite unloading, storage and feed facilities, and chlorine contact tanks. The entire facility is a $12 million green-field 4 mgd (expandable to 16 mgd) reuse water plant to serve irrigation needs for the City of Sunrise. The plant will consist of a filter lift feed pumping station, deep bed sand filtration, chlorine disinfection, low lift pumps to storage, a 2.5 mg storage tank and high-service lift pumps to feed the distribution system.

South District Water Reclamation Plant, Miami, Florida

Area Task Manager for 1/3 of the detail design efforts for the estimated $235 million green-field state of the art new 23 mgd facility which would treat plant effluent from the MDWASD South District WWTP with microfiltration, ion exchange, reverse osmosis and ultraviolet-advanced oxidation processes to create near-distilled level water quality for use for groundwater recharge of the Miami-Dade County underground drinking water aquifer.

Big Coppitt Wastewater Treatment Plant, Florida Keys Aqueduct Authority, Big Coppitt Key, Florida

Project Manager for the design and the construction phase services for the $11 million green-field 0.3 mgd (ADF), 1.23 mgd (PHF) advanced water quality wastewater treatment plant on Big Coppitt Key for the Florida for the Florida Keys Aqueduct Authority. This plant employs sequencing batch reactor technology and nitrogen removal tertiary filtration with difficult loading criteria due to seasonal variation and unusually high quantities of soluble organic nitrogen. The plant produces reuse quality water and includes a storage and distribution pumping system for offsite irrigation for the Big Coppitt Key.

Southwest Water Reclamation Facility, St. Petersburg, Florida

Design Manager for the solids processing upgrades at the 20 mgd (ADF) Southwest Water Reclamation Facility. The upgrade consists of primary clarifiers, modifications to the aeration basins for biological stabilization, two new 1.8 mg submerged fixed cover digesters, digestion building and retrofit of an existing 1.3 mg anaerobic digester, gas storage and flaring systems, gas cleaning and upgrade systems to produce pipeline quality gas for use in the City's sanitation fleet, odor control systems and FOG receiving facilities. This represents BC's portion which is part of the larger Biosolids Upgrade Program at the SWWRF. BC's design responsibilities consist of approximately $45 million of the estimated $75 million worth of upgrades at the facility. The remainder consists of a new combined heat and power (CHP system) and thickening and dewatering improvements which are being designed by others.

Senior Reviewer Role

Senior Process-Mechanical Reviewer for projects around the Country including the following:

East Central Regional WWTP, West Palm Beach, Florida. Senior Process-Mechanical Reviewer for the complete renovation of the biosolids facilities for this 70 mgd wastewater treatment plant which service the City of West Palm Beach and 4 other adjacent communities. The project consists of demolition of most of the existing biosolids facilities and construction of new thickening, anaerobic digestion and dewatering systems.

Sacramento Regional WWTP, Sacramento, California. Senior Process-Mechanical Reviewer for the conversion from chlorine gas to sodium hypochlorite disinfection for this upgrades to the for this 180 mgd (ADF) wastewater treatment plant which serves as the primary treatment facility for the City of Sacramento, CA.

Sauquoit Creek Pumping Station Upgrades and New Forcemain; Utica, New York. Senior Process-Mechanical Reviewer for the new 38 mgd screenings facility for the Sauquoit Creek Pumping Station which serves as the primary influent pump station for the associated Water Pollution Control Plant.

Rock Creek WWTP; Clean Water Services Utility, Hilsboro, Oregon (and other surrounding communities primarily within Washington County, OR). Senior Process-Mechanical Reviewer for the upgrades to the existing headworks facilities at this 35 mgd (ADF) advanced wastewater treatment plant.

Central Wastewater Treatment Plant, Nashville, Tennessee. Senior Process-Mechanical Reviewer for the conceptual and preliminary design efforts for the coarse and fine screenings upgrades as part of the 125 mgd (ADF) Central WWTP optimization program.

Werk & Wesbuorne CSO Facility. Senior Process-Mechanical Reviewer for the new large CSO facility with influent pumping and screenings.

South Wastewater Treatment Plant, Iowa City, Iowa. Senior Process-Mechanical Reviewer for the comprehensive plant expansion and upgrades to the 30 mgd (ADF) plant's headworks, primary clarifiers, aeration basins, secondary clarifiers and disinfection systems.

Experience Summary

Jose Jimenez is a Vice President and Senior Process and Technical Specialist, with 15 years of experience, who has been involved with the functional design of numerous wastewater treatment plants across the U.S. His technical expertise includes nutrient removal and recovery, full-plant modeling, high-rate aerobic and anaerobic systems and renewable energy generation in wastewater treatment applications. Dr. Jimenez currently serves as Director of Technology and Innovation and National Nutrient Removal and Recovery Practice Leader.

Assignment

Quality Control/Technical Advisor (Process)

Education

PhD, Environmental Engineering, University of New Orleans

MS, Environmental Engineering, University of New Orleans

BS, Civil Engineering, University Rafael Urdaneta, Venezuela

Registration

Environmental Engineer, No. 36326, Louisiana, 2011

Experience

15 years

Relevant Expertise

- *Nitrification-denitrification.*
- *Biological and chemical phosphorus removal.*
- *Process simulation modeling*
- *Primary and secondary clarifier testing and modeling*
- *Aeration systems*
- *Membrane technology*
- *Wet-weather treatment*
- *Biological contact process for wet weather treatment*
- *Bioflocculation*
- *Sidestream Treatment*

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Process Engineer. BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

North District Wastewater Treatment Plant, Miami-Dade Water and Sewer Department, Miami, Florida

Process Engineer. Conducted process evaluation to determine the peak wet weather capacity of the 112-mgd high purity oxygen (HPO) activated sludge system by calibrating the BioWin™ simulator, stress-testing of primary and secondary clarifiers and computational fluid dynamics modeling of the secondary clarifiers. The project included evaluation of peak flow treatment alternatives to provide a total peak wet weather treatment capacity of 360 mgd.

Big Coppitt Wastewater Treatment Plant, Florida Keys Aqueduct Authority, Big Coppitt, Florida

Lead Process Engineer. Led the process design for the development and design of the sequencing batch reactors, filtration, disinfection and solids handling system/processes for a 0.425-MGD greenfield plant. The plant must meet stringent Advanced Wastewater Treatment standards under very difficult influent loading conditions.

Short-Cut Nitrogen Evaluation, City of St. Petersburg, Florida

Lead Process Technologist: Responsible for leading research team to evaluate the feasibility for implementing nitrite-shunt at the 20-MGD Southwest Water Reclamation Facility. Supervise team conducting bench and batch-scale experiments to determine the kinetics of nitritation and denitritation. Led detailed process modeling of the system to develop control strategies to implement nitrite-shunt and to predict performance and energy requirements.

Wastewater Treatment Plant No. 3, Winter Haven, Florida

Lead Process Engineer. Conducted process evaluation and detailed design for the modifications of the 7.5-mgd biological nutrient removal facility to meet total nitrogen and phosphorus effluent requirements of 3.0 mg/L TN and 1.0 mg/L TP. Process design included biological modeling using the BioWin™ simulator to design the

conversion of the plant to a four-stage Bardenpho process with supplemental carbon addition and chemical P removal followed by filtration, high level disinfection, dechlorination and reaeration.

North Port Wastewater Treatment Plant, North Port, Florida

Process Engineer. Conducted process evaluation and detailed design for the expansion and modifications of the existing 6.0 mgd activated sludge plant. Process design includes biological modeling using the BioWin™ simulator to design the conversion of the plant to a Modified Ludzack-Ettinger (MLE) process followed by deep-bed filters and disinfection.

Mandarin Water Reclamation Facility, JEA, Jacksonville, Florida

Process Engineer. Performed biological process modeling of the 7.5-mgd biological nutrient removal facility. The BioWin™ simulator was calibrated based on extensive wastewater characterization. The calibrated BioWin™ model was applied to determine plant modifications to meet future nitrogen TMDL limit at an annual average flow of 10 mgd.

Fort Walton Beach Wastewater Treatment Plant, Fort Walton Beach, Florida

Process Engineer. Conducted process design for the modifications of the 4.0-mgd rotating biological contactor (RBC) process to an MLE activated sludge process.

Stuart Wastewater Treatment Plant, Stuart, Florida

Process Engineer. Extensive sampling and simulation modeling of the 4-mgd activated sludge plant. Calibrated the BioWin™ simulator to develop alternative options to replace the existing surface mechanical aerators by fine-bubble diffused aeration. Evaluated the benefits of implementing anaerobic selectors for sludge bulking and nitrogen control.

Mason Farm Wastewater Treatment Plant, Orange Water and Sewer Authority, Carrboro, North Carolina

Process Engineer. Provided process design of facilities to expand capacity from 12 to 14.5 mgd and ultimately to 22.5 mgd. Facilities include expansion of the patented OWASA biological phosphorus system, secondary clarifiers, new deep bed denitrification filters, and new ultraviolet disinfection. The expanded facilities are designed to meet an effluent total nitrogen limit of 4.5 mg/L and effluent phosphorus of 0.23 mg/L. Project entailed extensive sampling and simulation modeling of the plant; impacts of removal of the trickling filters from the process train; impacts of onsite dewatering and of clarifying fermenter recycled liquors; and post denitrification filters using acetic acid. Provided process evaluation for the design of a biological contact process for wet weather treatment.

South Columbus Water Resource Facility Master Plan, Columbus Water Works, Columbus, Georgia

Lead Process Engineer. Effort included development of calibrated BioWin and hydraulic plant models and an assessment of the SCWRF's ability to process an additional 7 mgd of flow from Fort Benning and accommodate growth in the Muscogee County Basin through 2030. Recommendations addressed aeration, secondary clarification, solids handling and hydraulic capacity limitations.

Smith Creek Wastewater Treatment Plant, Raleigh, North Carolina

Process Engineer. Conducted wastewater process engineering for the expansion of this BNR oxidation ditch plant from 2.4 mgd to 3.0 mgd and to 6.0 mgd.

Marrero Wastewater Treatment Plant, University of New Orleans, Marrero, Louisiana

Process Engineer. Prepared comprehensive analysis of treatment plant capacity for a 4-mgd trickling filter/solids contact (TF/SC) process. Designed and evaluation of the solids contact process and aeration system were performed to meet future loadings and to improve performance. Special attention was given to the removal of particles present in the tickling filter effluent by bioflocculation-sedimentation.

Experience Summary

Allen Sehloff has more than 32 years of experience designing wastewater collection and pumping, systems, water and wastewater treatment plants and water reclamation plants. He has extensive experience with pumping station design and screening and grit removal facilities. He has been responsible for facilities planning, permitting assistance, treatment plant hydraulics, and the detailed design of preliminary, primary and secondary treatment faculties, effluent filtration, effluent disinfection, and biosolids treatment and dewatering facilities for municipalities across the U.S.

Assignment

Quality Control/Technical Advisor (Hydraulics & Pumping Systems)

Education

MS, Civil Engineering, University of Arizona

BS, Civil Engineering, University of Wisconsin - Platteville

Registration

Professional Engineer:

Arizona, #21722

Florida, #0049595

Georgia, #24127

Minnesota, #26295

Wisconsin, #35053-006

District of Columbia, #900387

Iowa, #16842

Ohio, #75146

Pennsylvania, #078423

Michigan, #6201063442

Experience

31 years

Relevant Expertise

- *Project Management*
- *Mechanical Design*
- *Facility Planning*

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Technical Advisor/Quality Control. BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

NDWWTP Deep Injection Well (DIW) Pumping Station, Miami-Dade Water and Sewer Department, Miami, Florida

Technical Advisor/Quality Control. Mr. Sehloff served as the Technical Advisor and provided quality control reviews for this project, which is expected to advertise for bids in the fall of 2015. The project includes the replacement of the four existing DIW pumps and the installation of two additional pumps at the North District WWTP. The pumps are rated at 12,500 gpm, each, at 240 feet of head. Motors are 1250 HP, 4160 volt with variable frequency drives. The existing pumps have experienced vibration problems due to poor intake conditions. BC worked with Clemson Engineering hydraulics to develop an intake basket that bolts to the wetwell floor at each pump, to improve the approach conditions to each pump.

S-5A Stormwater Pumping Station, South Florida Water Management District, Florida

Technical Lead/Quality Assurance. Mr. Sehloff served as the technical lead for the planning effort for rehabilitation of the S-5A pumping station. This station was constructed in the 1950's and has six, engine driven, 800 cfs pumps, for a firm capacity of 4,000 cfs. The recommended project included refurbishment of the existing pumps and engines, conversion of the engines to dual fuel operation, upgrades to electrical systems and replacement of all instrumentation and controls. Mr. Sehloff has continued as the quality assurance lead for the detailed design of the recommended improvements.

Stormwater Pumping Stations, South Florida Water Management District, Florida

Design Manager. Mr. Sehloff served as the technical lead for the design of the G-434, G-435 and G-436 pumping stations for the South Florida Water Management District. He authored the pumping station portion of the Basis of Design Report for the stations. The G-434 and G-435 stations pump into a stormwater treatment area (STA) with a nominal area of 9,000 acres. These inflow pumping stations have capacities of 1120 cfs and

480 cfs, respectively. A single outflow pumping station (G-436) with a capacity of 1,600 cfs pumps out of the STA. As a part of this project, Mr. Sehloff served as technical advisor for the pre-purchase of $20 million worth of pumping equipment. Construction of the pumping stations was completed in 2012.

Southerly Wastewater Treatment Plant Influent Pumping Station and Headworks Expansion, Columbus Department of Public Works (DPW), Ohio

Technical Advisor. Mr. Sehloff served as technical advisor and provided design reviews for the expansion of the headworks and influent pumping station at the Southerly WWTP. The project includes the installation of two new mechanically cleaned bar screens, rated for 110 mgd, each, the replacement of four existing vertical, non-clog centrifugal pumps with new pumps, driven by the existing 1,250 hp motors, and the installation of two new 1,250 hp pumps. Each pump has a nominal capacity of 100 mgd. This project will advertise for bids in the spring of 2017.

Oakwood Beach Headworks, New York City Department of Environmental Protection, New York

Technical Advisor/Quality Control. Mr. Sehloff served as the technical advisor and provided quality control reviews for the planning and design of improvements to the Oakwood Beach Headworks and the associated influent pumping station. The preliminary design recommended the replacement of the existing articulated rake type screens to multiple rake screens to reduce blinding during storm events and to prevent submergence of the bar screen motor. The project also recommended the replacement of the six existing influent pumps with new dry pit submersible pumps, rated at 25 mgd, each.

Philadelphia Water Department (PWD), Water System Master Plan, Philadelphia, Pennsylvania

Technical Lead. As a part of the planning process, Mr. Sehloff conducted condition assessments on pumping systems throughout the PWD system, including raw water pumps, finished water pumps, booster pumps and backwash pumps at the PWD water treatment plans. Completion of the Master Plan is scheduled for early in 2017.

Great Lakes Water Authority, Fairview Pumping Station Improvements, Detroit, Michigan

Technical Advisor. Mr. Sehloff served as technical advisor and quality control reviewer for the planning effort for improvements to the 240 mgd Fairview Pumping Station, originally placed in service in 1919. Given the difficulty accessing pumps for maintenance, redundancy concerns, sequencing improvements while maintaining capacity, and the remaining useful life of the structure, construction of a new pumping station has been recommended. Detailed design of the recommend improvements is expected to begin in Spring of 2017.

Main Pump Station Upgrade, Allegheny County Sanitary Authority (ALCOSAN), Pittsburgh, Pennsylvania

Technical Lead. Mr. Sehloff led the design of improvements to ALCOSAN's Main Pump Station. This facility was constructed in the 1950's. The project included the sequential replacement of six existing pumps with six new pumps with a nominal capacity of 100 mgd, each. The motors are 2,000 HP medium voltage and driven by variable frequency drives. The first pump was commissioned in 2014. The pumps were installed sequentially to maintain capacity, with the sixth pump commissioned in 2016.

Frontera Pumping Station, El Paso Water Utilities, El Paso, Texas

Project Engineer. Allen was responsible for the design of a 40 mgd wastewater pumping for the El Paso Water Utilities. The design includes five duty pumps with a capacity of 8 mgd each. The pumping station discharges into approximately 20,000 linear feet of dual wastewater forcemain, varying from 30 inches to 42 inches in diameter. Foul air from the pumping station wet well is exhausted through carbon scrubbers. Flywheels are used for surge control. Mr. Sehloff fielded all questions during the bid period and reviewed most equipment submittals on the pumping station. He served as construction manager for the final 3,000 feet of force main construction and as construction manager for the initial stages struction for the pumping station.

Experience Summary

Richard Stahr has over 27 years of experience in technical and engineering consulting. His consulting experience includes developing wet weather management plans, SSO reduction programs, hydraulic modeling, asset management programs, wastewater collection system assessments, CMOM programs, information technology selection and implementation and regulatory negotiations for clients across the United States.

Assignment

Quality Control/Technical Advisor (Business Systems)

Education

MS, Sanitary Engineering, Virginia Polytechnic Institute and State University

BS, Civil Engineering, Virginia Polytechnic Institute and State University

Registration

Professional Engineer:

0026029, Maryland, 2001

024791, Georgia, 1998

20550, North Carolina, 1994

015602, Virginia, 1985

Experience

27 Years

Relevant Expertise

- *Asset Management*
- *Wet Weather*
- *CMOM*
- *Information Technology*
- *Organizational Assessments*
- *Improvement Implementation Assistance*
- *Master Planning*
- *Procurement*
- *Financing*

Asset Management Program, City of West Palm Beach, Florida

Technical Advisor. The City of West Palm Beach contracted with Brown and Caldwell to embark on the development of an Asset Management Program with a vision to develop an effective asset management organization that reduces the life cycle cost and impacts of asset ownership and enhances customer service through: Effective and Efficient Processes, Enhanced Systems, Highly Trained and Motivated Staff, and Commitment to Continuous Improvement. Specific tasks to be accomplished include: Assessment of Existing Asset Management Practices and Improvement Plan, Assessment of Information Systems (including Datastream CMMS), Establishment of an Asset Management Steering Committee, Asset Management Training Sessions, and Improvement Plan Implementation.

Sanitary Sewer Management Systems, Largo, Florida

Project Delivery Officer. Lead development of a multifaceted project with major components that include a work and asset management system (WAMS), concurrency management program, peer review of the development of the City's WW InfoWorks hydraulic model, business case evaluations for major system improvements and Capacity, Management, Operations and Maintenance program. The WAMS element includes preparation of detailed system requirements, procurement documents and installation oversight. The Concurrency Management Program included a detailed set of business processes, procedures and tools (i.e. hydraulic model) for managing system capacity and new connections. The CMOM program included collaborative workshops with City staff to document and optimize the program elements. The Business Case Evaluation applied life cycle cost analyses to a complex set of alternatives to identify the solution set with the lowest life cycle cost and acceptable risk profile. In addition, an Asset Management Program Evaluation was performed and Action Plan prepared for initiation of the foundational elements of a comprehensive asset management program.

Asset Management Program Development Phase I, Pasco County, Florida

Technical Advisor/Quality Control. Evaluation of the PCU's Total Enterprise Asset Management (TEAM). Pasco County has been implementing TEAM concepts for several years, and the time had come to review, evaluate progress and make an action plan for the future. The County wishes to develop a full-featured asset management program with BC's assistance. The further development of TEAM over the next five years will eventually help PCU balance system cost, risk, and performance; thus, ultimately achieving an optimized level of service in the water, wastewater, and reclaimed water systems. Goals for Phase I included Benchmark their TEAM processes against industry best practices, measure progress of the program, optimize the approach and develop the Strategic Asset Management Work Plan. BC is also developing a detailed 5-year schedule which includes asset ID, hierarchy, asset plans and asset inventory.

Virginia Beach Aging Infrastructure Program, Virginia Beach, Virginia

Project Delivery Officer. Directed multifaceted program aimed at reducing SSOs and providing for sustainable infrastructure. Assignments included development and application of a risk/criticality model to the City's 400

pump stations, enhanced Operations and Maintenance (O&M) practices in the collection system, pump station condition assessment program, long-term refurbishment and replacement estimates for pipes, manholes, pump stations and other system assets and development of Strategic Plans. The planning effort included the development of a comprehensive set of performance measurements.

Hampton Roads Sanitation District (HRSD) Regional Hydraulic Model and Consent Order Assistance, Chesapeake, Virginia

Project Delivery Officer. Leading wet weather management program that includes negotiation with EPA. Asset management components of the work include development of a Replacement Planning Model to forecast refurbishment and replacement costs and development of a criticality model to prioritize inspection of critical system components. Other aspects of the program include development of regional hydraulic model, assessment of sewer system for conditions that may lead to sanitary sewer overflows (SSOs), development of flow, rainfall and pressure monitoring program and development of overall Management, Operations and Maintenance (MOM) program. Ongoing effort includes facilitating regional collaboration between HRSD and 14 Localities.

Asset Criticality System, System-wide Hydraulic and Hydrologic Model for Sewer Collection System Capacity Assurance Program, Charlotte Water, Charlotte, North Carolina

Project Director. Prepared a Capacity Assurance Program to satisfy EPA Region 4 concerns that included hydraulic modeling. Evaluated available commercial hydraulic modeling platforms and assisted with the selection of model software. Developed a system wide hydraulic model including establishing modeling and calibration standards. The Capacity Assurance Program was approved by EPA.

Asset Management Water System Optimization, Asheville, North Carolina

Project Manager. Conducted comprehensive asset management (AM) program evaluation that covered 90 aspects of organization, spanning organizational structure, asset information systems, maintenance practices, asset financing and use of GIS. In parallel, developed Replacement Planning Model that estimated replacement and rehabilitation (R&R) costs over 35-year period. Model estimated annual R&R costs and alloeds testing of various funding scenarios. Additionally, developed program implementation structure that included five workgroups and AM Team. Developed detailed schedule to guide program implementation over next 3 years. Evaluated computerized maintenance management system (CMMS) and provided procurement and installation oversight services for a new CMMS. Developed and implemented an Asset Information Management System (AIMS) that extracts key asset performance information from other information systems in a user-friendly environment. Developed and implemented a CIP prioritization process. The process considered the criticality of the assets under consideration and used a set of criteria to score projects of different types.

Strategic Asset Management Plans, Gwinnett County, Georgia

Project Manager. Developed Strategic Asset Management Plans (SAMP) for Gravity Sewers and Stormwater Pipes. These plans provide a comprehensive life cycle approach to the acquisition, operations and maintenance for these key assets. The SAMPs were developed collaboratively with a cross section of utility staff in two teams. Each SAMP contained a criticality framework that was customized to the assets under consideration. This criticality framework was applied and the results used to fine tune inspection and maintenance programs. For stormwater pipes a replacement model was prepared that provided long term estimates of replacement requirements that will be used to develop a funding plan.

Elí J. Tilén, PE

Experience Summary

Elí Tilén is an environmental engineer with experience in process-mechanical design of multiple wastewater treatment plant processes, pump stations, advance water treatment systems, and sewer collection systems. He has been responsible for the preparation of construction documents for several wastewater treatment plants (WWTP), in addition to facilities planning, permitting assistance, and the selection of mechanical equipment.

Assignment

Wastewater Treatment Plants/Reclaimed Water

Education

MS, Environmental Engineering, Florida International University

BS, Chemical Engineering, University of Puerto Rico

Registration

Professional Engineer, 67318, Florida

Experience

12 years

Relevant Expertise

- *Wastewater Treatment*
- *Pump Station*
- *Advance Water Treatment Systems*
- *Sewer Collection*
- *Project Management*
- *Construction Services*
- *Permitting*
- *Equipment Selection*

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Design Manager. Responsible for the BODR, detailed design, bidding and permitting services, and engineering services during construction for the expansion of BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

North District Wastewater Treatment Plant (NDWWTP) Headworks Rehabilitation System, Miami-Dade County Water and Sewer Department (MDWASD), Florida

Project Manager. Engineer of Record for the rehabilitation of the two NDWWTP headworks buildings. Rehabilitation includes the replacement of the existing screening and screening conveyance system, primary sludge degritting system, sludge transfer system. Modification of one of the buildings so that it complies with applicable NFPA standards.

NDWWTP Disinfection System Upgrades, MDWASD, Miami, Florida

Design Manager. The project consists of the conversion of the disinfection system at the NDWWTP from chlorine gas to bulk sodium hypochlorite. The project also includes the addition of a new Electrical/Control Room Annex Building at a finished floor elevation of 18.5 NGVD to house critical electrical and instrumentation equipment to meet SLR requirements.

NDWWTP Deep Injection Well Pump Station Improvements, MDWASD, Miami, Florida

Design Manager. The existing DIW Pump Station currently houses four vertical turbine pumps with a rated capacity of 16,000 gallons per minute (gpm) powered by 900 horsepower (hp) variable speed drives, and space for two additional pumps. This project consists of the design of the two additional pumps. BC evaluated the existing equipment and wetwell configuration to ascertain the maximum hydraulic capacity of the station and evaluate and identify any hydraulic deficiencies that may possibly restrict peak pumping capacity. A desktop modeling effort and a physical model study of the wetwell confirmed that the existing pumps, are inadequate to pump the permitted capacity of the injection wells. Final design includes replacement of the four existing pumps, installation of the two additional pumps and replacing the existing cone valves with ball valves and adding flow control valves.

South District WWTP (SDWWTP) Cogeneration System Improvements, Miami-Dade Water and Sewer Department, Florida

Resident Engineer. Coordinated construction and design efforts for the upgrade of existing Cogeneration Facilities. BC is serving as the design engineer in a Contractor-Engineer team which will perform design-build services to complete this project. The design work is completed and construction is well underway.

Renewal and Replacement Assessment for the North District Wastewater Treatment Plant, MDWASD, Florida

Task Leader. Task leader for the plant-wide assessment of all of the mechanical equipment at the North District Wastewater Treatment Plant. Task included the inspection of most of the plant's mechanical equipment to develop a long-term renewal and replacement program. This was part of a larger report, which detailed the plant's renewal and replacement needs for the next ten-year period.

Sawgrass WWTP Headworks Improvements, City of Sunrise, Florida

Task Manager. Lead process mechanical designer for the yard piping reconfiguration to provide a bypass to the facility's pretreatment structure and splitter box as well as for the new Bio-trickling Filter odor control system.

South District Water Reclamation Plant, MDWASD, Homestead, Florida

Design Manager. Lead mechanical designer for the preliminary and detailed design of the Ultraviolet Advanced Oxidation System, an intermediary pumping station, and several other ancillary systems for the South District Water Reclamation Plant which treats tertiary effluent for indirect recharge of the Biscayne Aquifer. This is one of a handful of such facilities in the world and the first in the Southeastern US. The project is currently ongoing.

Sawgrass WWTP, High Level Disinfection System, City of Sunrise, Florida

Design Manager. Engineer of Record for the facilities planning development of a for a 4-mgd AADF (expandable to 8-mgd AADF) High Level Disinfection Facility at the Sawgrass WWTP. The detailed design of the first phase is currently underway

NDWWTP Flood Protection and Sea Level Rise BODR, MDWASD, Miami, Florida

Senior Technical Advisor. The general stormwater management system at the NDWWTP has not proven to be very effective and the site experiences significant flooding during certain weather events. This project consists of developing a BODR for the rehabilitation of the stormwater management system. The scope of work consists of conducting topographic surveys, percolation tests and Phase I and Phase II environmental site assessments to develop up to three proposed alternatives for stormwater management on the site. The project will also look at how the existing site perimeter barriers will protect against wave and storm surge impacts under projected sea level rise.

Big Coppitt Wastewater Treatment Plant, Florida Keys Aqueduct Authority, Big Coppitt, Florida

Design Manager. Lead mechanical designer for the development and design of the sequencing batch reactors, filtration, disinfection and solids handling system/processes for a 0.425 greenfield Plant. Other task included permitting and technology evaluation. The plant's process must meet stringent Advanced Wastewater Treatment standards under very difficult influent loading conditions.

Wastewater Management System, City of Layton, Florida

Design Engineer. Assisted in the design of a gravity wastewater collection system for the City of Layton. Task included establish design criteria, design Lift Stations, writing specs, commenting on submittals, and worked with regulators to obtain the necessary permits.

Ruth Burney, PE

Experience Summary

Ms. Burney is an environmental engineer experienced in water, wastewater, and reclaimed water systems design. She also offers experience in planning, design, permitting, bidding, field inspections, operations and maintenance, and report writing.

Assignment

Wastewater Treatment Plants/Reclaimed Water

Education

BS, Environmental Engineering, University of Florida

Registration

Professional Engineer: Florida, 2012

Experience

9 years

Relevant Expertise

- *Wastewater*
- *Reclaimed Water Systems*
- *Water*
- *Design*
- *Planning*
- *Permitting*
- *Field Inspections*
- *Report Writing*

North Regional Wastewater Treatment Plant Reclaimed Water Expansion, Broward County, Florida

Engineer of Record. Ms. Burney was the Engineer of Record for the design of two Tier 4 250 KVA standby Generator systems including the bulk fuel storage, fuel pumps, and Diesel Exhaust Fluid (DEF) system.

Springtree WWTP Headworks Improvements BODR and Design, Sunrise, Florida

Engineer of Record/Design Manager. Ms. Burney was the Engineer of Record for the replacement of three automatic bar screens with 6mm perforated plates and screenings washer-compactors, as well as the replacement of two grit vortex drives, two recessed impeller grit pumps, and two hydrocyclone/ degritter units. A new biotrickling filter type odor control system was included to treat foul air generated at the Headworks Structure. The project design included creating a plant-wide hydraulic profile, raising the height of the existing channels, and a new passive overflow for improved O&M flexibility.

Sawgrass WWTP Train A Secondary Treatment Improvements, Sunrise, Florida

Engineer of Record/Project Manager. Ms. Burney was the Process Mechanical Engineer of Record and Project Manager for the evaluation of the original Train A secondary treatment process at the Sawgrass WWTP. The evaluation included extensive Biowin process modeling and hydraulic modeling of process improvements to remove the existing surge tanks and associated pumps no longer benefit the existing plant. The resulting changes to the treatment and flow in the aeration basin triggered the need to replace the existing process blowers and air diffuser and distribution system, as well as all major electrical equipment installed as part of the original plant construction.

Return Activated Sludge (RAS), Waste Activated Sludge (WAS) and Scum Pump Replacement Design, East Central Regional Water Reclamation Facility Board, Florida

Engineer of Record/Project Manager. Ms. Burney was the Engineer of Record and Project Manager for the replacement of twelve RAS pumps, ten WAS/scum pumps, and eight flowmeters including all valves, piping, and appurtenances.

Influent Screens and Grit Removal BODR and Design, East Central Regional Water Reclamation Facility Board, Florida

Engineer of Record. Ms. Burney was the Engineer of Record for the replacement of five automatic bar screens with 6mm perforated plate center-flow automatic screens and screenings washer-compactors, as well as the replacement of two 70 MGD grit vortex drives, two 25 HP recessed impeller grit pumps, and two hydrocyclone/degritter units.

Pump Station S-5A Improvements and Automation Design and Services During Construction, South Florida Water Management District, Florida

Engineer of Record. Ms. Burney was the Engineer of Record and Task lead on the design of a dual 5kW emergency, standby Generator system housed in a new 150 mph rated concrete building with both manual and automatic transfer switches. The new Generator system included a fuel system, a cooling water system (for heat exchanger cooling), and an exhaust system that meets all applicable EPA exhaust requirements. Ms. Burney was also the Engineer of Record for a set of three automatic backwashing strainers for the entire pump station's cooling water system. Ms. Burney's area of expertise was expanded during construction to include

three 20 HP vertical turbine Raw Water Pumps, bulk fuel oil, lube oil, and waste oil pumps and storage, vacuum priming pumps, and compressed air system.

Tunnel Dewatering Pump Station and Enhanced Clarification Facility Design-Build, Washington, DC

Process Engineer. Ms. Burney was a project engineer for the new grit removal system for the 250 mgd (Phase I) Enhanced Clarification Facility (ECF) train at the DC Water Blue Plains WWTP. The system included evaluations of mechanical and hydraulic primary grit concentrators, the selection and design of a secondary grit concentration and classification units, and the design of a new grit slurry pumping system.

Wastewater Treatment Plant and Water Treatment Plant Improvements Design, Reidsville, NC

Process Engineer. Ms. Burney served as a project engineer for the design of the new compressed air system for the Reidsville WWTP. The project included the conversion from surface aerators to high efficiency turbo blowers with fine bubble diffusers, and the design of a new bio-selector, anoxic zone. Ms. Burney also worked with lead process engineers to perform a comparative evaluation of different blower, diffusers, and mixing technologies for the plant, including the development of energy costs for each alternative during the preliminary design phase to aid in the technology selection.

George T. Lohmeyer Wastewater Treatment Plant Emergency Generator Connection and 4160 Volt Switchgear Upgrades – Generator Building, Fort Lauderdale, Florida

Project Engineer. Ms. Burney worked on the mutli-discipline design for the replacement of medium voltage electrical equipment and conduit at the GTL WWTP. Due to the limited space on site, the equipment replacement was staged in multiple phases. Ms. Burney designed the associated site improvements and worked with plant staff to develop the Maintenance of Plant Operations Plan (MOPO), that coordinates when equipment will be out of service and minimizes the down time of critical process equipment.

George T. Lohmeyer Wastewater Treatment Plant Large Diameter Process Pipe Replacement – Phase 1&2, Fort Lauderdale, Florida

Project Engineer. Ms. Burney worked with lead hydraulic engineers to design the removal and replacement of PCCP process pipe ranging from 42 to 64 inches in diameter. The design work included updating the plant's hydraulic profile to size replacements pipes, investigating available liner technologies for pipe segments that were not physically replaceable, and developing a MOPO to link the shutdown of major processes and the effects on plant operations to a viable sequence of construction. The plant was near both flow and spatial capacity, with limited operational flexibility during high flows and property/access for construction.

George T. Lohmeyer Regional Wastewater Treatment Plant FDEP Operating Permit Renewal and Biosolids Evaluation, Fort Lauderdale, Florida

Project Engineer. Ms. Burney performed the necessary data analysis and document reviews for the renewal of the GTL WWTP's Domestic Wastewater Facilities Permit with the FDEP. In addition to the permit renewal package, she completed a biosolids evaluation for long-term planning level disposal options for the facility. The evaluation included a review of the current biosolids treatment operations, the regulatory trends in biosolids management, neighboring treatment plant operations, and an analysis of four disposal options.

George T. Lohmeyer Regional Wastewater Treatment Plant Class I Deep Injection Well Operation Permit Renewal, Fort Lauderdale, Florida

Project Engineer. Ms. Burney prepared the FDEP Underground Injection Control (UIC) application for the GTL WWTP. She worked with the client and various regulatory agencies to compile necessary data, analyzed five years of flow and nutrient effluent data, performed calculations and analysis of hydrogeologic data, and worked with the FDEP to identify their requirements and expectations.

Project Manager

George Bloom, PE

Experience Summary

A successful senior engineer with project management and engineering experience in the planning, permitting, evaluation, design, construction and startup of wastewater collection, transmission and treatment facilities.

Assignment

Wastewater Treatment Plants/Reclaimed Water

Education

BS, Environmental Science, Cornell University

Registration

Professional Engineer, Maine

Experience

22 years

Relevant Expertise

- *Project Management*
- *Planning*
- *Permitting*
- *Evaluation Design*
- *Construction and Startup of Wastewater Collection*
- *Transmission and Treatment Facilities*

NYC Department of Environmental Protection, Bureau of Engineering, Design and Construction

Chief Process Mechanical Engineer. Design manager and process design lead on the Level 1 BNR upgrade for the 110 MGD Coney Island WPCP. Review of BEDC in-house design projects and consultant designed projects including the 37 MGD Hannah Street PS, Rikers Island PS, 5 MGD Port Jervis WPCP BNR Upgrade and 45 MGD Rockaway WPCP BNR upgrade. DSDC manager for the 310 MGB Newtown Creek WPCP TRC project.

Bion Technologies, Inc.

Chief Engineer. Management oversight of project planning, design, construction management, start-up of waste treatment syste production facilities. Participated in the development of a low oxygen, simultaneous nitrification-denitrification BNR system for use on high strength waste streams. Evaluated process equipment alternatives for use in high strength livestock waste treatment systems including use of FKC screw press for solids separation, decanter and disc centrifuges for fine solids separation, aeration systems, membrane systems (microfiltration, ultrafiltration, RO and ammonia removal via a gas permeable membrane); solids processing equipment including dryers, incineration and gasification.

Woodard & Curran, Inc.

Chief Engineer/Project Manager/Project Engineer. Chief engineer responsible for technical review of design documents. Client/Project manager responsible for proposal preparation, budget development, scheduling and overall project management of water and wastewater projects. Project engineer responsible for alternatives evaluation and development of facilities plans, detailed design of wastewater conveyance and treatment facilities with specialty in process mechanical design.

Metcalf & Eddy (Boston, NYC, Wakefield)

Engineer/Project Engineer. Engineer/project engineer responsible for process mechanical design and construction management of wastewater treatment facility improvements.
Representative Experience. Design manager for the 110 MGD Coney Island WPCP Level 1 BNR upgrade.

Chief engineer responsible for the development, permitting, design, construction and startup of low oxygen simultaneous nitrification-denitrification BNR waste treatment systems for high strength manure waste streams at 1,200 and 2,500 milk cow dairy farms. The process flow trains included flow equalization, influent pumping of 10% TS, coarse solids separation with a screw press, low oxygen BNR with simultaneous nitrification-denitrification, effluent polishing with decanter and disc centrifuges and effluent disposal via irrigation.

Project Manager for the planning, financing, permitting and design of the Acton, Massachusetts wastewater collection system and treatment facility. The wastewater collection system included approximately 60,000 feet of sewer, seven pump stations and several thousand feet of force main. The wastewater treatment facility was designed in a modular fashion such that 0.5 MGD of capacity with build out to 1 MGD. The wastewater treatment facility process flow train includes influent pumping, fine screening with step screens, grit removal, sequencing batch reactors, post equalization basins, filtration, UV disinfection, and subsurface disposal via rapid infiltration basins. The SBRs are designed for BNR to accomplish nitrification, denitrification and P removal. Acetic acid is utilized to maximize BNR of P. Metal salt addition capabilities are also included to maximize P removal.

Project Manager on the Comprehensive Plant Evaluation (CPE), bar screen replacement and influent pumping system projects at the Lewiston-Auburn Water Pollution Control Authority's wastewater treatment facility. The CPE included design, operations, organization, cost, equipment and energy evaluations of the various treatment process and equipment. The CPE results were used in concert with the LAWPCA management team to develop a Management Action Plan (MAP). The MAP prioritized recommended improvements (large capital, small capital, and organizational) over an approximate five-year period for implementation by the LAWPCA.

Project Manager on the Devens, Massachusetts Regional Wastewater Facilities Planning Project. The Devens project included Comprehensive Plant Evaluations of the Ayer, MCI-Shirley, and Devens wastewater treatment facilities; extensive stakeholder meetings with several towns and environmental groups; wastewater flow and loads projections for the regional study area; septage volumes and loading projections for the regional study area; extensive meetings with the DEP and EPA regarding facility permitting (ENF, discharge, sewer extension, etc.); and preliminary design of a 3.0-mgd regional wastewater treatment facility.

Project Manager for the planning, financing, design and construction of new wastewater collection and treatment facilities for Warren, Maine. The facilities planning phase of the Warren project included the evaluation of wastewater treatment alternatives serving the District only, as well as regional alternatives to serve both the District and State of Maine Department of Correction's facilities in South Warren. The alternative jointly selected by the District and MDOC was a regional facility consisting of pump stations, aerated lagoons, storage lagoon, DAF effluent polishing and UV disinfection.

Project Manager on the design/construction of the University of New England's wastewater treatment facility with Sargent Constructors, Inc. Unit processes designed at the reconstructed 100,000-GPD wastewater treatment facility included influent flow equalization, sequencing batch reactors (SBRs), effluent flow equalization, effluent filtration, chlorination and dechlorination. Project challenges included doubling of existing wastewater treatment facility organic load treatment capacity, maintenance of operations during construction operations, and adherence to a very tight project schedule.

Experience Summary

Larry Vicars' brings more than 18 years of professional experience in engineering sophisticated water treatment and pumping system processes. He has an excellent record in process control measures including development of control logic, circuit analysis, trouble shooting and acceptance testing initiatives. Mr. Vicar's experience includes strong project management skills and process engineering capabilities with a thorough understanding of construction techniques, mechanical equipment, startup procedures and site acceptance testing. He possesses keen analytical and problem-solving skills associated with instrumentation and control, ladder logic drawings and electrical schematics. Mr. Vicar's addressed and met head-on the challenge of expanding engineering treatment processes for multiple water plant systems including permitting, negotiating and coordinating owner furnished equipment and project closeout.

Assignment

Water Treatment Plants/Distribution Water Quality

Education

BS, Chemical Engineering, University of Florida

Registration

Professional Engineer, Florida 60704

Certified General Contractor

Experience

18 years

Relevant Expertise

- *Treatment*
- *Pumping Systems*
- *Project Management*
- *Construction Management*
- *Permitting*

Various Projects, Florida

Process Engineer. Process Engineer on Water and Wastewater treatment projects with expert knowledge of the following technologies: Reverse Osmosis (RO), Pretreatment Filtration, Ion Exchange, Chemicals, Stripping Tower (degasification) process, Absorption (odor control) process, product storage, and pumping systems.

Project accomplishments include:

- Design Engineer responsible for the iron removal pretreatment process, the existing 1.5 MGD Nanofiltration treatment process, and for providing 0.75 MGD of raw water blend.
- Provided membrane analysis and selection, coordinated membrane replacement, and provided startup services for Indian River County's four existing RO treatment trains.
- Design Engineer responsible for engineering treatment processes associated with the expansion of various Martin County Utilities' Water Treatment Plants.
- Design Engineer responsible for all treatment processes associated with the expansion of Martin County Utility Tropical Farms Water Treatment Plant.
- Participated in pilot testing and design engineering for the removal of color and organics from membrane softening plant's concentrate and raw water.
- Design and application of digital and analog control systems for regulatory and Supervisory Control and Data Acquisition (SCADA), development of control strategies and coordination of work between the electrical engineering and the mechanical engineering disciplines.
- Development of process flow diagrams (PFD), piping and instrumentation (P&I) diagrams, systems design, and control philosophy for the programmable logic controllers (PLC) and SCADA systems.
- Strong technical skills in treatment plant start-up, control loop verification, operational readiness testing which includes electrical and ladder logic schematic analysis, troubleshooting and adjusting the control strategies to meet the specific process requirements.
- Design Engineer responsible for obtaining permits from the governing Health Department. Design engineering for the expansion of the Village of Royal Palm Beach Water Treatment Plant.
- Design and Project Engineer responsible for permit, design, and construction phase services of a 345,000-gallon gravity-filter backwash recovery basin, modifications to the lime sludge blowdown lines, and construction of a sludge pumping pit.
- Project Engineer and Site Engineer for the construction phase.

G-434, G-435 and G-436 Pump Stations, South Florida Water Management District, West Palm Beach, Florida.

Lead Project Engineer. Lead Project Engineer responsible for simultaneously overseeing three stormwater pump stations G434, G-435 and G-436, for the South Florida Water Management District. The pump stations had pumping capacities of 1120 cfs, 480 cfs and 1,600 cfs, with a combined Contractor's cost of approximately $60 million dollars. Coordinated the purchase and delivery of owner furnished equipment valued at nearly $30 million dollars. Engaged in every aspect of construction engineering from blasting cap-rock to final acceptance testing.

C-44 Reservoir S-401 Pump Station Construction Management, South Florida Water Management District, West Palm Beach, Florida

Construction Management Services. Provide support and augment staff in the construction management of the S-401 Pump Station for the C-44 Reservoir/STA Project. The project includes the construction of a 21,000-square foot, fully operational, three story pump station building with four 275 cubic feet per second (cfs) electric pump systems and the remaining 600 feet of the C-44 Intake Canal.

L-8 Reservoir, South Florida Water Management District, West Palm Beach, Florida

Construction Management Services. Provided support on the L-8 Reservoir Modifications, Pump Station and Inflow Structure project. The L-8 project is a $63 million Design-Build project that consist of a 46,000 acre-feet reservoir storage with perimeter embankment improvements, reservoir cell modifications, a new boat ramp facility, a new 450 cfs, a 2-stage outfall pumping station, a three-gate inflow gate structure with a maximum capacity of 3,000 cfs from L-8 Canal to the L-8 Reservoir and a new road bridge across the new inflow canal.

Various Project, LVI, Florida

Owner and Operator. Founded State Certified General Contracting Corporation.

- Fostered business growth while serving commercial and residential accounts.
- Stellar record of customer satisfaction. Customer satisfaction testimonials and word of mouth led to higher sales.
- Excellent record of progressive business growth with multiple years of revenue in $750K–$950K.
- Interior subcontractor on a 10-story office building, (Radisson) hotel, restaurant and conference rooms. (Contract values ± $500K.)
- Interior build out of 10,000 square foot United Postal Service distribution facility in Boca Raton, Florida.

Jennifer L. Leone, PE

Experience Summary

Jennifer Leone has over 17 years of experience primarily relating to municipal water treatment systems. Her specific areas of expertise include plant pumping systems, master planning, hydraulic modeling, lime softening treatment plants, membrane softening treatment plants, raw water systems, remote storage and booster pump stations, and regulatory compliance. She has served as both design engineer and project manager on numerous projects located throughout South Florida.

Assignment

Water Treatment Plants/Distribution Water Quality

Education

BS, Environmental Engineering, University of Florida (With Honors)

Registration

Florida PE No. 57521

Experience

17 Years

Relevant Expertise

- *Drinking Water*
- *Pumping Systems*
- *Project Management*

Vacuum Filter and Sludge Thickener, City of Coral Springs, Florida

Project Engineer. Assisted with the design of a second sludge thickener and vacuum filter system for the City's lime softening plant.

Water and Wastewater Systems Master Plan Update, Coral Springs, Florida

Project Engineer. Completed hydraulic modeling of both the water distribution system and the wastewater transmission system, and evaluated deficiencies on these systems. Modeling also helped size system storage for a proposed remote storage tank and repump station

10.5 MGD Nanofiltration Membrane Plant, City of Deerfield Beach, Florida

Project Engineer. Responsible for design of the 6-mgd transfer pumps, two new 6-mgd high service pumps and assisted with other aspects of process design, including membrane element selection. In addition to the treatment process design, assisted in evaluating various options for concentrate disposal, including surface water discharge and deep well injection.

40 MGD Nanofiltration Membrane Plant, City of Boca Raton, Florida

Project Engineer. Assisted with the design and hydraulic evaluation of new transfer pumps and new high service pumps for the City's 40-mgd nanofiltration plant expansion. Served as project engineer for membrane pilot testing conducted at one of the City's well sites consisting of data collection from the pilot unit, and tracking operational trends for several different types of membrane elements.

14.5 MGD Nanofiltration Membrane Plant, Town of Jupiter, Florida

Project Engineer. Designed the clearwell and transfer pumps (designed to pump 32.5 MGD to handle the nanofiltration finished water as well as all other plant processes) and designed the chemical processes which included sodium hydroxide, sulfuric acid and anti-scalant.

3 MG Water Storage Tank, Town of Jupiter, Florida

Project Manager and Design Engineer. Served as design engineer and project manager for the design of a 3.0 million gallon prestressed concrete ground storage tank and associated piping. The project was undertaken in two phases, with the first phase being the design and construction of the pumps, electrical building and site layout. Coordinated efforts regarding integrating the proposed tank and piping within the existing site.

SW 18th Street Storage Tank and Pump Station, City of Boca Raton, Florida

Project Engineer. This project included the design of a pre-stressed concrete ground storage tank and pump station for a remote booster storage tank. Assisted with hydraulics analysis, pump selection, and permitting.

East Booster Station, City of Coral Springs, Florida

Project Engineer. This project included the design of a pre-stressed concrete ground storage tank and pump station for a remote booster storage tank. Assisted with hydraulics analysis, pump selection, and permitting.

Chlorination Alternatives Evaluation, City of Riviera Beach, Florida
Project Engineer. Assisted with the evaluation of four possible improvements to the chlorination system for the City. The four alternatives consisted of (1) replacement of the existing gas system with new equipment, (2) bulk delivery sodium hypochlorite, (3) 0.8% on-site sodium hypochlorite generation, and (4) 12.5% on-site sodium hypochlorite generation.

2 MGD Concentrate Pump Station, City of Deerfield Beach, Florida
Project Manager and Design Engineer. Responsible for the management and design of a 2.0-mgd submersible pumping station required for concentrate disposal. The pumping system sent concentrate down a deep injection well under normal operation and to the sanitary sewer system when the injection well was out of service.

Filter Rehabilitation Study, City of Pompano Beach, Florida
Project Manager. Evaluation of the City's dual-media gravity filters by visual inspection of filter gallery piping and valves, the filter structure and troughs, observations of backwash procedures and laboratory analysis of filter media. The final report provided several options for the City to implement a phased approach to improving filter performance.

Wellfield Rehabilitation, City of Deerfield, Florida
Project Manager. Managed the design of two replacement well pumps as well as the addition of a parallel pipeline in preparation for the proposed nanofiltration membrane plant. Pumps were designed to provide required capacity and pressure at the head of the membrane plant. Materials utilized were more suitable for membrane treatment than the existing well pumps.

Wellfield Modeling, City of Boca Raton, Florida
Project Manager. Responsible for the hydraulic modeling of the City’s wellfield. The analysis included evaluating system pressure at the head of the proposed nanofiltration membrane plant and determining the best method to increase the pressure to minimum required levels.

Water Infrastructure Modeling Analysis, Dania Beach, Florida
Project Engineer. Created and evaluated the City's first hydraulic model of the water distribution system for preliminary evaluation of existing infrastructure and the ability to meet fire flow. Modeling indicated the immediate need for a new 16-inch diameter water main required to meet future fire flow needs, which the City subsequently implemented.

Raw and Finished Water Modeling Analysis, City of Deerfield Beach, Florida
Project Engineer. Created the City's first hydraulic model and utilized it to evaluate the impacts of consolidating treatment at one of two treatment facilities and converting the other to a remote booster station. Results of the model provided recommended necessary improvements including proper storage tank sizing for fire flow and high service pumping needs. The raw water model was used to help determine well pump requirements for the future nanofiltration membrane treatment plant.

Hydraulic Modeling Evaluation, Florida Keys Aqueduct Authority (FKAA), Florida
Project Engineer. Completed a hydraulic modeling analysis to determine hydraulic conditions along the main waterline in the Florida Keys, running from Florida City to Key West. The analysis included determining optimum locations for boosting system pressure in anticipation of a proposed water treatment facility, as well as a preliminary selection of pumps to meet those needs. She also analyzed exiting population and water use data, and projected future water needs of the City.

Large Diameter Process Pipe Replacement - Phase I, Fort Lauderdale, Florida
Project Engineer. Completed hydraulic analysis of large diameter process piping from the pretreatment building to the clarifier influent at the City's George T. Lohmeyer Regional Wastewater Treatment Plant to determine whether pipe sizes proposed for a PCCP pipe replacement project are properly sized.

Victor A. Hurlburt, PE

Experience Summary

Mr. Hurlburt brings over 43 years of experience in the study, design, permitting, construction administration, and resident engineering of various potable water transmission, distribution, supply and treatment projects, reclaimed water transmission projects, wastewater collection, transmission and treatment projects, and underground storage tank projects. He has completed numerous water and wastewater projects as well as plant startup and pilot plant operations in the U.S. and Puerto Rico. His water treatment experience includes conventional lime softening as well as membrane softening, reverse osmosis and ozone technologies.

Assignment

Water Distribution Systems/Sewer Collection System Infrastructure

Education

BS, Civil Engineering, University of Vermont, Burlington, Vermont

Registration

Professional Engineer, Florida

License #33836

Experience

43 years

Relevant Expertise

- *Potable Water Transmission, Distribution, Supply and Treatment*
- *Reclaimed Water Transmission*
- *Wastewater Collection*
- *Plant Startup*
- *Pilot Plant Operations*

Broadview Estates Bid Package 2 Design for Wastewater Collection Systems, Broward County Water and Wastewater Services, Pompano Beach, Florida

Design Manager. Design manager for the design of a new gravity sewer collection system (approximately 20,700 linear feet of 8-inch and 10-inch diameter) for the neighborhood improvement project within the Broadview Estates residential subdivision.

Reclaimed Water Distribution System, City of Pompano Beach, Florida

Project Manager. Project Manager for design and permitting (FDEP, Broward County and SFWMD) of phased implementation of reclaimed water infrastructure project for residential and commercial areas of Pompano Beach east of Federal Highway to the Intracoastal Waterway. Design includes approximately 14,000 linear feet of PVC and ductile iron piping for the reclaimed water system ranging from 6-inch to 24-inch diameter.

Potable Water System Improvements, City of Pompano Beach, Florida

Design Manager. Project manager for design and permitting of potable water main by directional drilling segments under three canals to replace exposed piping supported on bridges.

Potable Water Main Replacement Project, City of Hollywood, Florida

Design Manager. Responsible for the design, permitting and bid phase engineering services for the upsizing and replacement of approximately 28,000 linear feet of potable water distribution main in the service area bounded by N. 22nd Avenue, N. 24th Avenue, Sheridan Street and Pershing Place. A second project that is in process involves the surveying, geotechnical investigations, design, permitting, bidding, and limited construction administration services for the replacement of approximately 60,500 linear feet of water mains. Included is the replacement of all water mains located within the Hollywood Boulevard right-of-way including FDOT permit applications for Roadway Right-of-Way construction. It also includes the design of five horizontal directional drills (HDDs).

Raw Water Pipe Replacement Project, City of Hollywood, Florida

Design Manager. Project manager for the design and construction phase services for the replacement of the exposed, above ground segment of 36-inch diameter raw water supply piping, valves and flow meter supported on existing pipe support system located on the water treatment plant property. The project also included improvements to the sulfuric acid storage and delivery system.

Re-development Water Transmission and Distribution Main Improvements - Area Nos. 1 and 2, City of Miramar, Florida

Project Manager. Project manager for the design and permitting of new water mains in the City's Eastern Service Area consisting of approximately 22,420 linear feet of water mains, including valves, tapping sleeves, water services, abandonment of existing water mains and restoration of roadways and grassed areas.

Sewage Force Main, City of Miramar, Florida

Project Manager. Project manager for design and permitting (FDOT, FDEP, and Broward County agencies) of five miles of combined 24-inch and 30-inch diameter sewage force main along major roadways in Miramar.

Sewage Force Main Improvements, City of Miramar, Florida
Project Manager. Project manager for design and permitting (FDEP and Broward County agencies) of extensions for existing sewage force main system segments in two areas of the City's service area to remedy an overflow situation.

24-inch Reclaimed Water Main Design, Florida Governmental Utility Authority, Poinciana, Florida
Project Manager. Project manager for design of 24-inch diameter reclaimed water transmission pipeline that measured approximately 53,000 linear feet in length and included trenchless technology crossings of various roadways and a railroad.

Pipeline Crossing of Interstate 95 by Directional Drilling, City of Daytona Beach, Florida
Project Manager. Project manager for design, permitting (FDEP, FDOT and Volusia County Health Department) and construction administration of a combination of jack and bore installation, and open trench installation for one mile of 24-inch diameter water main, 12-inch diameter reclaimed water main and 8-inch diameter sewage force main crossing under Interstate 95 at LPGA Boulevard in Daytona Beach.

Design and Construction 36-inch and 42-inch Sewage Force Main for CONSERV I Flow Diversion, City of Orlando, Florida
Project Manager. Project manager for study, design, permitting (SJRWMD, FDEP, FDOT and Orange County) and construction administration services of a phased (Phase 1 and 2) 8.5 miles segment of 36-inch, 42-inch, and 48-inch diameter sewage force main with numerous trenchless technology crossings of roadways and waterways. Project limits were from the intersection of Grant Street and SR436 to MH444 in Dean Road just north of the Econolochatchee River.

Sewage Collection System Improvements, Lake Nona Service Area, City of Orlando, Florida
Project Manager. Provided study, design, and construction phase project manager services for the City's Lake Nona sewage pump station (3.5-mgd capacity at build-out and the associated gravity sewer system [8,600 linear feet of 24-inch diameter piping]), sewage force main (21,000 linear feet of 24-inch diameter piping), and reclaimed water (29,900 linear feet of 16-inch diameter piping). The project also included permitting (FDEP) wetland delineation services and coordination with the Orlando Utilities Commission for the development of pipeline alignment alternatives in the electrical transmission system right-of-ways, and with FDOT for roadway right-of-way alignment locations. Most of the pipelines were designed for open-cut construction, but numerous jack-and-bore installations were required for various roadway and railroad crossings.

Continuing Water Consultant Services, City of Daytona Beach, Florida
Project Manager. Provided complete portfolio of planning, study, design, and construction phase services as the project manager as the City's general water consultant. Projects included pipeline (ranging from 6-inch diameter to 30-inch diameter piping) extensions, and pipeline replacement projects to include construction methods using jack and bore, microtunneling, and open cut, as well as river crossing installations. Other water discipline projects included design for refurbishing of elevated potable water storage tanks, potable water booster pumping stations, and ground storage tanks. All water distribution system projects included clearance permitting through FDEP and local health department.

Buried Infrastructure Improvements for Disney Western Beltway, Reedy Creek Energy Services, Orlando, Florida
Project Manager. Project manager for extension of existing utilities to include 8,000 linear feet of 16-inch diameter water main, 12-inch diameter force main and 12-inch diameter reclaimed water main within the right-of-way of Disney's Western Boulevard.

Project Manager

Diego M. Herrera, PE

Experience Summary

Diego Herrera has over 13 years of experience in project management, and civil and environmental design for water and wastewater projects in the public and private sector. Projects involved contract preparation for study and analysis, design, QA/QC, value engineering, permitting, bidding, construction administration, startup, and operation and maintenance. Mr. Herrera's primary areas of expertise include: design of storm water management systems for land development projects, permitting, construction oversight, and inspection; preparation and permitting of water supply plans, master plans, reports for municipalities; planning and design of raw water collection wells and water treatment plant improvements, water distribution systems, permitting, and construction oversight; analysis and planning of reuse water processes and design of reuse water distribution systems, permitting and construction oversight; study and analysis, planning and design of wastewater collection systems and pumping stations (low-pressure, vacuum, and conventional gravity), permitting, and construction oversight. Additionally, he has experience in design-build projects. He has successfully completed over 100 wastewater collection systems, pumping stations, and existing wastewater systems evaluations; over 50 raw water collection and water treatment plant processes evaluations, and water distribution systems; and over 20 projects involving reuse water study and analysis, reuse water treatment plant evaluations and upgrades, and reuse water distribution systems.

Education

BS, Civil Engineering, Military School of Engineering AJS
La Paz, Bolivia

Registration

Professional Engineer #73143, Florida, 2011

Experience

13 years

Relevant Expertise

- *Water/Wastewater/Reuse Systems*
- *Drinking Water*
- *Pumping Systems*
- *Project Management*
- *Storm Water Analysis*

3BC Septic Tank Elimination Analysis Memorandum, Broward County Water and Wastewater Services, Broward County, Florida

Project Manager. Preparation of a hydraulic model to determine overall hydraulic factors and conditions for a proposed forcemain to tie into Retail Master Pump Station 320, provide proposed modifications to RMPS 320 based on hydraulic model, preparation of permitting requirements for the future gravity sewer system within the 3BC area, and identification of utilities to be involved. Project is under preparation.

MPS462 Analysis, Broward County Water and Wastewater Services, Broward County Florida

Project Manager. Preparation of an assessment study for Retail Master Pump Station 462 (BCWWS) to analyze the pumping issues experienced by this station and Master Pump Station 1 owned by Royal Utilities. The assessment determined possible reasons why ragging issues are constantly present and determined future improvements and operational adjustments to be adopted for proper functioning of the station.

Southwest Quadrant Downtown Water and Sewer Improvements, Coral Springs, Florida

Design Engineer. Design of a gravity sewer system, water mains, force mains, and one lift station for the new City of Coral Springs Downtown Redevelopment Area. The associated sewer system will be able to provide service to approximately 900 multifamily units and about 82,00 SF of new retail buildings. The water main was design to be 12-inch in diameter with a total length of 1,200 LF.

Water Main Replacement Program (Hollywood Blvd. to Johnson Street, and N. 60th Ave. to N. 52nd Ave.), City of Hollywood, Florida

Project Manager. Planning and design of a new water main system to replace the aging system. Project comprises of approximately 60,500 LF of piping, including approximately 8,300 LF of water main within Hollywood right-of-way, and three horizontal directional drill crossings to connect to the existing water system. A fire hydrant coverage analysis was prepared. Complete road restoration based on Broward County and FDOT requirements. Project is under design.

Water Main Replacement Program (Taft Street to Sheridan Street, and N. 26th Ave. to I-95), City of Hollywood, Florida
Project Manager. Planning and design of a new water main system to replace the current one. Project comprises of approximately 19,000 LF of piping. A fire hydrant coverage analysis was prepared. Complete road restoration based on Broward County requirements. Project is under design.

Rehabilitation of Lift Stations 14E, 17A, 17C, and 18C, Coral Springs, Florida
Design Engineer. Design of 4 lift stations totaling a combined pumping rate of approximately 2,000 GPM. The new pump stations were equipped with telemetry units and SCADA systems. The project also included the modeling of proposed pumping rate impacts on the existing sewer system and proposed upgrades to different locations in the City's system to allow for the increase of pumping flow.

Donald Road Gravity Sewer System, Village of Palm Springs, Florida
Design Engineer. Design of a gravity sewer system comprised of approximately 15,000 LF of sanitary sewer pipes, one pump station, and 1,500 LF of sewer force main. A total of 180 residential units, with a total of 900 residents, were provided with sewer service and much needed road restoration. The new pump station was equipped with telemetry units and SCADA systems.

Strawberry Fields, Marlboro Court, and States of Lake Clarke Shores Pump Stations Rehabilitation, Village of Palm Springs, Florida
Project Manager. Planning and design of 3 sanitary sewer pump stations. A total of 450 residential units and 80 business were benefited from this project. The rehabilitated pump stations were equipped with telemetry units and SCADA systems. Project included services during construction.

Monica, Davis Road, and Professional Plaza Pump Stations Rehabilitation, Village of Palm Springs, Florida
Project manager. Evaluation, planning, and design of 3 sanitary sewer pump stations. Approximately 650 residential units and 40 business were benefited from this project. The rehabilitated pump stations were equipped with telemetry units and SCADA systems. Project included services during construction.

Kent Drive and Sussex Drive Gravity Sewer System, Village of Palm Springs, Florida
Project Manager. Evaluation, planning, coordination, and design of a gravity sewer system comprised of approximately 2,500 LF of sanitary sewer pipes, one pump station, and 1,200 LF of sewer force main. A total of 60 residential units, with a total of 150 residents, were provided with sewer service. The new pump station was equipped with telemetry units and SCADA systems. Project included services during construction.

Colle Drive and Kivey Drive Gravity Sewer System, Village of Palm Springs, Florida
Project Manager. Planning and design of a gravity sewer system comprised of approximately 3,500 LF of sanitary sewer pipes, one pump station, and 300 LF of sewer force main. A total of 70 residential units benefited from this project. The new pump station was equipped with telemetry units and SCADA systems.

Sanitary Sewer System for the SW Corner of 10th Avenue North and Kirk Road, Village of Palm Springs, Florida
Project Manager. Planning and design of a gravity sewer system comprised of approximately 10,500 LF of sanitary sewer pipes, one pump station, and 3,000 LF of sewer force main. The project involved several agencies such as the Lake Worth Drainage District and Palm Beach County Water Utilities Division. The new pump station was equipped with telemetry units and SCADA systems.

Florida Mango Road Force Main, Village of Palm Springs, Florida
Project Manager. Managed the design and construction of a 24-inch force main to provide an emergency wastewater interconnect between the Village of Palm Springs and Palm Beach County. This effort included the design of several metering devices to account for the wastewater flow.

Experience Summary

Brian Scott has ten years of experience in a variety of water and wastewater planning, design, and construction management projects. His expertise includes the evaluation and optimization of unidirectional flushing programs, the study of water quality issues in distribution systems, and the use of hydraulic modeling software such as InfoWorks, InfoWater, InfoSWMM, H2OMAP Water, WaterGEMS, SewerGEMS, and DHI Mike Urban. He has been involved in the development of master plans for numerous clients across the country and is skilled in the development and analysis of water, wastewater, and reclaimed water models. Additionally, his experience includes proficiency with AutoCAD and ArcGIS, pump station and pipeline design, statistical analysis, construction management, pilot testing, and permitting.

Assignment

Water Distribution System/Sewer Collection System Infrastructure, Pumping Systems, Hydraulic Modeling, Ocean Outfall Compliance

Education

BS, Civil Engineering
University of Wisconsin–Platteville

M.S. Civil & Environmental Engineering
University of Wisconsin–Madison

Registration

PE: Florida 78420

Experience

10 years

Expertise

- *Hydraulic Modeling*
- *AutoCAD*
- *ArcGIS*
- *Analysis and Research*
- *Pump Selection and Design*
- *Water Quality in Distribution Systems*
- *Uni-directional Flushing*
- *Certified CSI Construction Document Technologist (CDT)*

Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services, Broward County, Florida

Technical Lead - Modeling. Hydraulic modeling to support pump selection for a 26 MGD reclaimed water pump station and transmission system. Analyzed ability of the transmission system to meet anticipated build-out conditions and determined required system configuration and operation to balance system demands due to high peaking factors. Communicated results to Client and emphasized the importance of large user demand management considerations required to maintain service within the design limits while meeting the average-day reuse requirements mandated by the Ocean Outfall Legislation.

3A Collection System Hydraulic Model, Broward County Water and Wastewater Services, Broward County, Florida

Technical Lead - Modeling. Construction and development of a functional and calibrated model that provides a reasonable representation of the District 3A pump station system. Test runs were conducted to validate the functionality of the model and document the initial characterization of system performance. The model included lift stations, pump stations, master meters, force mains, and gravity mains (including gravity main segments for upstream lift stations) immediately upstream (up to the first upstream manhole) of lift stations within the District 3A collection system that connect directly to the City of Hollywood's regional wastewater system.

Ocean Outfall Legislation – Reuse Compliance Strategy, City of Hollywood, Florida

Senior Project Engineer. Development of an integrated Ocean Outfall Legislation strategy that has resulted in agreement on a feasible reclaimed water compliance approach that leverages contracted reuse opportunities and maximizes the use of effluent that is not impacted by brackish groundwater influences. Working closely with the City and FDEP, the aquifer recharge element of the original plan was eliminated and the actual reuse to be implemented was limited only to the amount determined to be technically, environmentally and economically feasible. The City has realized an estimated cost savings of approximately $200 Million from its baseline plan of approximately $300 Million.

Water Main Replacement Projects, City of Hollywood, Florida

Senior Project Engineer. Design, permitting, and construction management services for water distribution system improvements for approximately 29,000 linear feet of new potable water main. This project involved work within a busy Florida Department of Transportation (FDOT) right-of-way, advanced permitting requirements, complex maintenance of traffic (MOT) considerations, the use of trenchless construction methods such as horizontal directional drill (HDD), and work with existing large diameter pre-stressed concrete cylinder pipe (PCCP). A second project that is in process involves the surveying, geotechnical investigations, design, permitting, bidding, and limited construction administration services for the replacement of

approximately 60,500 linear feet of water mains. Included is the replacement of all water mains located within the Hollywood Boulevard right-of-way including FDOT permit applications for Roadway Right-of-Way construction. It also includes the design of five horizontal directional drills (HDDs).

Distribution System Water Quality Improvements, Hollywood, Florida

Senior Project Engineer. The City of Hollywood had observed declining chlorine residuals along the north part of the barrier island during its routine water sampling activities. Nigel led the efforts to rapidly mobilize the firm to identify the source of the issue, recommended actions that could be implemented immediately to begin addressing it, and proposed longer-term solutions that could enhance overall distribution system operations and reduce the risk of similar issues occurring in the future. Initial recommendations implemented have resulted in a significant improvement in chlorine residuals maintained in the distribution system, particularly in the area of the barrier island with a history of low chlorine residuals.

Water and WW Master Plan, City of West Palm Beach, Florida

Technical Lead - Modeling. Created, calibrated, and utilized the utilities all pipe wastewater collection system hydraulic model and water distribution system model as part of the master planning process. Determined system deficiencies for a 30-year planning period and recommended system upgrades to maintain adequate service. Recommendations were establishing for prioritizing critical assets for condition assessment and to establish a 7-year capital improvement program (CIP) to improve reliability and performance while expanding capacity where required to support continued growth. As part of Amendment 3 to the project, verified and updated fire flows for the entire system and determined fire flow deficiencies, developed proposed solutions, and prepared a technical memorandum summarizing the results including engineer's opinion of probable construction costs.

Water and WW Master Plan As-Needed Services, City of West Palm Beach, Florida

Technical Lead - Modeling. Utilized the City's all pipe water distribution system model and the City's all pipe sanitary collection system model to support City staff with engineering decision making. Analyzed waterway crossing criticality and assessed impacts of construction related shutdowns. Developed an operational strategy to support the launch and transport of electromagnetic tools used to assess the conditions of the City's 42/48-inch diameter PCCP force main. Assessed the impact of adding sanitary flows from adjacent municipalities to the City's sanitary collection system and developed cost estimates for necessary system improvements.

Lift Station 114, 123, 125, 132, and 148 Rehabilitation, City of Sunrise, Florida

Project Engineer. Performed design of five sanitary lift stations, converting pump stations from wet/dry pit to wet pit submersible. Conducted hydraulic modeling of the sanitary force main network to establish design conditions and pump selection. Overcame site space constrictions, with the final design resulting in improved security, accessibility, and aesthetics at each site.

Hydraulic Modeling, Sarasota County, Florida

Project Engineer. Wastewater hydraulic modeling of an existing manifold force main system for current, 20-year, and build-out flows for a new pump station and 20-inch transmission force main including data collection and review, model verification, modeling proposed system, developing three alternatives, and producing technical memorandum summarizing the results.

Water Distribution System Hydraulic Model, Panama City, Florida

Technical Lead - Modeling. Calibrated and ran utilities all pipe water distribution system hydraulic model using InfoWater to determine system controls to allow for turnover in a proposed elevated tank. Set up multiple system scenarios and calibrated system based on field data. Determined required controls for implementation at 7 wholesale connection points to achieve project objectives. Performed fire flow simulations using final control scenario.

Viviana Villamizar, EI

Experience Summary

Ms. Villamizar possesses over 6 years of experience in research, development and design in the areas of environmental and water resources engineering and management; hydrology, hydraulics, GIS mapping and geo-data processing; wastewater reuse; waste management; and sustainability. She has a thorough knowledge of the GIS databases available for South Florida, which are maintained by federal and state agencies (USGS, SFWMD, Miami-Dade County, and Department of Interior). She holds expert level knowledge of applications of GIS tools for mapping and report generation, geospatial analysis, digitization, geodatabase development and maintenance, data creation and editing, metadata development. In addition, Ms. Villamizar has supported business development, prepared proposals, project execution and developed training programs for multiple projects in the areas of sustainability and water management.

Assignment

Hydraulic Modeling, GIS

Education

MS, Environmental Engineering, Florida International University

BS, Environmental Engineering, Florida International University

AA, Industrial Engineering, Florida International University

Experience

6 years

Joined Firm

2016

Relevant Expertise

- *Sustainability*
- *Water Resources*
- *Drainage Design*
- *Low Impact Development*
- *Hydrology*
- *Hydraulics*
- *Stormwater Management*
- *Environmental Engineering*

North County Reuse Feasibility, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Project Engineer. This project established reclaimed water demand and equalization recommendations; assessed water quality constraints and available source water for "scalping" applications; evaluated reclaimed water treatment alternatives; conceptually laid out transmission and distribution infrastructure; and developed conceptual cost estimates for the implementation alternative.

Broward 3BC Sanitary Sewer System, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Project Engineer. Performed analysis and evaluation to determine the feasibility of implementing sanitary sewer within unsewered areas in Broward County. The analysis provided consisted of three different alternatives proposed to provide sanitary sewer service to some areas in the 3BC service area that still rely on septic systems including the North Perry Airport. The evaluation of each alternative included capacity of neighboring systems, layout of proposed system, and cost estimate comparison.

North District Wastewater Treatment Plant (NDWWTP) Sludge Forcemain Condition Assessment, Miami Dade Water and Sewer Department (MDWASD), Miami, Florida

Project Engineer. Miami-Dade Water and Sewer Department (MDWASD) has requested that Brown and Caldwell undertake additional activities related to the sludge forcemains which transfer sludge from the North District Wastewater Treatment Plant (NDWWTP) to the Central District Wastewater Treatment Plant (CDWWTP). Degritted primary sludge, skimmings, and oxygen waste activated sludge from the North District Wastewater Treatment plant (NDWWTP) are transferred to the Central District Wastewater Treatment Plant (CDWWTP) for sludge processing. The combined sludge, known as transfer sludge (approximately 3.0 MGD), is currently pumped into either: 1) an approximately 15-mile pipeline that goes directly from the NDWWTP to the CDWWTP sludge concentrators, 2) a shorter (approximately 7 mile) pipeline that empties into an interceptor that goes to the head of the CDWWTP, or 3) through both forcemains with divided amounts of transfer sludge. The forcemains have been in continuous service for over 35 years. Aside from trucking the transfer sludge, these forcemains represent the only way that the NDWWTP can use to convey its sludge to the CDWWTP where it is processed.

North District Wastewater Treatment Plant (NDWWTP) Chlorine and Toxicity Study, Miami Dade Water and Sewer Department (MDWASD), Miami, Florida.

Project Engineer. The North District Wastewater Treatment Plant (NDWWTP) has a permitted surface water discharge limit of 100 million gallons per day (MGD) and a current annual average flow of approximately 80 MGD. The facility operates under a Florida Domestic Wastewater Facility Permit issued by the Florida

Department of Environmental Protection (FDEP). Testing will be performed to evaluate the minimum and maximum TRC limits at the chlorine monitoring location that will provide the disinfection requirements for fecal coliform and enterococci while maintaining whole effluent toxicity limits.

Big Coppitt Wastewater Treatment Plant, Florida Keys Aqueduct Authority, Big Coppitt, Florida

Project Manager. Pre-design expansion of the advanced water quality wastewater treatment plant on Big Coppitt Key for the Florida Keys Aqueduct Authority (FKAA). This plant employs sequencing batch reactor technology (SBRs), produces reuse quality water and includes a storage and distribution pumping system.

Drainage Improvements Throughout Miami-Dade County, City of Miami, City of Doral, Village of Pinecrest and Other Municipalities, Florida

Project Engineer. Supported the development of an ICPR model to evaluate existing conditions and proposed drainage improvements, 100 percent design drawings, specification, drainage analysis report, permitting and cost estimates.

East/West Fairview Street and South Bayshore Lane Drainage Improvements Project, City of Miami, Florida

Engineer. Assisted in preparing a drainage report and conceptual plans for a coastal community that includes drainage wells and proposed pump stations. She coordinated with the City of Miami on feasible alternatives to alleviate flooding in the immediate area and prevent wave action from overtopping the low elevation seawall.

Stormwater Management Master Plan, Village of Pinecrest, Florida

Project Engineer. Assisted in the development of the Stormwater Management Master Plan Update for the Village of Pinecrest. This project involved data collection from local, state, and federal sources; the refinement and analysis of XP-SWMM hydraulic and hydrologic models; ranking of high risk priority sub-basins, a future impact analysis of potential projects for high risk sub-basins; the development of planning level cost estimates; and the development of a capital improvement plan (CIP) to guide the Village in defining and prioritizing future projects.

Low Impact Development (LID), City of Doral, Florida

Project Engineer. Assisted in the development a Low Impact Development (LID) Master Plan to assist the City in maximizing implementation of LID Integrated Management Practices to minimize impacts from anticipated new development and/or redevelopment projects. The Master Plan also provided guidance for LID site planning, hydrologic analysis, and erosion and sediment control practices. As part of the Master Plan development, a Public Outreach Program was implemented to educate the residents and developer regarding the benefits of implementing LID practices and obtain input from these stakeholders to build consensus on the final recommendations of the LID Master Plan.

NW 47th Avenue Drainage Design Project, Florida Department of Transportation (FDOT), District 6, Florida

Engineer. Assisted in the development for the NW 47th Avenue Drainage Design project which is part of ADA's FDOT District 6 Districtwide Drainage Design and Plans Review Consultant Contract. Ms. Villamizar performed simulations using the conceptual ICPR model developed as part of the PD&E study and the latest existing information available for the project to determine the hydraulic capacity of the existing drainage systems and verifying pre-development runoff rates. The analysis of the hydraulic capacity of the existing drainage systems will be performed with ICPR, using the criteria outlined in the ICPR Applications Manual (ICPR-AM).

Ana Valenca DeMelo, PE, D.WRE

Experience Summary

Ana Valenca DeMelo a Florida-registered Professional Engineer with over 26 years of experience managing engineering projects and developing client relationship. Her experience includes stormwater management, master planning, municipal infrastructure retrofit and design of stormwater, water and sanitary systems, from planning, design, permitting, bidding and engineering during construction services. Performing in various capacity, as client and project manager, engineer of record and lead design engineer, she leads multi-discipline teams, project delivery, contract, scope and fee negotiations.

Assignment

Stormwater/Drainage/Surface Water Management

Education

MS, Civil and Environmental Engineering University of Rhode Island

BS, Civil Engineering University of Brasilia, Brazil

Registration

Professional Engineer, FL Diplomate, Water Resources Engineer, (D.WRE)

Experience

26 years

Relevant Expertise

- *Municipal Infrastructure/Capital Improvement Projects*
- *Stormwater Management and Master Planning*
- *Water Resources*
- *Solid Waste*

Stormwater Utility Development and Implementation Plan, Village of Royal Palm Beach, Palm Beach County, Florida

Project Manager. Developed a stormwater utility and an implementation plan for village-wide. The stormwater utility plan provided the necessary funding mechanism for billing the costs for operating, improving and maintaining the drainage system to continue with adequate levels-of-service for the Village's stormwater management program.

Stormwater Master Plan, City of Lake Worth, Palm Beach County, Florida

Project Manager and Engineer of Record. Managed a team of engineers and scientists in developing a city-wide Stormwater Master Plan which included conducting a stormwater infrastructure inventory, roadway drainage investigation, hydrologic and hydraulic modeling, estimate of pollutant mass loading, drainage retrofit alternatives developed in accordance with permitting agencies requirements, and development of engineer's opinion of construction cost. The City's stormwater master plan was adopted and included in the city's stormwater and roadway management program.

City of Lake Worth Stormwater Utility Methodology Update and Development of a Credit Manual, Palm Beach County, Florida

Project Manager. The project that consisted of re-evaluating the existing stormwater utility for the City of Lake Worth, reviewing the current billing information, developing an equitable billing system and implementing a stormwater stakeholder involvement plan. The stakeholders provided feedback and recommendations to the City Commissioners in support to appropriate modifications to the billing system. The project also included the development of a credit manual for user fees adjustment associated with the construction, operation, and maintenance of privately owned stormwater facilities that provide beneficial use to the city.

Seminole Brighton Reservation, Advanced Mitigation Area (AMA), Okeechobee County, Florida

Project Manager and Engineer of Record. Developed construction documents for the AMA and coordinating with professional scientists developing a two-dimensional hydrologic and hydrodynamic modeling analysis and a biological assessment report. The AMA design included earthen embankment, variable inlet and outlet control structures, emergency structures, seepage ditch and perimeter road access. The AMA design also included a seepage pump to minimize water levels in seepage ditch and to reutilize seepage for enhanced wetland hydration.

Seminole Brighton Reservation, Group B Pump Station Relocation, Okeechobee County, Florida

Project and Client Manager. Managed the design of a new pump station to accommodate existing two 25,000 gpm pumps, including new culvert sizing, pump station by-pass design, canal widening and armoring, access entrance and site improvement.

All Aboard Florida, Miami to Orlando Passenger Service (FEC Railroad from MP 233.75 to MP 298.75. Coastal Counties, Florida

Task manager and design engineer. Developed a stormwater management report to address third track segments addition. The report included drainage culvert crossing analysis, floodplain evaluation and compensating storage calculation, water quantity and quality evaluation and drainage design.

Avenue H East and West Infrastructure Improvements, City of Riviera Beach, Palm Beach County, Florida

Client and Project Manager and Engineer of Record. Developed infrastructure improvements including roadway reconstruction, drainage management system, fire service, potable water and sanitary sewer. Drainage management design included exfiltration trenches for water quality improvement prior to discharging to the City's drainage canals. Road improvement included incorporating ADA ramps and a multipurpose path for pedestrian and bicycle use for crossing Blue Heron Blvd. as well as a bike path connecting the Southern end of Ave. H West to the North end of Ave. H East.

15th, 16th, 17th, 18th Ave. N. and Terrace Dr. West and East Neighborhood Road Program, City of Lake Worth, Palm Beach County, Florida

Client and Project Manager and Engineer of Record. The project consisted of neighborhood infrastructure improvements that included Public Outreach meetings, conceptual plan development based on public/residents and stakeholders input, traffic safety improvement, watermain upgrade, road reconstruction and drainage design, landscape and traffic calming designs, permitting, development of the construction documents and bidding services assistance. The project included jack-and-bore design and permitting for a watermain connection between East and West areas of I-95 and the South Florida Regional Transportation Authority Tri-Rail tracks.

Tropical Drive and Barton Road Infrastructure Improvements, Lake Worth, Palm Beach County, Florida

Client and Project Manager. Services consisted of construction administration for the infrastructure improvements within a residential area in the City. Project included the replacement of approximately 8,000 lf of water mains, including service transfer from rear of properties to the front of the lots, relining of 5,000 lf of sanitary sewer lines and associated laterals, reconstruction of 25,000 sy of local streets. Work also included design of a metered water interconnection with the Town of Lantana water system.

City of Lake Worth Continuing Consulting Services, Palm Beach County, Florida

Client Manager and Project Manager. Manager for the continuing engineering services (CES) contract negotiating scope, fees and developing Task Orders. Work performed under the CES contract included design of watermain extension for 8th and 11th Avenue South, acid dilution system retrofit at the Reverse Osmosis Water Treatment Plant, yard piping and valve modification for the City's elevated water tank and booster pump station.

Harry M. Tomlinson, Jr., PE

Experience Summary

Harry Tomlinson has 25 years of civil engineering experience with concentrations in geotechnical engineering and surface water management. Most of this experience is associated with solid waste management, contaminated site rehabilitation, and water resources. Harry has been involved in all stages of design, permitting, and construction of surface water storage and treatment projects; landfill development expansion and closure projects; waste transfer stations; old landfill reuse projects; and site remediation projects. Harry has extensive experience in the design and construction of geosynthetic enhanced soil systems including filters, drains, landfill caps and liners, and structural reinforcement. He is proficient in two-dimensional groundwater flow modeling and slope stability analysis. He has laboratory and in situ soil testing experience and extensive construction management experience.

Assignment

Stormwater/Drainage/Surface Water Management, Construction Management

Education

MS, Geotechnical Engineering, Georgia Institute of Technology,

BS, Civil Engineering, Georgia Institute of Technology,

Registration

Florida, PE Number 48249

Experience

25 Years

Relevant Expertise

- *Surface Water Management*
- *Drainage Systems*
- *Contaminated Site Rehabilitation*
- *Geotechnical Engineering*
- *Construction Phase Services*

East Coast Protective Levee Rehabilitation Project, South Florida Water Management District, Broward and Miami-Dade County, Florida

Construction Management Project Manager. Responsible for providing Construction Management inspection services and Construction Quality Control (CQC) for a 41-mile long, levee rehabilitation project consisting of toe filter construction, slope re-grading and restoration, riprap erosion protection and road improvement. This project was designed and managed by SFWMD to meet requirements for FEMA flood protection Levee certification. The project is being constructed under three different contracts by two different contractors. Mr. Tomlinson provides supervision of the inspection team and serves as a geotechnical expert on an as-needed basis.

Compartment B Buildout, Palm Beach County, Florida

Engineer of Record and Project Manager. Performed technical and management roles during design and construction phases for this Everglades Restoration Project, which consisted of three major storm water pumping stations (3,200 cfs combined capacity), over 30 miles of levee, and 20 flow control structures.

Everglades Agricultural Area Reservoir A1, Palm Beach County, Florida

Construction Management Lead Engineer. Responsible for initiating the Construction Management and Construction Quality Control (CQC) Program for construction of a 21-mile long, zoned-fill, earth dam with roller compacted concrete armoring. This earth dam was a $450 million component of the 26,000 acre EAA Reservoir A1, a CERP project. Mr. Tomlinson wrote the CQC Plan, negotiated the scope of work and budget, and assembled a team of over 15 professionals to provide CQC testing and documentation. The team provided Quality Assurance inspection and testing services during production of aggregate for the dam and construction of test pads for drainage layers and RCC armoring. The team also developed a GIS referenced database for test analysis, storage, and reporting. The project was canceled before construction of the major components of the dam started and Mr. Tomlinson also managed the project closeout.

Sawgrass WWTP, High Level Disinfection System, City of Sunrise, Florida

Project Manager. Construction services associated with a 4-mgd High Level Disinfection Facility at the Sawgrass WWTP.

C-44 Reservoir S-401 Pump Station Construction Management, South Florida Water Management District, West Palm Beach, Florida

Project Manager. Provide support and augment staff in the construction management of the S-401 Pump Station for the C-44 Reservoir/STA Project. The project includes the construction of a 21,000-square foot, fully operational, three story pump station building with four 275 cubic feet per second (cfs) electric pump systems and the remaining 600 feet of the C-44 Intake Canal.

Georgia Pacific Oxidation Pond Containment Modification, Palatka, Florida

Lead Geotechnical Engineer. Led the design effort for restoration and improvement of a 900-acre system of eight interconnected industrial wastewater treatment ponds for a paper mill in Palatka. He performed seepage and stability analysis on the existing embankments containing the ponds and performed iterative analyses to design enhancements to the existing embankments. Harry designed a phased construction process for a new embankment to separate two ponds and allow dewatering and reconfiguration of the pond system. Harry authored plans and specifications for the pond system enhancements and served as engineer of record for the Civil discipline of this project.

C-44 Reservoir and STA - Microwave Communication Tower Project, South Florida Water Management District, Martin County, Florida

Construction Management Project Manager. Responsible for providing Construction Management and Construction Quality Control (CQC) for a 300-foot-tall microwave communication tower, appurtenances, and entrance road. This project consists of a contract for procurement of the microwave communications equipment and another construction and installation contract. Mr. Tomlinson provides supervision of the Lead Construction Manager and inspection team and serves as a geotechnical expert on an as-needed basis.

S-6 Pump Station - Microwave Communication Tower Project, South Florida Water Management District, Palm Beach County, Florida

Engineering During Construction Project Manager. Responsible for providing Engineering During Construction for a 200-foot-tall microwave communication tower, appurtenances, and associated microwave data transmission system improvements in the area. This project includes adoption of a design performed by another engineering firm, review of all submittals, change orders, requests for information, periodic construction observation, and final certification. Mr. Tomlinson provides supervision of the team of reviewers and is the engineer of record for the civil engineering discipline.

Pace Landfill Redevelopment, Miami, Florida

Lead Engineer. Provided geotechnical engineering and surface-water management related services associated with redevelopment of an 18-acre closed, unpermitted, landfill. Mr. Tomlinson identified surface-water management alternatives for potential development of the property and evaluated the previous geotechnical investigations performed at the site. Without performing additional investigation, Mr. Tomlinson was able to provide the landowner with information necessary to support his negotiations with potential buyers. After the site was conveyed to a developer, Mr. Tomlinson continued with the project as the geotechnical engineer and consultant regarding solid waste and landfill gas related issues. He performed a detailed subsurface investigation for the proposed development of an upscale shopping center, designed several innovative foundation alternatives, designed a dynamic compaction program to lower the site elevation and mitigate settlement, designed and implemented a dynamic compaction pilot study, implemented pile load tests and a test program to evaluate the feasibility of using auger cast piles through the waste layer, was involved in the design of stormwater drainage wells, and designed a landfill gas mitigation and monitoring system for the site. Mr. Tomlinson was the certifying engineer for the Construction Quality Assurance program performed during the site preparation phase of construction and for the installation of the gas mitigation and monitoring system.

Ash Monofill Closure, Miami-Dade County, Florida

Project Manager and Lead Geotechnical Engineer. Designed the cap for a 10-acre closure for Cell 19 of the Resources Recovery Facility ash landfill in Miami-Dade County. Harry was responsible for design of the barrier and drainage layers within the cap, the global and veneer stability analysis for the closure design, and value analysis for selection of cover soil and drain material. The municipal solid waste incinerator ash landfill has 3H:1V slopes and limited space for cover swales or benches.

Experience Summary

Lance Salerno is with Brown and Caldwell's Solutions and Delivery Enterprise (SDE) and works closely with Utility Performance staff companywide. He has an MS in Environmental Engineering and MBA in Management from Manhattan College. He brings over 27 years of O&M consulting experience, including conducting wastewater plant operability reviews, commissioning and startup leadership roles, staff training, municipal wastewater operations, industrial wastewater field operations, unit process operations, wastewater permitting and client service. As a startup manager and O&M expert he has led numerous construction contract startups at large municipal wastewater plants with >100MGD of flow. He is a licensed industrial wastewater operator, has led a Contract O&M Services group, and has presented and/or coauthored 10 nationally published papers on wastewater operations topics and is a member of the WEF POMC committee. Lance is the recipient of the 1989 W. Wesley Eckenfelder Award from Manhattan College for Excellence and Professionalism, is a Qualified Environmental Professional, member of Sigma Xi, and is a member of the Society of Sanitary Sludge Shovelers.

Assignment

Operations/Condition Assessment

Education

MBA, Management, Manhattan College

MS, Environmental Engineering, Manhattan College

BS, Environmental Biology, Manhattan College

Registrations

New Jersey Industrial Wastewater Treatment System Operator, N-4

Qualified Environmental Professional

Certifications

40 HR OSHA HAZWOPER

OSHA Confined Space Entry

10 HR OSHA Construction

NFPA 70E Qualified

Experience

27 years

North District Wastewater Treatment Plant, Miami-Dade, Florida

Lead O&M Specialist. Led O&M review of the headworks design for the North District Wastewater Treatment Plant. Work including meeting with site staff to obtain Operations and Maintenance staff input for design and operability considerations.

Asset Management and Condition Assessment, East Central Regional Water Reclamation Facility, City of West Palm Beach, Florida

Lead O&M Specialist. Lead comprehensive asset management study at the 50 MGD wastewater treatment and reclamation Facility. Work included development of methodology for collecting data, implementation of field tablets to log data, facilitation meetings to gather information and data from plant staff, and conducting physical assessments of plant wide treatment systems and dewatering system assets.

Operability and Design Review Team, ECRWRF, West Palm Beach, Florida

O&M Task Lead. Conducted a third-party review & value engineering study for the 60% design documents for of a new biosolids facility featuring a temperature phased anaerobic digestion (TPAD) process. Mr. Salerno led the O&M portion of the work that included participation on the value engineering team, preparation of comments, and participation in public meeting to provide findings and gather feedback on this very significant capital project. In addition, conducted 90% O&M design review of the same.

Condition Assessment of Puerto Rico Wastewater Treatment Plants, Puerto Rico

Wastewater Task Leader. Conducted a condition assessment evaluation of all 62 municipal wastewater treatment plants and a representative number of the 1,000 wastewater pumping stations as part of the Bond Engineers Assessment of Puerto Rico infrastructure work. Wastewater work included leading on-site condition assessment team for facilities and considered facilities, operations, maintenance, staffing and compliance.

Operability Design Review, Final Design and OEDC, City of San Jose, California

QA/QC. Conducted operability and maintainability review and comments for the 90% design package as part of the project quality assurance review of the design. In addition, provided O&M Cost estimating as part of planning for potential future costs associated with the plant improvements.

Design/Build Startup Assistance, Northern Treatment Plant, Metro Wastewater Reclamation District, Denver, Colorado

Task Leader. Developed detailed startup plan for seeding and commissioning of a thickening, digestion and dewatering biosolids facility featuring a UFAT thickening and fermentation process, anaerobic digestion, post aerobic digestion (PAD) process and cogeneration system. Led startup planning workshops to gather input from major stakeholders including the operations staff, design team, and construction team for the plan.

Comprehensive Performance Evaluation (CPE), Puerto Rico
QA/QC. Responsible for quality assurance and technical review of comprehensive performance evaluations for ten municipal wastewater treatment facilities in Puerto Rico. Work included evaluating existing plant capacity, and identifying measures to maintain future compliance through both operational and design modifications.

O&M Wastewater Treatment Manager, BNSF Railroad, Fort Worth Texas
Technical Oversight. Responsible for line supervision and technical QA/QC for interim wastewater treatment O&M manager position responsible for oversight assistance of wastewater operations at 150 sites nationwide. Also helping client set O&M priorities, handle regulatory management, and facilitate communication in wastewater operations.

Allnex, Resin Manufacturer, New England
Operations Management. Provided on-site operations management support to a wastewater operations team responsible for maintaining a 2.5 MGD extended aeration activated sludge wastewater treatment system. On-site responsibilities included, monitoring process operations, troubleshooting, reviewing daily operator activities and communications with senior staff.

Gowanus Canal CSO Tank Siting and Superfund Support, New York City Department of Environmental Protection, Brooklyn, New York
Operations Specialist. Prepared the operations and maintenance portion of the basis of design report (BODR) including operational description of future facilities and a preliminary life cycle operations and maintenance cost estimate for the project in concert with the BODR.

HAZOP Workshop and Operability Review, Confidential Client, 60% Design-Build, New York
Task Technical Lead. Led the HAZOP Workshop for multi-stakeholder and design discipline team for an advanced leachate treatment design-build plant featuring dissolved air flotation metals treatment, biological treatment, ultrafiltration, reverse-osmosis, and evaporation technology. Work included, establishing nodes, preparing background information packages for participant, developing scoring approach as well as facilitating the multi-day workshop.

Manufactured Gas Plant (MGP) Gas Holders Cleanout (Design/Build/Operate), New York
Project Manager. Responsible for the initial phase of work to remove, dewater, and dispose of wastewater sludge from two 300-ft-diam former MGP gas holders. Responsibilities included successful development of NYCDEP work plan, wastewater treatment design, health and safety plan (HASP), management of major subcontractors, permit development that included negotiations with NYCDEP and NYSDEC to obtain a discharge permit to the NYC wastewater collection system, as well as a modification of an SPDES permit for a discharge to the East River.

Remedial Operations at Superfund Site, New Jersey
Project Manager. Responsible for an operations management project of a major CERCLA remediation project consisting of a well point field, 300-gpm of extraction, treatment, and reinjection system for the period of 1997 to 2004. Designated as Project Coordinator from 2004 to 2006 on behalf of the PRP Group. Responsibilities included daily operations oversight of constructed remedy, budget management, primary regulatory interface for PRP Group, forward planning of remedy, contractor oversight, and troubleshooting of remedy problems.

Contract Operations Pump-and-Treat System, New Jersey
Project Manager. Responsible for a contract operation of a remedial extraction pump-and-treat system to contain and treat groundwater at a former MGP site. In addition, conducted significant process improvements and system modifications to monitor and control the process more cost-efficiently. Responsibilities included daily operations oversight, budget management, staffing, and troubleshooting process problems.

Simon Watson, CMRP, ENV SP

Experience Summary

Simon Watson's experience encompasses all aspects of asset and maintenance management with a focus on maintenance operations and providing technical advice and management decisions during the planning, design, construction, and program management of multi-million-dollar municipal capital improvement projects. Prior to joining Brown and Caldwell Simon's career include 23 years of service with Orange County Sanitation District, including 13 years as the Maintenance Manager. His responsibilities in this capacity included oversight and management of up to 115 fulltime employees; development and management of joint operating budgets of up to $19 million; development and implementation of the District's Asset Management program and a reliability engineering group; management and oversight of mechanical maintenance, collection systems maintenance, corrosion management program, building and grounds, and computer maintenance management systems.

Simon is Brown and Caldwell's National Leader for the Operations and Maintenance consulting practices. He manages a team of professionals that deliver a range of services from operability and maintainability review of designs, commissioning and start-up, O&M manual development, maintenance management strategy development and optimization, training to plant condition assessments.

Assignment

Operations/Condition Assessment

Education

MS, of Public Administration, California State University

BS, Business Management, University of Phoenix

Certifications

Certified Maintenance Reliability Professional (CMRP)

ENVISION™ Sustainability Professional (ENV SP), Institute for Sustainable Infrastructure

Grade 4 Mechanical Technologist

Grade 4 Collections Systems Maintenance

Certified Cross Connections Control Program Specialist

Certified in Community College Teaching

Experience

26 years

Plant Asset Management Services, Metropolitan St. Louis Sewer District, Missouri

Technical Advisor/Asset Management Strategy. The District wants to implement a more formalized asset management program for its six WWTPs and more than 40 major pump stations to optimize processes. The project team will develop criticality and condition assessments for all plant and pump station equipment/systems. This includes estimating remaining useful life and developing a replacement planning model to allow the District to integrate their capital requirements with their other long-term capital needs. Simon facilitated a chartering workshop that developed the project's asset management mission and goals. He also assisted in completing an Asset Management Gap Analysis interviewing staff from five different facilities to identify gaps. The gap analysis was then used to develop a Strategic Asset Management Plan that included recommendations for improvement and a subsequent implementation plan. IN the second phase of the project he is assisting MSD to improve the maintenance management strategies, providing coaching and onsite training for the internal condition assessment program.

California State Water Project Asset Management Program Development, Department of Water Resources, California

Task Lead for Management of Change (MoC) and Deputy Task Lead for the Asset Management Program (AMP). Simon led the development of a Management of Change plan to support implementation of the asset management program, which encompasses more than 1,200 employees, 700 miles of canals and pipelines, 34 storage facilities, 29 pumping and generating plants that produce 1,700MW and deliver 3 million-acre feet of water throughout California. As the deputy lead for the AMP, he assisted in a gap analysis and preparing a multi-year implementation roadmap that includes developing a risk register and risk map for the entire State Water Project and improvement plan for the plant and civil condition assessment programs. He is currently working as an extension of staff to providing the lead role in implementing the MoC along with advancing the Risk Management program.

Plant Condition Assessment and Staffing Skills Evaluation, Ugum Water Plant, Guam Water Authority

Maintenance Management Lead. Simon completed a comprehensive equipment condition assessment of the 4MGD MBR plant. The evaluation included visual inspection of all equipment and a review of the maintenance

records and practices. In addition, an evaluation of the O&M staffs' capability to operate and maintain the facilities was conducted. The report provided current state documentation and recommendations to bring the equipment back to reliable operations as well as O&M practices staff needed implement to increase reliability.

Buildings, Grounds, and Mechanical Maintenance, Orange County Sanitation District, Fountain Valley and Huntington Beach, California

Maintenance Manager. Simon's responsibilities included management of up to 115 full time employees; overseeing mechanical maintenance functions, collection systems maintenance, corrosion management, and computer maintenance management systems. He also provided overall management and direction of special initiatives within the District, such as:

- **Predictive Maintenance Program.** He developed and implemented a predictive maintenance program that is focused on increasing equipment reliability and decreasing repair cost. In addition, approximately three full-time equivalent worth of man hours were gained which offset the need to hire new staff for the expansion of the facilities. The program also produced over $600,000 of cost avoidance savings for four, consecutive fiscal years.
- **Asset Management Implementations.** Simon was one of two employees responsible for the initial coordination and implementation of the District-wide Asset Management initiative. During implementation, he traveled to Australian and New Zealand to gather best management practices in asset management which were then implemented. Managed the program for approximately two years developing the first Asset Management Plan, and then transitioned the program from Operations and Maintenance (O&M) to Engineering.

Sewage Collection System Assessment, City of Tempe, Arizona

Maintenance Management Lead. This project included program development, data management, field investigations and condition assessments of pipes and manholes, design and construction management services for replacement and rehabilitation projects on pipes and manholes, and long-term capital improvement project planning and implementation for a comprehensive program. Simon developed strategies for optimizing the current maintenance program resources and expenditures.

Asset Management and Preventive Maintenance Program for Dams and Reservoir Facilities, City of Durham, North Carolina

Lead Operations and Maintenance Specialist. Simon worked with the prime consultant and the project team to develop the asset management aspects of this contract. This included equipment condition assessment; developing a 50-year asset rehabilitation plan and a preventive maintenance program for pumping stations, mechanical, and electrical systems; and training on the program. The program identified and prioritized rehabilitation efforts and capital improvements with estimated costs for Lake Michie Dam, Little River Dam, and their associated facilities.

Pure Water Program North City Upgrades Pre-design and Operational Readiness Plan, City of San Diego, California

Lead Operations and Maintenance Specialist. To maximize the use of recycled water, the City of San Diego embarked on the Pure Water program to treat as much effluent from the WWTPs as possible to either direct or indirect potable reuse. Simon is providing the lead role in developing the Operational Readiness Plan which includes Staffing, Hiring and Training Plans. This information will be used by the city to ensure they have the right qualified staff for the new Advanced Water Treatment facility and as part of the Title 22 document. He is also providing operations and maintenance technical support during pre-design of critical facilities.

Experience Summary

Mr. Jablonsky specializes in applying information technology towards solutions in the fields of science and engineering. He has over thirty years of experience managing IT projects for environmental clients nationally. He specializes business intelligence tools and their application in the fields of program and asset management.

Assignment

Information Technology

Education

BS, Civil Engineering, Massachusetts Institute of Technology

Registration

Professional Engineer: Texas #57118

Experience

37 years

Relevant Expertise

- *Business Intelligence and Visualization*
- *Program Management*
- *Asset Management*
- *Management of national environmental clients, specializing in major systems implementations*

Program Management/Business Intelligence

Billing System Assessment and Migration Planning, City of Hollywood, Florida

Technical Lead. The City of Hollywood Utilities engaged Brown and Caldwell to assist with the assessment of the existing Utilities Billing System and planning for the upgrading and migration of the billing function and system from the City's Treasury Department to Utilities. As part of this effort, Brown and Caldwell conducted a gap assessment of the existing system, identified upgraded capabilities to incorporate into the new system and provided overall guidance regarding the preparation and approach that is necessary to facilitate a smooth transition.

Orange County CMMS Improvements, Orange County Public Utilities, Orlando, FL

Task Leader. This year-long effort involved development of maintenance goals and associated performance metrics. Business process mapping, both as-is and to-be, were developed for key asset and maintenance processes. The BC team then identified and prioritized a series of improvements to the organization, processes, and supporting Maximo configuration and data. The original implementation plan was completed, and BC is now providing implementation support including plant hierarchy improvements. (142796)

Program Management and BI System Implementation, Hampton Roads Sanitation District, Hampton, VA

Project Manager and Senior Systems Analyst. As the project manager and senior system analyst, Mr. Jablonsky is leading the effort to deploy a web-based dashboard for the presentation of performance measures for the Hampton Roads Sanitation District (HRSD). These measures are a part of the Consent Decree response efforts and help HRSD measure progress towards compliance. Microsoft's SharePoint Enterprise BI solution is currently in the process of implementation. The system will eventually provide mechanisms for pulling data from multiple data sources, including the District's computerized maintenance management system. The intent is to provide HRSD leadership with summary performance information that is clear, accurate and easily communicated to a variety of stakeholders.

Program Management and BI System Implementation, Gwinnett County Department of Water Resources, Atlanta, GA

Project Manager and Senior Systems Analyst. As the project manager and technical lead for this project, Mr. Jablonsky led the effort to deploy a comprehensive program management information system (PMIS) for the Department of Water Resources (DWR). DWR is responsible for managing a capital improvement plan compromising over 500 projects, with a total annual spending level of approximately $250 million dollars. This implementation involved the deployment, training and support to over 60 project managers within DWR, and went in the fall of 2016. Based on Microsoft's PMIS and BI solutions, this system presented over 30 dashboards used by key project staff, project managers, and senior program managers. Ongoing improvements to the system continue.

CMMS Support Services, Montgomery County Department of Environmental Protection, Rockville, MD

Project Manager. Mr. Jablonsky serves as project manager for this effort, which involves providing oversight and support for improvements to DEP's Infor EAM computerized maintenance management system. Montgomery County DEP currently utilizes Infor to manage O&M activities involving their stormwater assets. Efforts include improvements to work processes and supporting documentation. This also includes reconfiguration of Infor to align with those improvements. (1450208)

Program Management Data Management Services, NAVFAC CWA and NPDES Compliance, Norfolk, VA

Task Leader. Mr. Jablonsky is responsible for coordinating data management activities associated with assisting the Navy and the Chesapeake Bay Program's efforts to improve the water quality in this most important of estuaries. Work on this project includes coordinating the collection and organization of water resource assets and maintenance practices for all DOD bases with outfalls to the Chesapeake Bay. Additionally, the program supports communications to regulatory agencies and the public via various types of media.

Program Management System Implementation, DeKalb County Department of Water Resources, Atlanta, GA

Project Manager and Senior Systems Analyst. Mr. Jablonsky was responsible for leading this effort to assist the County with advanced configuration of their PMIS, which is used to manage a $1.2 billion-dollar capital improvement program. This system is now used by dozens of County project managers and consultants in the day-to-day management of the program and its individual projects. Program managers can see at-a-glance the status of every project in the program, effectively exerting both project cost and schedule controls. Each project is automatically assigned its own website, which includes repositories for over a dozen types of project documents. Workflow has been configured to enable automatic notification of project principals when significant events occur.

Program Management and BI System Implementation, Montgomery County Department of Environmental Protection, Rockville, MD

Project Manager and Senior Systems Analyst. Mr. Jablonsky led an effort to deploy Microsoft's Project Server software as a solution for the management of a large portfolio of capital improvement projects. Montgomery County DEP has launched one of the most progressive and ambitious stormwater management programs in the country. As a part of that program, the DEP needed tools that would help staff manage a growing portfolio of projects related to the construction and rehabilitation of assets for managing stormwater runoff into the Chesapeake Bay area watershed. This system, launched in December of 2013, provides both DEP employees and its contractors anywhere access to project status and scheduling information, enabling a level of teamwork not previously attainable. This implementation also delivered a suite of over 40 program management dashboards for use by key program management staff.

Business Intelligence for Management, Operations and Maintenance (MOM) Program Management, City of Newport News, VA

Senior Systems Analyst. Mr. Jablonsky led this effort to deploy a series of dashboards that help the City of Newport News track their MOM program. This system pulls data from a number of City systems and presents them using Microsoft's PowerView visualization environment. Over 30 dashboards were deployed, tracking maintenance and operational data across the entire scope of the City's wastewater infrastructure. Planners and managers can now interact with maintenance and asset data dynamically, without extensive training in the underlying systems. These tools can now help the City make better, more informed decisions about how their assets are maintained.

Experience Summary

Mr. Theerman joined Brown and Caldwell after completing 28 years with the Metropolitan St. Louis Sewer District (MSD) serving as their Executive Director for the past nine years. The MSD serves the greater St. Louis area with a population of approximately 1.3 million people – including 425,000 single-family residential, multi-family residential and commercial/industrial customers. He managed and supervised a 900-person staff with an annual operating budget of $161.9 million. Mr. Theerman serves as the National Utility Performance leader for Brown and Caldwell. In this role, he leads BC's efforts in continuing to be a leader in municipal and private sector performance optimization and improvement. His extensive hands-on management experience and in-depth knowledge of the management, operations and maintenance requirements of wastewater and storm water systems allows him to develop and support numerous related programs and projects.

Assignment

Information Technology

Education

Professional Degree Civil Engineering, Missouri S & T University

MS, Civil Engineering, Southern Illinois University-Edwardsville

BS, Civil Engineering, University of Missouri-Rolla

Registration

Professional Engineer, MO EN021617

Experience

35 years

Relevant Expertise

- *Utility Management*
- *Utility Optimization*
- *Public Involvement*
- *Regulatory Negotiation*
- *Change Management*
- *Mentoring*
- *Strategic Planning*

Management Redesign, City of Raleigh Public Utilities Department, Raleigh, North Carolina

Utility Management Consultant. The Water and Wastewater Utility engaged BC to assist with redesigning their management organization, with the goal of doubling the management team's span of control to 8 employees for every supervisor. Mr. Theerman led the effort to introduce concepts for management flattening, work group consolidation, self-directed teams, increased delegation and increased communications.

Strategic Plan Update, City of Raleigh Public Utilities Department, Raleigh, North Carolina

Utility Management Consultant. Public Utilities engaged BC to assist in an update of their strategic plan. BC conducted an employee survey and focus groups before leading a multi-day management team workshop designed to update and improve the organizations strategic plan. Mr. Theerman assisted in the update working with a team to organize and co-facilitate the focus group and workshops. The result was a more focused and actionable plan for the coming three years.

Employee Skills Development, Gwinnett County Department of Water Resources (GCDWR), Gwinnett County, Georgia

Lead Technical Consultant. GCDWR was interested in achieving a workforce with higher skills and greater flexibility. Mr. Theerman served as the lead technical consultant on the development of an employee skills development program that crafted career progressions for ten separate job areas within the water, wastewater, and stormwater utility. The project included development of job progressions that increased knowledge, skills and abilities affording increase employee job satisfaction and flexibility.

Asset Management Program Development for the California State Water Project, Department of Water Resources, California

Management of Change (MoC) Subject Matter Expert. Mr. Theerman assisted in the development of a MoC plan to support the implementation of the asset management program which encompasses over 1200 employees, 700 miles of canals and pipelines, 34 storage facilities, 29 pumping and generating plants which produce 1,700MW and delivering 3 Million Acre Feet of water throughout California. MoC is a prime consideration as the department undertakes the effort of consistently applying asset management principles across various divisions at headquarters in in five field divisions distributed across the state of California.

Water and Wastewater Master Plan, Guam Waterworks Authority, Territory of Gaum

Level of Service Task Lead. Part of the overall master planning effort for the GWA water and wastewater system include development of appropriate levels of service for the utility. Levels of service become the basis

for the targeted improvements envisioned in the master plan. Mr. Theerman led the effort and worked with the utility's management to craft appropriate levels of service and key performance indicators. Through this work the master plan benefited from level of service targets and GWA instituted its first comprehensive set of performance metrics.

Regional Technical Support Plan, East Bay Municipal Utilities District, Oakland, CA

Expert Panel Facilitator and Project Manager. As part of a Federal consent decree, EBMUD agreed to create a regional technical support plan to assist the sewer system satellite communities in identifying system defects that contribute rapid infiltration leading to SSO's. In order to develop the RTSP, EBMUD created a technical support panel of experts to gain insight to the various aspects of developing such a plan. Mr. Theerman served as the project manager and panel facilitator for the effort. The insight gained from the expert panel provided the district and satellite communities with the knowledge required to craft a plan for EPA approval.

Plant Asset Management, Metropolitan St. Louis Sewer District, St. Louis, Missouri

Utility Management Consultant. MSD engaged BC to provide assistance with developing and implementing an asset management program for six of the Districts' wastewater treatment plants. The project involves a gap analysis on the Districts current situation followed by a recommended "road map" for implementing a practical asset management approach. The final phase of the project will involve assisting the District with the implementation of the recommended program. Mr. Theerman is knowledgeable in utility operations and the factors that make development and acceptance of new programs challenging for public utilities. He is the project officer for this engagement providing insight to the utility as well as and understanding of the challenges of implementing a consistent approach across multiple faculties and District departments.

Operational Assessment, City of Pueblo, Colorado

Operations and Maintenance Consultant. The wastewater utility in Pueblo sought a review of their operations and assistance in exploring contract operations. BC was engaged to review their O&M approach to provide recommendations on how to improve their utility and whether there was a necessity to move to a contract operator. Mr. Theerman served as the principal consultant on this project. The project involved review of Pueblo's operations, labor contract, civil service structure and operational costs. BC provided a report detailing how the utility could improve its operations. The report also included an appendix that detailed advantages and disadvantages of contract operations.

Biosolids Processing Improvements, City of San Jose, California

Workshop Facilitator. The wastewater utility in San Jose engaged BC to evaluate various biosolids process options for a major upgrade and expansion of the treatment plant. Mr. Theerman facilitated a workshop with utility management to develop a risk register for the purpose of identifying criteria and constraints important to the decision-making process. The risk register was then used to identify appropriate alternatives for further study by BC and the utility.

Bond Support, Jefferson County, Alabama

Operations and Maintenance Consultant. Jefferson County was attempting to exit bankruptcy while meeting the requirements of a federal consent decree. The County needed assistance in properly identifying operating and capital costs to assure the viability of the utility as it settled the bankruptcy and paid off its very large debt by issuing new bonds. Mr. Theerman was the principle consultant on the regulatory and operations cost review assuring that the costs of environmental compliance and operations were sufficient to satisfy utility needs.

Utility Efficiency and Governance Study, New Hampshire Department of Environmental Services (NHDES), New Hampshire

Utility Management Consultant. The State of New Hampshire owns and operates a regional wastewater utility serving the communities surrounding Lake Winnipesaukee. The communities served engaged BC to investigate the efficiency of the state operated utility and to explore the possibility of creating a governance structure for a new regional authority. Mr. Theerman served as an authority on utility management assisting in exploring current operating efficiencies and the possible options for a new utility structure that would be responsive to the needs of the member communities.

Experience Summary

Mr. Abordo has over 43 years of electrical engineering design experience. His experience includes design of power systems and control components for water and wastewater treatment facilities, membrane and ozone generation facilities, emergency power generation and distribution, pumping stations, and water supply and distribution. Mr. Abordo's experience encompasses all electrical engineering components of a project, including: studies, planning, conceptual designs, detailed designs, project management, construction services, startup, commissioning, design-build, and design-build-operate and engineer-procure.

Assignment

Electrical/I&C

Education

MS, Electrical Engineering, University of the Philippines

BS, Electrical Engineering, University of the Philippines

Registration

PE, Florida # 48046

Experience

Over 43 years

Relevant Expertise

- *MV and LV Power Distribution Design and Construction*
- *MV and LV Standby Power Generation Design and Construction*
- *Pumps and Motor Controls*
- *Switchgear and Motor Control Centers*
- *MV and LV Variable Frequency Drives*
- *Overhead Power Distribution up to 69kV*
- *Short Circuit Studies*
- *Electrical Power Distribution Planning*

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Lead Electrical Engineer. BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

NDWWTP Plant Wide Electrical BODR, MDWASD, Miami, Florida

Lead Electrical Engineer. The original R&R report recommended replacement of all of the transformers in the north and south sections of the Main Electrical Switchgear Building, the replacement of portions of the 5 kV feeders, the replacement of the generator bus and generator housing and with the replacement of the lightning protection system. In May 2014, MDWASD issued a directive that all new critical electrical equipment shall be located at a minimum of 16.0 ft. NGVD at the NDWWTP to protect the equipment from projected Sea Level Rise (SLR) and storm surge levels. In 2015, this elevation was revised to 17.1 NGVD. Therefore, a brand new electrical/generator building for the NDWWTP is needed since the existing main switchgear building has a finished floor elevation of 11.0 NGVD and does not meet the new requirement. The BODR presents design criteria for the new facility including new transformers, switchgear, and generators enclosed within a new structure, as well as a control room, break room and restrooms.

Sawgrass Water Treatment Plant, City of Sunrise Utilities Department, Sunrise, Florida

Lead Electrical Engineer. The Sawgrass Water Treatment Plant is a $15M, 18-mgd membrane softening (nanofiltration) facility with an initial installed capacity of 12 mgd. This project included several 250HP 480V motors for membrane feed pumps and high service pumps with variable frequency drives, two 1500-kW standby generators and 480-volt metal enclosed paralleling switchgear. Mr. Abordo provided inspection, construction management and start up services for the parallel standby generators and the associated low voltage generator and utility switchgear.

City of Sunrise Sawgrass WWTP High Level Disinfection Project, Sunrise, Florida

Lead Electrical Engineer: Mr. Abordo served as the lead electrical engineer for the $100M Tertiary Filtration System and Pumping Station Project involving new double-ended 480V switchgear, variable frequency drives

for pumps, motor control centers and new remote terminal unit (RTU) for the existing SCADA. The project involves sand filtration system, chlorination system, reuse water pump storage, new electrical and chemical buildings, and site lighting and power distribution.

City of West Palm Beach WTP Electrical/Generator Design, City of West Palm Beach Utilities Department, West Palm Beach, Florida

Lead Electrical Engineer. Mr. Abordo served as the lead electrical engineer responsible for the preliminary design, and final design of the $15M electrical improvement project at the Banyan Road WTP. The project involves installation of new double-ended MV main switching center, 2-7500kVA primary unit substation transformers, MV automatic transfer switches, 3-2500kVA emergency generators, pad mounted transformers and LV switchgear.

Storm Water Treatment and Pumping Stations, South Florida Water Management District, West Palm Beach, Florida

Lead Electrical Engineer. Mr. Abordo served as the lead electrical engineer for the joint venture design with Burns and McDonnell on the $200M storm water treatment area and two large pumping stations. Storm water treatment STA 3 / 4 and STA 5 were the largest in the world at the time of construction. The project involves multiple automated gate controls and control buildings, and pumping stations with several 1000HP Fairbank Morse engine driven pumps. The project is one of several projects for the Everglades Restoration Project financed by the State and Federal Government.

Water Reclamation Facilities Upgrade, City of Cape Coral Department of Public Works, Cape Coral, Florida

Lead Electrical Engineer. Mr. Abordo served as the program lead electrical engineer for this $873M design-build program involving two major wastewater treatment plants expansions and a new RO water plant and several raw water wellsites, which are already in operation. The electrical portion of the projects involved major upgrades for the 480Volt main switchgear and standby power for water, wastewater, and reclaimed water, collection, distribution, storage, treatment elements and full capacity standby power generation. Typical motor horsepower ranges from 100 to 600HP, 480V motors with variable frequency drives. The major electrical works include planning, design, construction services, and startup of multiple 2250kW standby generators, storage and high service pumping systems, headworks facilities, and liquid and solids process trains. The new Reverse Osmosis (RO) water treatment plant was designed with medium voltage (4.16kV) power distribution and 480V double-ended unit substations. The new well sites for the new RO Plant have portable generator hook-ups. Mr. Abordo has also served as the lead electrical engineer for the new biosolids/sludge drying facility for the City and the new North Cape wastewater reclamation facility with membrane biological reactor (MBR) technology.

Pinehills Water Treatment Plant Expansion and Southeast Water Treatment Plant, Orlando Utilities Commission (OUC), Orlando, Florida

Project Electrical Engineer. Mr. Abordo was responsible for the electrical design and construction management portion of this $15M project involving an engineer, procure, construct and manage (EPCM) design-build approach. Both projects were ozone water treatment plants with (4) 250kW ozone generators treating hydrogen sulfide and providing primary disinfection. These projects required 4.16kV MV and 480V LV unit substations and switchgear to provide power to several high capacity ozone generators for water treatment. These projects were completed on time and on budget.

Hector Serrano, PE

Experience Summary

Hector Serrano brings over 15 years of electrical engineering experience. Areas of expertise include the design of power systems, control and security components for water and wastewater treatment facilities and pumping stations, emergency power generation and distribution, and water supply and distribution. He has spent the majority of his career in South Florida and is currently working on key projects for SFWMD. Hector has is committed to helping STOF with their upcoming projects.

Assignment

Electrical/I&C

Education

BS/BSc, Electrical Engineering, Florida International University

Registration

Professional Engineer: FL #77767

Experience

15 years

Relevant Expertise

- *Power semi-conductor devices (i.e., thyristors, insulated gate bipolar transistors, MOSFETs, diodes)*
- *Electronic components*
- *A.C./ D.C. circuits, power supplies, stepper motors*
- *Embedded Software Development for MCUs*
- *IP66,67/NEMA equivalent enclosures for wet locations*

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Electrical and I&C Engineer. BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power. Additional elements include integration of existing/aging infrastructure with proposed infrastructure, maintenance of operations during extensive electrical/structural/process tie-in, design process to handle wide-ranging operating conditions from startup to buildout, and coordination between BCWWS operations and engineering teams and eight subconsultants working on various elements.

Miami-Dade Pump Station Improvement Program, Task 1, Miami-Dade, Florida

Project Engineer. Responsible for assessing and evaluating the condition of existing electrical equipment in sewage lift stations. Electrical equipment starting at the utility service entrance, onto the pump control panels (pump motor controllers, well level sensing instruments, telemetry panels) and ending at the electric pump motors.

Concentrate Recovery Pilot Plant Membrane Skid, Sawgrass Water Treatment Plant, Sunrise, Florida

Field Engineer. Developed electrical plans for the temporary power supply, installation and operation of a cost effective alternative water supply Experimental Pilot Study Program. Also provided electrical design support to the team responsible for the Reverse Osmosis (RO) process of the Pilot Plant. Provided onsite troubleshooting and startup services to onsite pilot plant engineer and operator for the electrical portions of the skid mounted plant's chemical metering pumps, transfer pumps, Clean-In-Place (CIP) cartridge filter, 1st and 2nd stage RO pressure vessels and in-line 1500W heating element used for the CIP filter.

SCADA (I&C) Extension of Staff, South Florida Water Management District, Palm Beach County, Florida

Project Manager. In this 12-month assignment performs work associated with installation contract deliverables, SCADA integration, and site inspection. This includes reviewing design documents and drawings for upcoming projects, performing field inspections of SCADA related components during construction of District projects, verifying conformity to drawings and specifications, managing field installation of RTUs and peripheral components, performing system administration functions, managing appropriate computer resources to support information needs within the SCADA Design and Installation Unit, and research and development of instrumentation and other SCADA components in laboratory.

Grand Coulee SCADA Replacement, US Bureau of Reclamation, Grand Coulee, Washington

Design Engineer. Responsible for the preparation of installation drawings for the replacement of existing legacy type RTUs (Remote Terminal Units) at the Grand Coulee Hydro-electric Dam with the more modern Generic Data Acquisition and Control System (GDACS). Duties for the preparation of installation drawings for the power circuit-breaker DC controls and protective relaying components of 11.95kV and 115kV switchyards which distribute power from hydro-electric power generation units.

Department-Wide Instrumentation, Control and Computer Systems Program of Water and Wastewater Services, Detroit Water and Sewerage Department, Detroit, Michigan

Field Engineer. Provided onsite design and construction management support. Assisted in the retrofitting of an 859-Million Gallon per Day (MGD) wastewater treatment plant computer control system, providing a new department-wide SCADA system that enabled remote monitoring and control of the treated water system (TWTS), wastewater collection system (WWCS) and storm system. Detailed design and construction of a plant-wide Distributed Control System (DCS).

Experience Summary

Bob Hrabovsky is a professional engineer with experience in management, structural design, and construction of public utility and public works facilities. He provided structural engineering and design for everything from water and wastewater treatment plants and infrastructure to solid waste facilities and roadway construction. Over the last couple of years, Mr. Hrabovsky has served as Structural Engineer of Record on numerous large-scale Wastewater Treatment Plants and Everglades Restoration Program projects.

Assignment

Structural

Education

BS, Civil Engineering, University of Pittsburgh (Cum Laude)

Registration

PE 43312, Florida

Experience

33 years

Relevant Expertise:

- *Structural engineering associated solid waste projects, including landfill closure and transfer and maintenance facilities.*
- *Structural engineer of record for numerous Water Resources and Everglades Restoration projects.*
- *Structural engineer of record for wastewater and water treatment plant improvements.*
- *Engineer of Record for infrastructure projects.*
- *Construction Manager for numerous wastewater treatment plants*

Sawgrass WWTP, High Level Disinfection System, City of Sunrise, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services for the facilities planning development of a for a 4-mgd AADF (expandable to 8-mgd AADF) High Level Disinfection Facility at the Sawgrass WWTP. The detailed design of the first phase is currently underway

Sawgrass WWTP Headworks Improvements City of Sunrise, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction of the rehabilitation of the screenings and grit facility (Preliminary Treatment structure), splitter box and slab-on-grade for a new Bio-Trickling Filter Odor Control System.

Springtree WWTP Headworks Design, City of Sunrise, Sunrise, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services for the plant expansion.

Big Coppitt Wastewater Treatment Plant, Florida Keys Aqueduct Authority, Big Coppitt Key, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction for the $11 million greenfield 0.3 mgd average daily flow advanced water quality wastewater treatment plant on Big Coppitt Key for the Florida for the Florida Keys Aqueduct Authority. This plant employs sequencing batch reactor technology and nitrogen removal tertiary filtration along with on-site reclaimed water production and storage.

North District WWTP (NDWWTP) Headworks Upgrades, Miami-Dade Water and Sewer Department, Florida

Structural Reviewer. Responsible for the structural design review of the headworks renovation including replacement of old bar screens, compacting and sludge degritting equipment, electrical gear, ventilation and odor control facilities.

NDWWTP Disinfection System Upgrades, MDWASD, Miami, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services during conversion of the disinfection system at the NDWWTP from chlorine gas to bulk sodium hypochlorite. The project also includes the addition of a new Electrical/Control Room Annex Building at a finished floor elevation of 18.5 NGVD to house critical electrical and instrumentation equipment to meet SLR requirements.

LS 114, 123, 125, 132 and 148 Rehab, City of Sunrise, Sunrise, Florida

Structural Engineer of Record. Responsible for the structural design for the rehabilitation of lift stations.

Lift Station 5 Replacement, City of Orlando, FL

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction of new $6.9 million 20-MGD submersible type pump station on the empty City owned land parcel adjacent to the existing lift station which will be demolished. The new lift station will be housed in a building with three rooms including a ventilated and screened pump room, an air-conditioned room for electrical and

controls and a ventilated room for generator. Also included are a foundation for the fuel tank and a foundation for the odor control system.

Wet Weather Monitoring and Pumping System, City of Largo, Florida

Structural Engineer of Reocrd. Responsible for the structural design and office engineering during construction of an enhanced collection system and lift station replacement project $1.1 million Final Design (4 Lift Station Reconstruction, 2 Lift Station Rehabilitations and approximately 60,000 linear feet of Force Main), Bid Phase Services and Limited Construction Phase Services.

Water Conserv II WRF Master Pump Station and Flow Equalization, City of Orlando, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction of new $1.1 million 60-MGD wet-pit/dry-pit master pump station, new 3.5 MG circular pre-stressed concrete ground storage tank for flow equalization, conversion of existing plant master pump station into new equalization pump station and new influent junction box routing flow from influent sewer to new pump station.

Indian Head Sewage Treatment Plant Design/Build, Naval Facilities Engineering Command (NAVFAC), The Haskell Co., Indian Head, Maryland

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction of new $13.9 million 0.5-mgd Enhanced Nutrient Removal (ENR) sewage treatment plant (STP) for the Navy. The new STP replaced similarly-sized existing STP that could not be cost effectively upgraded to achieve Chesapeake Bay nutrient requirements of 4 mg/L TN and 0.3 mg/L TP. The new STP included headworks (screening and grit removal), influent pump station, continuous inflow SBRs, upflow denite filters, UV disinfection, effluent aeration tank, and administration building.

Existing Wastewater Treatment Plant Upgrades and Expansion, North Port, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction for the $23 million 7.0 mgd upgrade to a reclaimed water plant that will now feature deep bed tertiary filters with control/blower/electrical building, clearwell, mudwell, a second chlorine contact basin, 2.5 mg storage tank, effluent and internal pumping systems. Additional upgrades included revising course bubble aeration system to a multistage BNR system with additional tankage, a fourth clarifer and expansion of the pretreatment and other ancillary systems throughout the plant.

Wastewater Treatment Plant No. 3, Winter Haven, Florida

Structural Engineer of Record. Responsible for the structural design and office engineering services during construction for the $15.5 million 7.5 mgd upgrade to a reclaimed water plant that will now feature automatic backwash filters, a new chlorine contact basin, conversion of the existing chlorine contact basin into a dechlorination/reaeration basin, effluent and internal pumping systems. Additional upgrades included revising course bubble aeration system to a four-stage Bardenpho process within the existing tankage. Design included significant additions to the electrical and ancillary systems throughout the plant including three electrical buildings and two generator systems. This was a Construction Manager at Risk project with The Haskell Company.

Mason Farm WWTP Upgrade and Expansion, Orange Water and Sewer Authority (OWASA), Chapel Hill, North Carolina

Structural Engineer of Record for Filter Complex. Responsible for the structural design and office engineering services during construction for the filter complex structure that was part of a $40 million 14.5 mgd upgrade. Facility became a reclaimed water plant that will now feature deep bed tertiary filters, UV disinfection, post aeration, as well as combination gravity and pumped discharges and a river outfall structure. The associated building for this complex included blowers pumping, electrical room and storage area.
pumps.

Senior Expert, Architecture

David F. Crawford, RA, LEED AP, ENV SP

Experience Summary

David F. Crawford is a licensed New York architect offering more than 34 years of experience performing architectural project planning and design for water and wastewater treatment facilities, laboratories, maintenance facilities, pumping stations, transfer stations and environmental awareness centers. An LEED Accredited Professional and Envision Sustainability Professional, he regularly conducts building project programming, building code analysis, condition assessments and provides architectural QA/QC project reviews.

Assignment

Architecture

Education

BS, Architecture, The Catholic University of America

Registration

Registered Architect: AZ, CO, NY, PA, VA

LEED Accredited Professional

Envision Sustainability Professional

Experience

34 years

Relevant Expertise

- *Programming*
- *Design*
- *Building & Energy Code Analysis*
- *Condition Assessments*
- *Renovations / Restorations*
- *QA / QC*
- *Constructability Reviews*
- *Construction Oversight*

Administration and Training Building, City of Tavares, Tavares, Florida

Architect in Charge. Design of a 6,500-square foot single story Administration and Training Building for the City of Tavares. The floor plan was symmetrically designed so that the reception/lobby area and the training/conference room are the focal point of the building. The reception/lobby area is surrounded by offices. The central core of the building is equally flanked on both sides—the personnel spaces are housed on the left side of the building and the public spaces are housed on the right side of the building. The Administration and Training Building achieved LEED certification.

Value Engineering, Various Clients

Participating member on various value engineering teams. The work included the review of design drawings and specifications, generating cost saving measures, and developing meaningful value engineering alternatives. The value engineering project experience includes:

- East Fort Myers Water Reclamation Campus, Fort Myers, Florida
- Support Services Building, Nova-Woodbridge Campus, Woodbridge, Virginia
- Lake Whitney Water Treatment Plant, New Haven, Connecticut
- Reconstruction of the Bruckner Bridge, New York, New York
- Phase II BNR – NYC DEP (Wards Island WWTP, Tallman Island WWTP, Bowery Bay WWTP and 26th Ward WWTP), New York, New York
- Peirce Island WWTF Upgrade, Portsmouth, New Hampshire

Standby Generator Building, Arlington County, Arlington, Virginia

Architect-in-Charge. The standby generator building is a multi-story 5,500 square foot building whose walls are capped with an architectural precast concrete coping to blend with the balance of buildings located on the site. The building is designed to accommodate multiple electrical rooms, a mechanical room, and the emergency generator room. Architect in charge of the project, responsible for the overall building design, quality assurance and quality control, conducting multiple coordination meetings to assure all the components of the facility would be accommodated within the limited building footprint.

HRSD York River Ph1A, Hampton Roads Sanitation District, Virginia Beach, Virginia

Architect-in-Charge. The expansion and upgrade of the existing WWTP included new buildings totaling 42,000 square feet: Intermediate Pump Station, Denitrification Filter Building, Methanol Facility, Electrical/Generator Building, and an EPS Power Center Building. The architectural design approach for the project was to blend the new buildings with the existing palette of materials and colors expressed in the existing buildings. Responsible for the overall architectural approach of the project as well as conducting global coordination and quality control.

Winchester Water Treatment Plant Expansion Design, City of Winchester, Winchester, Virginia

Architect-in-Charge. The expansion and upgrade of the existing facility included a composition of new buildings, an addition to an existing building, and renovations to existing buildings all totaling approximately 30,000 square feet. The following buildings were included in the project: A Chemical Facility, High Service Pump

Station, Dewatering Building, and a Maintenance Storage Building, as well as renovations to the existing Filter Building and Maintenance Building, and an addition to the existing Raw Water Pump Station. The architectural design approach to the project was to blend the new buildings with the existing palette of materials and colors expressed in the existing buildings. Responsible for the overall architectural approach of the project as well as conducting global coordination and quality control.

Administrative and Laboratory Facilities at the O.B. Curtis Water Treatment Plant, City of Jackson, Jackson, Mississippi

Project Architect Provided architectural design services for a 50-mgd water treatment facility. The architectural design included an administration building, laboratory, and process buildings. The administration building was designed in the context of Southern-style mansions and a country club community bordering the plant, and incorporated offices, a laboratory, and museum area.

Raw Water Intake and Potomac Raw Water Pump Station Design, Loudoun County, Loudoun, Virginia

Architect-in-Charge. Provided design services for a 40-mgd raw water intake and pump station contiguous with a residential neighborhood on the Potomac River. The 4,000-square foot pump station includes 3,600hp of pumping. Project responsibilities include presentations to the local architectural board and overseeing the design and development of the contract drawings as well as quality control.

Jackson County Election Commission Building Renovation, Pascagoula, Mississippi

Architect-in-Charge. The Election Commission Building is a single-story 5,800 square foot wood-frame building with a hip roof. Due to the severe damage that the building sustained from Hurricane Katrina, major repairs, alterations, and renovations were required. The entire building was stripped down to the original flooring system, wood studs, and ceiling joists. Several areas were identified with mold and termite damage. The existing HVAC systems and electrical wiring and light fixtures also needed to be removed. Prior to the alterations and redesign, a complete building code analysis and ADA study was performed to establish the extent of existing spaces and egress points that would require modifications to bring the building in compliance with today's standards. A building survey was performed to identify the extent of the wood framing (walls and ceiling) that required replacement due to water, mold, and termite damage. Mold was also identified between the layers of painting systems on the inside face of the exterior concrete block wall. As part of the material selections, we had to be sensitive to incorporating flood resistant materials. All new floor, wall, and ceiling systems were selected as part of the redesign.

Water Quality Laboratory, United Water New Jersey, Harrington Park, New Jersey

Project Architect. Responsibilities included program development, architectural design, and development of the contract documents for a 15,000-square foot laboratory at the Haworth Filter Plant. The design had to be flexible enough to accommodate potential impacts of the proposed regulations while consolidating the previously fragmented facilities into a single state-of-the-art treatment laboratory complex.

Tertiary Treatment Plant, U.S. Army Corps of Engineers, Philadelphia District, Fort Dix, New Jersey

Project Architect. The architectural approach involved the use of split-faced concrete block in two colors and the use of a standing-seam metal roof. A 15,000-square foot administration building and numerous process structures including a 20,000-square foot Sludge Processing Building, Screenings and Grit Handling Building, Aerated Grit Chamber Area, Odor Control Area, Primary Settling Tanks and Pump Station, Services Building, Gravity Filter Facility, Effluent Pump Station and RAS and WAS Pump Station Building were provided. The simple but well-detailed solution provided staircases to rooftop equipment attics for complete enclosure of all roof-mounted equipment to maintain the rural look of the Pine Barrens area.

Managing Engineer

V. "Ravi" Ravisangar, PhD, PE, BCEE

Experience Summary

Dr. Ravisangar has more than 19 years of experience in water and wastewater pumping and treatment related work. His experience spans a broad range from studies and design to construction and startup. His subject matter expertise includes water and wastewater pumping system analysis and design, pumping system rehabilitation, water and wastewater plant hydraulic analyses, water distribution system modeling, dynamic and transient hydraulic analysis of piping networks, surge protection systems design, and sludge and slurry rheology and hydraulics of non-Newtonian fluids. He is also an active technical reviewer for ASCE Journal of Pipeline Systems. He led the design effort to adding new pumps for existing deep injection well pumping system and is is ready to leverage that experience to benefit MDWASD

Assignment

Pumping Systems

Education

PhD, Environmental Engineering, Georgia Institute of Technology

MS, Civil Engineering, Environmental Hydraulics and Water Resources, Georgia Institute of Technology

MS, Environmental Engineering, Georgia Institute of Technology

BSc, Civil Engineering, University of Sri Lanka at Peradeniya

Registration

PE, GA, PE029284

Experience

19 years

Relevant Expertise

- *Pumping System Analysis and Design*
- *Treatment Plant Hydraulic Evaluation*
- *Hydraulic Transient Analysis*
- *Slurry and Sludge Pumping.*

North Regional WWTP Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services' (BCWWS), Broward County, Florida

Lead Pumping Systems Engineer. Dr. Ravisangar let the surge analysis efforts for the pump station associated with the expansion of BCWWS' existing reclaimed facility to increase its firm rated capacity from 10 mgd to approximately 26 mgd. This project is a result of the Ocean Outfall Legislation. The expansion will treat secondary effluent to meet High Level Disinfection (HLD) standards as defined by the Florida Department of Environmental Protection (FDEP). The proposed expansion is estimated at $53 million construction cost and includes construction of a new filter feed pump station, additional filters, chemical storage and feed, chlorine contact basins, reclaimed water pump station, electrical power distribution and requisite back-up emergency power.

NDWWTP Deep Injection Well Pump Station Improvements, MDWASD, Miami, Florida

Lead Pumping Systems Engineer. Dr. Ravisangar lead the design effort of adding new pumps for existing deep injection well pump station. Project involved detailed evaluation of existing pumping system, deep injection well performance, recommendation for replacement pumps, modifications to existing well heads, and developing new control strategies for pump and well operation for optimized performance

Pump Stations 301, 414, 415, 416 and 417 Improvements BODRs, NDWWTP Service Area, MDWASD, Miami, Florida

Lead Pumping System Engineer. Dr Ravisangar served as lead pumping system engineer and subject matter expert for the preliminary design (BODR) of major rehabilitation work at Pump Stations 301, 414, 415, 416 and 417. Project involved detailed hydraulic evaluation of existing systems and recommendations for pumping system replacement to optimize performance.

Springtree WWTP Headworks Design, City of Sunrise, Sunrise, Florida

QA/QC Technical Advisor. For the Headworks Design, particularly the hydraulic elements. The project design included creating a plant-wide hydraulic profile, raising the height of the existing channels, and a new passive overflow for improved O&M flexibility. The project involved the replacement of three automatic bar screens with 6 mm perforated plates and screening washer-compactors, as well as the replacement of two grit vortex drives, two recessed impeller grit pumps, and two hydrocyclone/ degritter units. A new biotrickling filter type odor control system was included to treat foul air generated at the Headworks Structure.

Rehabilitation of Flood Damaged Pump Stations for City of Clarksville, Tennessee
Lead Hydraulic Analyst. For the City of Clarksville, Dr. Ravisangar provided the design for the rehabilitation of the following flood damaged pump stations: Main, McClure, Gallows Hollow, Red River, Old Russellville Pike, Talley Drive, Southern Hills, Pettus Street, and Providence Cabinet Shop.

Design of the Alcovy River Wastewater Pumping Station, Gwinnett County, Georgia
Lead Engineer. This unique wastewater pumping system design included two in-line booster pumping stations and three lift stations to deliver a firm pumping flow of 35 mgd.

Hopkins Lift Station and Forcemain Project, MCES, Minnesota
Lead Hydraulic Analyst. For Hopkins Lift Station and Forcemain Project, Dr. Ravisangar was the lead hydraulic analyst. The project included replacement of the main lift station (L-27), construction of a new forcemain, and rehabilitation of sections of existing forcemain. Analyses included sizing of the new lift station, hydraulic/transient analysis of existing forcemain, preliminary transient control strategy for new dual forcemain, design criteria for a new forcemain.

Marlboro Meadows PS, Washington Suburban Sanitary Commission, Washington, DC
Lead Hydraulic Analyst. Dr. Ravisangar served as the lead hydraulic analyst for the design of a new pump station and force main system.

Rehabilitation of Potomac Pumping Station, Water and Sewer Authority, DC
Lead Hydraulic Analyst. For the rehabilitation of the Potomac Pumping Station, Dr. Ravisangar served as the lead hydraulic analyst to increase capacity 460 mgd. The project included pump re-engineering, pump impeller replacements for higher capacity, and additional surge control measures for the expanded capacity.

Improvements to Influent Pumping Station and Intermediate Pumping Station, Kingsport, Tennessee
Lead Hydraulic Analyst. For pump station improvements at the City of Kingsport's wastewater treatment plant, Dr. Ravisangar's analyses included pump replacement, impeller replacement, and addition of new pumps to increase the firm pumping capacity of both stations to 35 mgd.

Improvements to North Pump Station and Stevens Avenue Pump Station, Lancaster, Pennsylvania
Lead Hydraulic Analyst. For the City of Lancaster, Dr. Ravisangar is the lead hydraulic analyst for design of improvements to two of the city's pump stations. The North pumping stations will be expanded to 43 mgd while the Stevens Avenue pump station will be expanded to 11 mgd. Additional improvements will include new surge control measures at the pump stations to handle an intermittent line velocity over 9 ft/sec.

Improvements to Five Pump Stations (PS), Clarksville, Tennessee
Lead Hydraulic Analyst. For the City of Clarksville, Dr. Ravisangar was the lead hydraulic analyst for improvements to the Brownsville PS, Gateway PS, Countryside PS, Mary's Garden PS, and Red Coat Run PS. Improvements included new submersible-type pumps and manifolded force main systems.

Rehabilitation and Expansion of Three Pump Stations, Upper Occoquan Sewage Authority (UOSA), Virginia
Lead Hydraulic Analyst. Lead hydraulic analyst for rehabilitation and expansion of the Winters Branch Pumping Station, Cockrell Branch Pumping Station, and Russia Branch Pumping Station. The project included new dry pit submersible-type pumps and new surge control measures.

Melissa M. Jauregui, EI

Experience Summary

Ms. Jauregui has significant experience in the areas of water resources engineering, civil and sustainable engineering principles, design reviews, pollution control systems, data analysis and research, permitting, report preparation, and leadership. Ms. Jauregui has recently worked as a Design Lead for various mechanical processes during the SWWRF Expansion Improvements for the City of St. Petersburg.

Assignment

Permitting

Education

MS, Environmental Engineering, Florida International University,

BS, Environmental Engineering, Florida International University,

Registration

E.I License

Experience

5 years

Relevant Expertise

- *Mechanical Design*
- *Water Resources*
- *Permitting*
- *Project management*
- *Data analysis*

Miami-Dade Water and Sewer Department (MDWASD) $91M Program and Construction Management (PMCM) for the Wastewater System Priority Projects Miami, Florida

Design Engineer. The PMCM Team was selected by the Miami Dade Water and Sewer Department (MDWASD) to provide Program and Construction Management Services related to the Wastewater System Priority Projects. Services provided include, but are not limited to, program management, construction management, development coordination, public outreach, engineering analysis, hydraulic modeling, scheduling, cost estimates, inspections and document control. Ms. Jauregui is worked as a Junior Engineer for the PMCM Team within the Wastewater Collection and Transmission System (WCTS) Task. The WCTS Task is assisting the Department with the coordination and management of ninety-three (93) Force Main and Pump Station Projects, from conception to closure, including the following phases: Engineering Design, Permitting, Procurement, Construction, and Certification.

MDWASD's Installation of 60-Inch Force Main from PS 0536 to SW 88th Street Basis of Design Report (BODR) Miami, Florida

Design Engineer. Ms. Jauregui worked as a Design Engineer for the BODR. According to the USEPA CD Miami Dade is required to install a 60 Inch FM from PS 0536 to SW 88th Street to increase the hydraulic flow in the system and reduce pressure differential between PS 0536 and PS 0559. The BODR analyzed three (3) different alternatives by comparing construction cost, public impact, schedule, pipe material, constructability, hydraulic impact, traffic impact, maintenance and accessibility, permitting, and easement acquisition. Hydraulic modeling was prepared to confirm BODR results. Recommendation were provided and approved by MDWASD.

MDWASD's Wastewater Treatment Plants (WWTP) Improvement Miami-Dade, Florida

Assistant Project Manager. The Consent Decree requires Miami-Dade County to improve their three (3) main Wastewater Treatment Plants, North District WWTP, Central District WWTP and South District WWTP. These plants combined flow is approximately 300 Million Gallons per day (MGD). Their current conditions are proposing a risk to their daily operations. Projects within the plants are challenging due to the complexity of the process and equipment. The PMCM team is managing over 52 Projects within the plants under the frame of the Consent Decree. Ms. Jauregui worked as an Assistant Project Manager for the WWTP improvements under the frame of the USEPA Consent Decree (CD). Ms. Jauregui is responsible for complex design reviews, invoicing reviews, design deliverables tracking, and project progress control. She maintains constant communication between the client and the design consultant firms.

FY 16 Annual Report, Broward County, Florida

Project Manager. Project consists of meeting Bond Requirements including financial updates, CIP, regulatory updates and inspections to the main water and wastewater treatment plants, wellfields, master and retail pump stations throughout the Broward County, as well as report preparation.

As-Needed Services, City of Hollywood, Florida

Project Analyst. Ms. Jauregui performed a data analysis on 5 years – 1 minute interval flow data for the City of Hollywood WWTP. The analysis consisted on determining the amount of flow that could be disposed through the existing outfall based on the Ocean Outfall requirements.

Florida Department of Environmental Protection FDEP. USEPA Consent Decree, Miami, Florida

Engineer Specialist. Consent Decree requires Miami-Dade to develop, submit, finalize, and implement plans for the continued improvement of its WCTS and WWTPs to eliminate, reduce, prevent or otherwise control SSOs; to correct effluent limit violations; and to properly manage, operate and maintain its WCTS and WW TP. Ms. Jauregui was the Engineer responsible for monitoring Miami-Dade's compliance with the terms of FDEP Consent Order OGC No.03- 1376(A), conduct compliance evaluation inspections at domestic wastewater treatment plants in Miami-Dade County, review wastewater facility permits and corresponding engineering plans and specifications, generate Inspection Reports, Non-Compliance Letters, Warning Letters, Consent Orders, and Case Closeout Forms per Florida State Statutes and Rules, conduct industrial wastewater/storm water compliance evaluation inspections, track and manage compliance/enforcement activities.

SWWRF Capacity Upgrades Project Phase 1 Late Track Improvements, Florida

Area Lead for the Waste Activated Sludge Pump Station and Engineering Support for the Media Filters upgrades. Ms. Jauregui is the design lead for the WAS PSs upgrades. The WAS PSs project includes the replacement of three pumps of 500 gpm total flow, and the design of a new 250 gpm WAS PS. Ms. Jauregui is also assisting on the Media Filters upgrades for the SWWRF; This project includes the implementation of air into the backwash cycle for the existing media filters to make the existing system more efficient.

SWWRF Capacity Upgrades Project Phase 1 Interim Capacity Improvements, Florida

Area Lead for the Cyclone Based Wasting Technology and Preliminary Design Report Coordinator. Ms. Jauregui was the design lead for the implementation of a new wasting system based on a cyclonic technology. The project included a new booster pump station, an influent and effluent holding tank, 12 cyclones to achieve RAS/WAS separation and a new transfer WAS pump station. The project was an accelerated schedule and it was completed within four months including Preliminary design for which Ms. Jauregui completed the review of existing facilities, Introduction and permitting sections.

Pump Station Improvement Program (PSIP), Florida

Project Manager. Ms. Jauregui is the Project Manager for ten (10) PSIP Projects for which Brown and Caldwell is responsible for the electrical design of these pump stations.

Replacement of Water Mains and Service Conversions in the Shenandoah Area Phase B, Miami, Florida

Project Manager. The project consists of the replacement of the existing undersize and deteriorated water mains to improve system pressure and provide fire flow protection, and for water service conversions (transfer of services from the rear to the front of the properties) in the Shenandoah Area (Phase B) in the City of Miami. Ms. Jauregui is the Project Manager for the Utility coordination, baseline selection and AutoCAD file production including but not limited to Base map, individual drawing sheets displaying plan and profile of the existing conditions.

Florida Department of Environmental Protection FDEP, City of Coral Gables Consent Order, Coral Gables, Florida

Project Manager. Pump Station Improvement for about twenty-two (22) lift stations within the City of Coral gables, including I/I and lateral repairs. Responsible for reviewing and conduct compliance inspections for project completion. Responsible for conducting coordination meetings to review CO status and upcoming deliverables.

Mauricio L. Lara, MBA, PE, PMP

Experience Summary

Mauricio Lara has over 18 years of experience primarily relating to planning and execution of major water resources, water/wastewater and utilities infrastructure projects for the public sector. Mauricio has been involved in different stages of design, permitting, and construction from small to major size projects. He has participated in major water resources restoration projects involving high size pumps, multiple control structures, levees and canals. He has also led mission critical flood control structure inspection programs and took part of multimillion dollar capital improvement planning and execution for water resources, water and wastewater infrastructure initiatives. He has served as project engineer, project manager and program manager on numerous projects located throughout South Florida.

Assignment

Construction Management

Education

Project Management Professional (PMP), Project Management Institute

MBA, Nova Southeastern University

BS, Civil Engineering, EAFIT University

Registration

Florida PE No. 69929

Experience

18 years

Relevant Expertise

- *Public Sector*
- *Water*
- *Wastewater*
- *Water Resources Restoration*
- *Utilities*
- *Project Management*
- *Certifications:*

Certifications:

Executive Project Management Certificate, Florida Atlantic University, 2010

Project Management Professional (PMP), No. 691289, Project Management Institute, 2010

40-Hour OSHA Hazardous Waste Operations and Emergency Response, No. 102512, 2008

10-Hour OSHA Training, No. 000333093, 2005

Category

High-Level Disinfection (HLD) Reuse Facility Construction Administration Services, City of Sunrise Utilities Department, Florida

Project Management Assistant. Assisted in the project management and client relations for the Construction Administration Services (CAS) for a new High-Level Disinfection (HLD) Reuse Facility rated for 4 Million Gallons per Day (MGD) at previously undeveloped site at the Sawgrass Waste Water Treatment Plant. The major components of the upgrades include: new 4 MGD filter influent transfer station, new concrete structure with multiple tanks; new concrete building to house a new electrical transformer, motor control center and gear associated with the new process areas and the filtration system backwash blowers; new concrete chemical storage area; new concrete structure with multiple channels that serve as a chlorine contact chamber; new 4 MGD reclaimed effluent transfer pumping station; new 5 million gallon pre-stressed concrete reuse water storage, and a new high service pumping station that will be able to convey up to 9 MGD to reuse service customers; new yard piping connecting the new process areas, and multiple civil-site modifications to provide service road access to the new structures and process areas for the a previously defined build out condition.

Improvements to Lift Stations 117 and 307 Design and Bidding Services, City of Sunrise Utilities Department, City of Sunrise Utilities Department, Florida

Project Manager. Served as project manager for the Construction Administration Services for the conversion of the existing Lift Stations 117 and 307 from wet pit/dry pit lift stations to submersible pump stations, and to update the overall condition of each of the two sites associated with this work.

Lift Station 114, 123, 125, 132 and 148 Rehabilitation Construction Administration Services, City of Sunrise Utilities Department, Florida

Project Manager. Served as project manager for the Construction Administration Services for the conversion of the existing Lift Stations 114, 123, 125, 132 and 148 from wet pit/dry pit lift stations to submersible pump stations, and to update the overall condition of each of the two sites associated with this work.

LS 127 Modeling Ibis Basin Force Main Network, City of West Palm Beach Utilities Department, West Palm Beach, Florida

Project Manager. Project consisted of performing a hydraulic modeling analysis on the Ibis Network to quantify system operations and enable the City to identify, characterize, and address hydraulic system deficiencies. In

addition, the results obtained from the hydraulic modeling analysis help the City to select appropriate pumps for the LS 127 upgrade/rehabilitation.

Banyan Clearwater 12-inch Interconnect Construction Administration Services, City of West Palm Beach Utilities Department, West Palm Beach, Florida

Project Manager. Perform Construction Administration Services (CAS) for the connection of the 8-inch Ductile Iron Pipe (DIP) Water Main (WSP28993) to the 42-inch DIP Transmission Water Main Line (WSP25671, WSP29646) located on the intersection of Clearwater Drive and Banyan Boulevard that supplies water to the south area of the City's Water Treatment Plant (WTP). The 8-inch DIP connection was performed using Horizontal Directional Drilling (HDD).

Compartment B Buildout Engineering During Construction, South Florida Water Management District, Palm Beach County, Florida

Senior Engineer. Assisted in the engineer during construction activities phase for this Everglades Restoration Project, which consisted of three major storm water pumping stations (3,200 cfs combined capacity), over 30 miles of levee, and 20 flow control structures. Other activities included: observing and overseeing construction to ensure appropriate care and attention was provided by the Construction Management (CM) staff; and conducting QC/QA testing and producing accurate, concise construction documents and reports that comply with contract drawings and specifications.

Water Main and FM Rerouting Design, City of West Palm Beach Utilities Department, West Palm Beach, Florida

Project Manager. Project consisted of providing engineering services for the design and bidding assistance of a project with two components: the connection of the 8-inch Ductile Iron Pipe (DIP) Water Main (WSP28993) to the 42-inch DIP Transmission Water Main Line (WSP25671, WSP29646) located on the intersection of Clearwater Drive and Banyan Boulevard that supplies water to the south area of the City's Water Treatment Plant (WTP); and the Force Main SFM0187 Re-Routing of an existing 10-in force main (SFM0187; approximately 2,215 linear feet) located east of I-95 on a portion of Merrill Avenue and right-of-way land between Belvedere Road and Hampton Road.

Lift Stations 52 and 53 Rehabilitation, City of West Palm Beach Utilities Department, West Palm Beach, Florida

Project Manager. Project consisted of providing engineering services for the design and bidding assistance for the conversion of the existing Lift Stations 52 and 53 from wet pit/dry pit lift stations to submersible pump stations. The Lift Station 53 component of the project included full design and bidding assistance and for Lift Station 52 included the production of a Basis of Design Report (BODR) for the future relocation of the lift station.

Canal Rehabilitation Program and Structure Inspection Program, South Florida Water Management District, 16-County South Florida Jurisdiction, Florida

Project Engineer. Project consisted of providing engineering services for systematic inspections of existing flood control structures and canals in the 16-county South Florida Water Management District jurisdiction. Analyzed and produced inspection reports.

Fire-Rescue Administrative Complex and Training Facility, Palm Beach Fire & Rescue, West Palm Beach, Florida

Project Engineer. Performed engineer during construction activities for the installation of water, wastewater and civil/site improvements of a new 40-acres fire training and administrative facility complex.

Lake Boynton States Utility Improvement, City of Boynton Beach Utilities Department, City of Boynton Beach, Florida

Project Engineer. Led the field work, data gathering, and design of utility improvements including water, sewer, and storm infrastructure. Assisted in the evaluation of possible improvements in the system.

Experience Summary

Mr. Kruljac has 20 years of construction experience with a strong background in industrial construction. Ian has 11 years of experience supervising mechanical and civil trades in maintaining and constructing refineries, chemical plants, power plants, food grade mechanical installations and civil highways. Ian is performing both construction management and cost estimating for many projects across the nation.

Assignment

Cost Estimating

Education

International Agriculture Economics, Lassen College, Susanville, CA

International Agriculture Economics, Texas A&M University

Experience

20 years

Registration/Certification

Journeyman Pipefitter

Journeyman Boilermaker

Journeyman Rigger

Certified Welder

Relevant Expertise

- *Estimating*
- *Construction contractor*
- *Construction management*
- *Petrochemical plants*
- *Process and mechanical systems.*
- *Troubleshooting*

Reclaimed Water Plant Expansion, Broward County Water and Wastewater Services, Broward County, Florida

Lead Estimator. Ian prepared cost estimates associated with the design gates (30%, 60%, 90% and Final) for the expansion of the County's reclaimed water plant from 10 mgd to 26 mgd.

Sawgrass WWTP, High Level Disinfection System, City of Sunrise, Florida

Lead Estimator. Ian prepared cost estimates for the facilities planning development of a for a 4-mgd AADF (expandable to 8-mgd AADF) High Level Disinfection Facility at the Sawgrass WWTP. The detailed design of the first phase is currently underway

Sawgrass WWTP Headworks Improvements, City of Sunrise, Florida

Lead Estimator. Ian provided cost estimates associated with the design for the yard piping reconfiguration to provide a bypass to the facility's pretreatment structure and splitter box as well as for the new Bio-trickling Filter odor control system.

Lift Station 107 Rehabilitation Design and Bidding Services, City of Sunrise, Sunrise, Florida

Lead Estimator. Ian has prepared cost estimates for the design associated with converting a wet pit/dry pit station to a submersible lift station at a highly constrained site. The design addressed known performance issues at the station as well as enhancing the overall appearance of the site.

Lift Station 114, 123, 125, 132, and 148 Rehabilitation, City of Sunrise, Sunrise, Florida

Lead Estimator. Ian has prepared cost estimates for the design associated with converting a wet pit/dry pit station to a submersible lift station at a highly constrained site.

Regional Sewer System Design, Confidential Client, San Francisco Bay Area, California

Lead Estimator. Ian prepared conceptual estimates for water supply, wastewater management and a water treatment facility for a more than $1 billion development.

Water Treatment Plant Design-Build, Turlock Irrigation District, California

Lead Estimator. In response to requests from the District, Ian prepared "scale reduction" estimates to allow the District to refine its project needs in light of pressing budget constraints.

Residuals Building, Baldwin Water Treatment Plant, Cleveland, Ohio

Lead Estimator. This 20,000-sq.-ft. multilevel masonry structure is on the National Historical Register. Ian carefully detailed this project's estimate to ensure the proper sequence, handling and dismantling of this facility. The estimate of probable construction cost was $4.1 million.

Laguna WWTP Cogeneration Plant Design, Santa Rosa, California

Lead Estimator. Ian performed a conceptual level estimate at approximately 10 percent design completion. In preparing the estimate, he identified and detailed the primary equipment, ancillary equipment and systems needed. The estimate of probable construction cost was $11.2 million.

Blue Plains Advanced WWTP Design, District of Columbia Water and Sewer Authority Cogeneration Facility, Washington DC

Cost Estimator. This project, originally designed by another engineering firm, was cancelled when the Authority received bids at twice the engineer's estimate of $322 million. BC redesigned this project and is constructing a Cambia system within the original budget. Ian developed a detailed estimate for the cogeneration portion of this project to replace the allowance that had been included in the original estimate.

Kentfield Force Main, Ross Valley Sanitary District, California

Lead Estimator. This project involves rehabilitating/replacing 7,500 feet of existing Techite pipe with about half the route in an existing levee along Corte Madera Creek. Project challenges include routing the pipe to minimize disruptions to residents, business, wetlands and the heavily traveled Sir Francis Drake Boulevard, and dealing with a narrow levee that was home to a popular pedestrian and bike trail. Ian worked with the project team from detailing the conceptual alternative routes through the final estimate at the 100-percent design completion level. Ian's work included developing planning-level schedules, reviewing constructability options, and assessing potential impacts on the environment and public.

North West Light Rail, Phoenix, Arizona

Lead Estimator. This $27 million project had been under construction while engineering continued. The City "fast-tracked" this project but had been continuously negotiating with the general contractor. Ian reviewed the contractor's cost estimates and identified overlapping quantity costs. As a result, the City has been able to negotiate a lower overall project cost.

Tucson Interceptor, Tucson, Arizona

Lead Estimator. This project included the construction of approximately 22,000 LF of 60-inch and 72-inch HOBAS force main. The project cost was previously estimated at approximately $22.5 million. The City had negotiated with the general contractor prior to completing engineering design. Ian identified overlapping costs and irregularities in the contractor's estimate, which resulted in a nearly $5 million reduction in the negotiated project cost.

Kentfield Forcemain Replacement Project, Phase 1, Ross Valley Sanitary District (RVSD), Larkspur, California

Construction Manager. Ian's duties for this project included managing submittals, meetings, change orders, RFIs, public interaction, resolution, environmental mitigation, and project site oversight. He worked with the engineers, owner representatives, and the contractor to maintain a constant flow of information and help ensure no work stoppages or delays occurred. Ian coordinated third party inspection services and project photo documentation. He also collaborated with multiple city, municipal, public utility and county agencies. Phase 1 included replacing the existing 36-inch-diameter Techite force main with 2,200 LF of 42-inch-diameter DR 21 HDPE piping. This phase also involved cleaning and CIPP installation for 3,400 LF of existing 30-inch-diameter non-reinforced concrete pipe, which was installed in 1922 for use to bypass flows during the forcemain replacement. The team also performed CPT testing and grout injection to stabilize an existing levee before Phase 2 work occurred. Due to environmental and wet weather constraints, the bulk of the work had to take place between July 1 and October 15.

Jennifer Myers, PE

Experience Summary

Jennifer Myers has more than 20 years of experience in the fields of civil and environmental consulting engineering that includes numerous CMOM, employee development, organizational and operational optimization, assessment and benchmarking projects across the country along with sewer system inspection, investigation and rehabilitation projects. She has worked with utilities to help them meet customer's needs while managing their resources following sustainable principles and practices.

Assignment

Financial/Business Systems

Education

MS, Civil Engineering, The Ohio State University

BS, Civil Engineering, The Ohio State University

Registration

Professional Engineer E-76492, Florida

Professional Engineer E-67766, Ohio

Envision Sustainability Professional 2015

Experience

20+ years

Relevant Expertise

- *Utility Performance*
- *Effective Utility Management*
- *Employee and Organizational Development*
- *Strategic Planning*
- *Asset Management*

Strategic Plan Development, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. Developed a Strategic Plan for Orange County Utilities through a series of interviews and workshops with senior management and Utilities leadership. The project also included a utilities-wide survey of all personnel to gain insight into the status and needs of the organization.

Engineering Division Business Plan, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. Develop a Business Plan for Orange County Utilities Engineering Division. Work included activity based costing analysis, performance measures development and financial analysis of existing systems. The Plan was developed through a series of interviews and workshops with senior management and Utilities leadership.

Business and Strategic Plan Assistance, Southwest Florida Water Management District, Tampa, Florida

Technical Consultant. Assisted the District with developing their first Business Plan to clarify and to document the staff and financial resources needed to meet the District's initiatives and goals outlined in the District's Strategic Plan.

Customer Service and Fiscal & Operational Support Division Business Plans, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. Project involves developing two Business Plans for Orange County Utilities Customer Service and Fiscal & Operational Support Divisions through a series of interviews and workshops with senior management and Utilities leadership.

Maintenance Merger with Change Management, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. This project built on the Utilities existing effort to bring about change management throughout their organization. It included the merger of the wastewater treatment plant maintenance personnel, pump station maintenance personnel, and water conservation maintenance personnel.

Water Division Business Plan, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. Project involves developing a Business Plan for Orange County Utilities Water Division through a series of interviews and workshops with senior management and Utilities leadership. The Plan is based on findings from a 2008 DMOM report, and structured around the Business Plan template developed by BC for the Utilities.

Automation Master Plan, Orange County Utilities, Orlando, Florida

Technical Consultant. This utilities-wide automation master plan will provide the Utilities with a comprehensive master plan for their automation needs. Significantly, this effort included related tasks such as developing Business Case Evaluation (BCE) templates and standards, facilitating BCE sessions as needed, communications plan development, and business process mapping for the water, wastewater, solid waste and business support divisions. These elements will be coordinated to provide the Utilities with a comprehensive

people/process/technology approach to understanding their automation needs. The project also includes skill-based advancement and employee development methodology and development for the various divisions in the utility.

Water Reclamation Division Business Plan, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. Project involves developing a Business Plan for Orange County Utilities Water Reclamation Division through a series of interviews and workshops with senior management and Utilities leadership.

CMOM/EMS Assistance, Orange County Utilities, Orlando, Florida

Technical Consultant, Project Manager. Work includes assisting the Utilities in implementing their CMOM program, while following environmental management system (EMS) methodology. Work includes business process mapping, work session facilitation, and Gravity, Force Main and Pump Station Manual development.

Maximo Upgrade, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. The goal of this project was to evaluate and standardize business processes related to the application and use of Maximo across all Utilities maintenance activities and Divisions, so that the investment in the Maximo upgrade enhances both effectiveness and efficiency of maintenance efforts.

Maximo Implementation Strategy and Assistance, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. This work includes developing the utilities-wide approach, procedures and reports for using Maximo CMMS as a comprehensive management tool.

Compensation Analysis, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. Work includes evaluating and validating employee development progression paths for water, wastewater and solid waste operations, along with all support positions.

Asset Management, Pasco County, Florida

Project Manager, Technical Consultant. Work includes performing asset management assessment, recommendations and implementation assistance for the Utilities Department.

Skilled Workforce Achievement Plan, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. The project includes assessing training and testing needs, defining job descriptions, defining policy related issues, defining data management needs for progression paths first as part of a pilot, then throughout Utilities Department.

Field Services Business Plan, Orange County Utilities, Orlando, Florida

Project Manager, Technical Consultant. (July 2013 to December 2013) Developed a Business Plan for Orange County Utilities Field Services Division. Work included activity based costing analysis, performance measures development and financial analysis of existing systems. The Plan was developed through a series of interviews and workshops with senior management and Utilities leadership.

Field Services Business Plan Implementation, Orange County Utilities, Orlando, Florida

Project Manager, Technical Lead. (November 2014 to September 2017) Based on the Division Business Plan (developed in collaboration with BC in 2013), this project focused on implementing elements of the plan and training personnel on procedures necessary to manage the plan.

Long-Term Control Plan (LTCP) Affordability Analysis, City of Middletown, Middletown, Ohio

Technical Lead. (January 2013 to July 2013) Updated the affordability analysis for the City of Middletown, as part of their ongoing Long-Term Control Plan. The analysis included gathering pertinent information about the City's financial capabilities and incorporating LTCP costs. The results of the EPA financial capability analysis will be included in the LTCP report along with other pertinent economic factors that could impact the City and its customers.

Audra McCafferty, P.E., LEED AP BD+C
President

Experience Highlights
Ms. McCafferty has more than 24 years of experience in general environmental consulting and is con-founder of McCafferty Brinson Consulting, LLC.

Specialties include water and wastewater facilities design, environmental assessments, regulatory compliance strategies, permitting, cost estimating and scheduling.

Education
B.S. – Environmental Engineering, University of Florida, 1991

Professional Registration
State of Florida
Professional Engineer No. 54737

LEED BD+C Accredited Professional

Professional Society Memberships
USGBC – United States Green Building Council Member
ASCE – American Society of Civil Engineers
FES – Florida Engineering Society

Team Member Physically located in MBC's Fort Lauderdale office

633 S. Andrews Ave, Suite 402
Fort Lauderdale, Florida 33301

Professional Experience

Ms. McCafferty is an environmental engineer with twenty-four years of experience including ten years with McCafferty Brinson Consulting, Inc. In 2006, Ms. McCafferty co-founded McCafferty Brinson Consulting, LLC. Since that time, Ms. McCafferty has assumed a major role in the day to day operation of the company while maintaining her technical role as Project Manager/Principal Engineer. Her experience includes general environmental consulting, water, wastewater and reuse facilities permitting, environmental assessments, active and non-active remediation, real estate acquisition due diligence, regulatory compliance strategies, permitting, stormwater pollution prevention plans, and water quality evaluation.

While Ms. McCafferty's technical experience is primarily focused in environmental services, she also has experience in building materials, asbestos surveying, geotechnical engineering, and construction materials testing. Ms. McCafferty has a broad range of professional experience, including work execution in the Principal Engineer role, project management and project delivery, including cost estimating, scheduling, senior technical review, quality assurance/quality control (QA/QC) management, staffing and resource management, and business development. The following are some representative technical projects in which Ms. McCafferty has been involved.

Project Experience

Project Engineer, Broward County Retail Potable Water and Wastewater Master Plan. Broward County authorized the Prime Consultant to provide services for developing a Retail Potable Water and Wastewater Master Plan (Master Plan). MBC was hired as a subconsultant and was tasked with assisting with the components of the scope of work. Ms. McCafferty has assisted with the preparation of the Master Plan report sections associated with potable water source alternative for discrete services areas. The project is ongoing, additional anticipated activities include development of potable water system improvements.

Project Engineer, Broward County Reclaimed Water Treatment Plant Expansion. Broward County authorized the Prime Consultant to provide services for developing a design for improvements at the North Regional Wastewater Treatment plant. MBC was hired as a subconsultant to the prime consultant, and was tasked with assisting with the components of the scope of work. Ms. McCafferty is assisting with permitting efforts for the improvements. Coordination with various agencies is required to obtain operating and construction permits for the project.

Project Engineer, Broward County Water and Wastewater Services (BCWWS) WTP 3A, Storage Tank Sizing, Broward County, Florida, BCWWS is in the design phase of a project consisting of the construction of a second finished water ground storage tank and a new high service pump station at the WTP 3A site. MBC assisted in determining the appropriate storage capacity for the proposed finished water ground storage tank. Ms. McCafferty's tasks included a data request and review, storage sizing calculations, and preparation of a technical memorandum.

Project Manager / Broward County Water and Wastewater Services WTP 2A, Water Treatment Plant Compliance Study for 62-555 FAC 4-Log Virus Removal/Inactivation Requirement, Broward County, Florida. Services included demonstration of four-log virus treatment of groundwater to the Broward County Health Department and for Water Treatment Plant 1A utilizing free chlorine disinfection followed by ammonia addition. FDHBC issued the Provisional Determination of Four-Log Virus Treatment of Ground Water letter on October 22, 2013, pending submittal of ammonia concentration in the raw water for a period of one year. In October 2014, MBC submitted to the FDHBC the ammonia concentration data and requested that the FDHBC issue a Final Determination of Four-Log Virus treatment of Groundwater.

Project Engineer, Broward County Alternative Water Supply. Broward County authorized the Prime Consultant to provide services for developing an Alternative Water Supply (AWS) Master Plan. MBC was hired as a subconsultant and was tasked with providing assistance with various components of the scope of work. Ms. McCafferty prepared Master Plan report sections associated with discrete analysis of various AWS options such as implementation of conventional reuse for demand reduction, groundwater recharge reuse offset application, and Biscayne Aquifer allocation expansion via other offset approaches.

Project Engineer, Seminole County Water Supply Plan, as contractor for Prime Consultant. Provided assistance with various elements of the Seminole County Water Supply Plan (Plan). The Plan objectives are to meet Cooperators' current and future water demands with traditional and alternative water sources while sustaining water quality and protecting wetland and aquatic systems. Ms. McCafferty provided assistance with production of the Tech Memos: Task E - Data Gathering & Processing; Flow Projections Technical Memorandum, Task F1 - Analysis and Recommendations; Identification of Readily Identifiable Traditional and Alternative Water Supply Development Projects Technical Memorandum, Task F - Analysis and Recommendations; and Evaluation of Existing Facilities and Alternatives Development Technical Memorandum. Assisted with coordination with the Cooperators (the majority of the municipalities and utilities within the county) GIS data gathering and development of a GIS and Access database for the Plan, identification of projected water supply shortfalls (to 2045), development of project evaluation criteria and ranking methodologies and development of PowerPoint presentations for the Cooperators, and assembly of the final Water Supply Plan document for SJRWMD publication.

Project Engineer, Water and Wastewater Consulting, Florida Governmental Utility Authority, as contractor for Prime Consultant. From 2001 through 2006, Ms. McCafferty assisted with program management, planning, engineering, and implementation of capital improvement projects for FGUA's water and wastewater systems in Citrus, Collier, Hillsborough, Lee, Osceola, Polk, and Sarasota counties. Services included assessment of the systems; wastewater/reclaimed water master planning; water/wastewater system modeling; development, management and implementation of complete infiltration/ inflow reduction programs, engineering studies, design, permitting and compliance consulting, for various WTPs, WWTPs, lift stations and pipeline projects.

Project Manager, Annual Report, Miami-Dade Aviation Department (MDAD), Florida. Annual report compiled monies spent in a fiscal year and environmental projects at Miami International Airport. Ms. McCafferty's tasks included downloading the MDAD accounting and project management databases, and the integration and manipulation of the databases to determine total dollars spent per project. The majority of the projects evaluated were related to the Consent Order and Consent Agreement in place between Miami-Dade County and the State of Florida. MDAD environmental director, project managers, and accounting personnel, were extensively interviewed to validate data. Projections for future expenditures were compiled. The past expenditures and future projections were assembled on a project-by-project basis and totaled for overall airport-wide historical and 20-year projection figures. Litigation technical support was also provided.

Frank Brinson, P.E., DBIA, CDT, BCEE
Vice President

McCafferty Brinson consulting

Experience Highlights
Mr. Brinson has more than 26 years of experience in a wide range of environmental engineering projects.

Specialties include water and wastewater treatment facilities, membrane treatment, pumping and hydraulic systems, and utility infrastructure.

Education
B.S. – Environmental Engineering, University of Florida, 1991

Professional Registration
State of Florida
Professional Engineer, No. 51313

Professional Certifications
DBIA – Design Build Institute of America, Designated Design-Build Professional
CDT - Construction Document Technologist, Construction Specifications Institute
BCEE - Board Certified Environmental Engineer, American Academy of Environmental Engineering

Team Member Physically located in MBC's Fort Lauderdale office

633 S. Andrews Ave, Suite 402
Fort Lauderdale, Florida 33301

Professional Experience

Mr. Brinson is an environmental engineer with twenty-six years of experience. He is experienced in both management and execution of projects with expertise in engineering analysis, modeling, utility master planning, design, permitting, preparation of bidding and construction documents, construction contract administration, and construction management. Specialties include water and wastewater treatment facilities, membrane treatment systems, pumping and hydraulic systems, and utility infrastructure. The following are some representative projects in which Mr. Brinson has been involved.

Project Experience

Project Manager / Engineer of Record, Glades Road Water Treatment Plant, 40 mgd Membrane Softening Process Addition, City of Boca Raton, Florida. This project included design and construction administration for a 40-mgd membrane softening process addition to the city's 70-mgd conventional lime softening plant.

Project Manager / Engineer of Record, Glades Road Water Treatment Plant, 40 mgd Nanofiltration (NF) Membrane Element Replacement, City of Boca Raton, Florida. The project included pilot testing, development of Technical Specifications and bidding documents for the replacement membrane elements, as well as the membrane loading contract, permitting, engineering services during membrane loading, and engineering supervision of membrane performance testing.

Project Manager / Engineer of Record, Southern Regional Wastewater Treatment Plant Oxygen Generation System Upgrade Design-Build, City of Hollywood, Florida. The project included pilot testing, development of Technical Specifications and bidding documents for the replacement membrane elements, as well as the membrane loading contract, permitting, engineering services during membrane loading, and engineering supervision of membrane performance testing.

Project Manager / Engineer of Record, 3.0 mgd Reverse Osmosis Water Treatment Plant, Raw Water Wellfield, and Concentrate Disposal Injection Well, City of Clewiston, Florida. The project included pilot testing, development of Technical Specifications and bidding documents for the replacement membrane elements, as well as the membrane loading contract, permitting, engineering services during membrane loading, and engineering supervision of membrane performance testing.

Project Engineer / Broward County Alternative Water Supply Master Plan, Broward County, Florida. This project included the preparation of a master plan for the Broward County Water and Wastewater Services Utility outlining alternative water supply options.

Boca Raton Nanofiltration Process

Project Manager / Design Engineer, Nanofiltration Process Addition to Water Treatment Plant 1A, Broward County Office of Environmental Services, Florida. This project included membrane process pilot testing and preliminary design for a nanofiltration process addition to the District 1A Water Treatment Plant for Broward County, Florida

Project Engineer, Blue Hills Seawater Reverse Osmosis Water Treatment Plant (SWRO WTP), Water and Sewerage Corporation of the Bahamas. Engineering services included preliminary design, preparation of Tender Documents, bidding services, review and evaluation of tenders, assistance with execution of contracts, shop drawing review, construction observation, and miscellaneous construction administration services.

Project Manager / Design of a 7.0 mgd Lime Softening Water Treatment Plan, City of Bartow, Florida. This project consisted of engineering planning, raw water source evaluation and development, site selection and acquisition, bench-scale treatability studies, financial planning, preliminary and final design, and permitting.

Project Manager / Glades Road Water Treatment Plant Compliance Study for 62-555 FAC 4-Log Virus Removal/Inactivation Requirement, City of Boca Raton, Florida. This project included data collection and review, regulatory compliance review, development of compliance alternatives, and recommendations.

Hollywood SRWWTP Oxygen Generation System Upgrade D-B

Project Manager / Pompano Beach Water Treatment Plant Compliance Study for 62-555 FAC 4-Log Virus Removal/Inactivation Requirement, City of Pompano Beach, Florida. This project included data collection and review, regulatory compliance review, development of compliance alternatives, and recommendations.

Project Manager / Disinfection and Finished Water Blending Yard Piping Improvements, City of Pompano Beach, Florida. This project included identification of potential improvements to the plant yard piping, a study to identify the most cost-effective means of complying with the 62-555.320 Florida Administrative Code 4-Log Virus Removal/Inactivation requirements, and the design of the ammonia and hypochlorite system improvements.

Clewiston Water Treatment Plant

Project Manager / South Florida Water Management District Water Supply Cost Estimation Study (Phases I and II), West Palm Beach, Florida. This project included estimating the costs of various alternative water supplies in the District's four planning areas in terms of capital, operation and maintenance (O&M), and total capacity. Potable water treatment technologies considered included microfiltration/ultrafiltration (MF/UF), nanofiltration (NF), low pressure reverse osmosis (LPRO) with a groundwater supply, LPRO with a surface water supply, and sea water reverse osmosis (SWRO). Wastewater treatment technologies included advanced wastewater treatment (AWT), Bardenpho process, membrane bioreactors (MBR), and microfiltration/reverse osmosis (MF/RO). This document is considered the definite basis of comparison by the SFWMD in evaluating alternative water supply projects from cost perspective.

Principal

Ms. Cordova is a licensed professional engineer, certified planner, and LEED Accredited Professional with over 25 years experience in engineering design and planning services in both the public and private sectors. She serves as Principal-In-Charge and Project Manager responsible for design, permitting, contract administration and project management for water and sewer systems design, roadway design, storm drainage, earthwork design, calculations, and environmental permitting, project planning and associated site development work, as well as Land Use Plan Amendments, Comprehensive Plan Amendments, Rezonings, Plat Processing, Due Diligence Studies and other planning related services. She is currently the Planning Consultant for the City of Aventura providing plan review services as well as preparation of the Water Supply Facilities Work Plan. Ms. Cordova has worked with Hazen and Sawyer on the Water and Wastewater System Annual Report.

Education:

BS, Civil Engineering
University of Miami, Miami, Florida, 1985

BS, Architectural Engineering
University of Miami, Miami, Florida, 1985

Certifications:

Licensed Professional Engineer in Florida

Certified Planner with the American Institute of Certified Planners

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

Employment:

Cordova Rodriguez & Associates, Inc.: 18 years

Employee of other Engineering Firms: 14 years

References:

Joanne Carr, Community Development Director
City of Aventura
(305)466-8943

EXPERIENCE:

Miami-Dade Water and Sewer Department – Water Allocation Study: The project consisted of developing a study to revise and update the water/sewer allocation based on actual water use for the different land uses as listed in Chapter 24 of the Miami-Dade County Code. This study also included reviewing the selected existing Miami-Dade Water and Sewer Department (MDWASD) land uses (premise list) and making recommendations to consolidate the current list and estimate the future water savings because of the use of water conservation programs.

Broward County Regional Reuse Master Plan – Services included: coordinating with water and wastewater service providers and planning agencies to inventory reuse planning efforts and commitments, to include type, location, timing, and size of project and related infrastructure. Services also included summarizing and describing planned reuse projects, expected completion dates, and associated infrastructure (size, type, and location) as recommended for consideration as part of a regional master plan, including project type, location, volume, etc.

Water and Wastewater Systems Annual Report Fiscal Year 2001 – Assistance with preparation of physical description and assessment of the condition of water and wastewater system for Broward County Water and Wastewater System Department.

City of Aventura Water Supply Facilities Workplan - Assisted the City of Aventura with its water supply facilities workplan. Tasks included extensive coordination with Miami-Dade Water and Sewer Department and SFWMD Master Water Supply Plans and other regional agencies.

City of Aventura - Planning Consultant - Services include plans review for planning and engineering issues, member of the Development Review Committee, comprehensive plan amendments and amendments to the Land Development Code. Assistance with the preparation of the Federal Insurance Rate Map - Community Rating System audits and reports as needed. Preparation of the site plan review report and ordinances for the site plans, variances, conditional uses, entry features, temporary and final plats.

Broward County Reclaimed Water Plant Expansion – Services included preliminary site layout, including horizontal location of major structures and buildings, roadways, parking areas, construction staging areas, and storm water retention areas, preliminary paving, grading and drainage drawings. Responsibilities included civil-site modifications as required to maintain adequate grading for the new facilities, to provide service roads to the new additions and to expand the existing stormwater collection to compensate for the addition of the new structures.

Broward County Fire Stations - Project Manager for the design, permitting and construction management for four (4) fire rescue stations, one included a hazmat station, and another included an EMS warehouse facility. Services included paving, grading and drainage systems design and permitting, water main distribution system and sewer main collection system design and permitting, signing and marking and construction observation and management.

Terminal 18, Port Everglades - Services included design, permitting and construction observation for the paving, grading, drainage, water and sewer systems for the Terminal 18 parking lot, access roads, drop-off area, bus terminal and cargo truck delivery area. The project included also included the design of over 700 LF of 12" water main, fire hydrants, 80 LF of fire line, 250 LF of water services and permitting for a new container yard to replace the existing yard. It also included the design of five (5) drainage wells and permitting through the Florida Department of Environmental Protection. This project was designed, permitted and constructed in 22 months. It opened two weeks ahead of schedule and under budget.

Riverstone Subdivision - Provided consulting engineering services for a new ±318 acre residential development. The scope of work included design of three (3) submersible sanitary sewer pump stations, over 3600 LF of 4-inch force main to service 308 residential units. In addition, CRA prepared paving, grading, drainage and signing and marking plans for the internal roadways system. Our responsibilities also included preconstruction assistance and regular construction observation to ensure proper implementation of approved plans and final certification to the City of Sunrise, Town of Davie and Broward County.

Paradise Promenade/Town of Davie - Responsible for water and sewer connections for 14.79 acre commercial/retail site. Responsibilities included 77,590 square feet commercial space, 2,567 LF of 8-inch water main extension, 1,337 LF of 8-inch sanitary sewer collection system to service a 77,590 square foot commercial building.

Project Manager

Mr. Rodriguez is a licensed professional engineer with over 25 years of experience in civil engineering. His project experience includes design of water distribution systems, sanitary sewer collection systems, sanitary sewer pump stations and force main, paving and drainage design, management of various land development projects, and permitting processing through various local and state agencies. He has extensive experience in construction management and administration.

Education:

BS, Civil Engineering, 1993,
Cornell University, New York

Certifications:

Licensed Professional Engineer in Florida

Employment:

Cordova Rodriguez & Associates, Inc.: 12 years

Employee of other Engineering Firms: 14 years

References:

Franklin Torrealba, PE
Director
300 Engineering Group, P.A.
(305) 763-9829

EXPERIENCE:

Miami Seaport Redevelopment Program: Responsible for coordinating permit submittals for 33 projects associated with the pump station redevelopment program. Responsibilities included submittal to Miami-Dade County Building Department, City of Miami, and Miami-Dade County DERM (currently RER). The program included permitting for two sanitary sewer pump stations, removal and abandoning of seven (7) septic tanks and connecting those sites to the gravity system. Preparations of design calculations and construction documents for a new pump station to serve an existing cargo building at the Miami Seaport.

Miami-Dade Water and Sewer Department Consent Decree/Settlement Agreement Section (CD/SA): Assigned to WASD CD/SA section to work on various duties. Responsibilities included the submittal and tracking of various pump stations and force main upgrades with Miami-Dade County Building Department, DERM, FDOT, FDEP and Miami-Dade County Health Department. Responsible for coordination with FPL and other utilities in anticipation of the proposed upgrades.

The Program Management Team (PMT): Responsibilities included the monitoring and tracking of Miami-Dade WASD pump stations for NAPOT criteria, evaluating out-of-compliance pump stations and preparing engineering reports recommending upgrades to comply with FDEP consent Decree requirements. Assisted with permitting of various pump station upgrades through the Miami-Dade County Building Department, DERM and other agencies. Coordinated with utility companies (FPL, telephone, cable companies) in anticipation of upcoming pump stations and force main upgrades.

Westview Place: Scope of work included the design of a sanitary sewer pump station to serve a 35 townhome development in Miami-Dade County. The project included the design of 60 LF of four (4) inch force main connection to an existing force main.

Responsibilities included permitting through Miami-Dade DERM, the City of North Miami, and the health department. It also included coordination with FPL for the crossing of a major transmission line along NW 119 Street.

Miami International Airport-South Terminal Expansion Project Office Trailer: Prepared design calculations and construction documents for pump station upgrade serving the South Terminal trailer complex. Scope included permitting and coordination with Miami-Dade Aviation Department (MDAD), Miami-Dade DERM, Building and Zoning Department. Provided construction observation and final certification services and coordinated with electrical engineer on the pump station electrical components.

Town of Miami Lakes – Public Works Plans Review: Provides engineering plans review for the Public Works Department, consultation and field inspections for the Town of Miami Lakes on a continuing contract.

Florida Power & Light Spangler Substation: Preparation of design and construction documents for a new electrical substation. Services provided included paving, grading and drainage, septic tank design, future sewer service coordination, storm water pollution prevention plan, and construction observation.

Miami-Dade County Public Works Department- Lormar Drainage Subdivision Improvements: Responsible for the design of the drainage improvements for the Lormar Subdivision between SW 96th Terrace to SW 101st Street from SW 146th Avenue to SW 147th Avenue; and SW 147th Avenue from SW 88th Street to SW 90th Street (approximately 1000 LF south of SW 88th Street). The task included coordination with FPL and other utilities to coordinate the placement of the proposed exfiltration trench while minimizing utility conflicts and disruptions to the residents.

Florida Power & Light Stirling Substation: Preparation of design and construction documents for the expansion of an existing electrical substation. Services provided included paving, grading and drainage, storm water pollution prevention plan, and construction observation.

Port Everglades Terminal 18: Project manager for the design, permitting and construction observation for the Terminal 18 expansion as required for the newest and largest single cruise ship terminal in the world. Services included paving, drainage, well design, water main extension and service, sewer main extension and service, construction observation and administration.

Port Everglades Terminal 21, North Port, & Terminal 18 Phase I: Construction management and administration services for the expansion/renovation of several cruise and cargo terminals at Port Everglades.

Port Everglades Terminal 16: Project manager for the design, permitting and construction observation for the Terminal 16 container yard. Services included paving, drainage, well design, water main extension and service, sewer main extension and lateral, construction observation and final certification with Florida Department of Environmental Protection (FDEP), Broward County and the health department.

City of Miramar Water Use Permits: Prepared water use permits to the South Florida Water Management District for the City's irrigation pumps.

Mark S. Drummond, P.E., BCEE

President

Education

B.S. – Civil Engineering, Florida International University, 1996 (Minor in International Relations)

Registration

Professional Engineer: Florida (License No: 57428)

Professional Engineer: Jamaica (Registration No: PE/01/0583)

Certified NASSCO PACP, MACP, LACP

Mark Drummond is a civil / environmental engineer experienced in water and wastewater treatment process design, water distribution systems, wastewater collection and transmission systems, water reuse systems, hydraulic modeling, water supply projects, horizontal directional drilling design, sanitary sewer evaluation surveys, management consulting, information management systems, and permitting.

Project Engineer, Retail Potable Water and Wastewater Masterplan, Broward County, Florida. This project provided the retail water and wastewater masterplan for Broward County. Mr. Drummond evaluated alternate wastewater treatment and effluent disposal suppliers for certain regions in the County, assisted in the calibration of the water and wastewater hydraulic models, provided growth forecast through the year 2040 to estimate potable water demand and wastewater flows, provided studies to estimate infiltration and inflow, performed a condition assessment for the County's wastewater lift stations, and provided recommendations for future capital improvement and rehabilitation and replacement projects.

Project Engineer, Wastewater Masterplan, Palm Beach County Water Utilities, Florida. This project provided the wastewater masterplan for Palm Beach County. Mr. Drummond assisted with the analysis of the existing wastewater service area and the evaluation of infiltration and inflow into the wastewater collection system.

Project Engineer, Utility Water and Wastewater Masterplan, City of Riviera Beach, Florida. This project provided the creation of the initial Water and Wastewater Masterplan for the Riviera Beach Utility District. The Masterplan summarized the existing conditions of the water and wastewater system, created hydraulic models for both the water distribution and wastewater collection systems and prioritized improvements for the water supply, water treatment, water distribution and wastewater collection systems.

Project Manager, 17.5 MGD Sodium Hypochlorite Disinfection Facility, City of Riviera Beach, Florida. Mr. Drummond is the Engineer of Record for the design of sodium hypochlorite (NaOCl) disinfection facilities for an existing 17.5mgd conventional lime softening Water Treatment Plant. This design entails the conversion of an existing gaseous chlorine disinfection to a sodium hypochlorite and includes new: NaOCl storage and chemical feed facilities; chemical piping, valves and appurtenances; flow meters for measurement of WTP flow and flow pacing of NaOCl chemical injection; re-carbonation system for pH control and new motor control center to consolidate various electrical equipment into the new facility.

Project Manager, 12 MGD Aguadulce Water Treatment Plant, IDAAN, Aguadulce, Panama. This project included the design of a new 12mgd Surface WTP including, surface water intake from the Santa Maria river, raw water transfer pump station, flocculation and coagulation basins, dual media self-backwashing filters, solids handling and backwash recycle water basins, finished water storage and high service pump station to distribute water to remote storage tanks to serve 50 cities/towns through 200km of transmission pipeline.

Project Manager, Packed Tower Aerator Design Evaluation, City of Riviera Beach, Florida. Mr. Drummond provided the base design criteria required to renovate and provide media replacement of the four packed tower aerators for the 17.5mgd Water Treatment Plant.

Project Manager, 38 MGD GTL WWTP Influent Bar Screen Rehabilitation Design Build, City of Fort Lauderdale, Florida. Mr. Drummond was the Engineer of Record for the design and permitting of the replacement of influent screening devices at the 38 mgd GTL Wastewater Treatment Plant. The rehabilitation included the design of four (4) new plate screens to replace all existing influent screening devices while keeping the WWTP in continuous operation.

Project Manager, Value Engineering North District Wastewater Treatment Plant Headworks Rehabilitation Project, Miami Dade Water & Sewer Department, Florida. Mr. Drummond provided value engineering for the rehabilitation of the influent screening, primary sludge degritting, and sludge transfer systems along with the replacement and relocation of the electrical switchgear for the 240-mgd North District Wastewater Treatment Plant.

Design Engineer, 9 MGD Advanced Wastewater Treatment Facility, City of Fort Myers, Florida. Performed the process and hydraulic design of the treatment and pumping systems. This project included the design of a new 9-mgd Advanced Wastewater Treatment Facility (AWWTF) at the City's existing South Wastewater Treatment Plant to enhance the City's reuse water capabilities. The AWWTF included tertiary filtration, disinfection, transfer and high service pump stations, and two 5 MG storage tanks.

Project Manager, Central District WWTP Injection Well Pump Station Surface Facilities Value Engineering, Miami Dade Water & Sewer Department, Florida. Mr. Drummond provided value engineering for the design of the Injection Well Pump Station Surface Facilities for the 143mgd Central District WWTP. The design included the construction of two 19.9mgd Class I Deep Injection Wells and pump station to dispose Leachate from the Virginia Key Landfill and dewatering centrate, digester gas scrubber wastewater and secondary treated effluent from the WWTP.

Project Manager, LS 10 & 50 Rehabilitation and Replacement, City of Riviera Beach, Florida. Mr. Drummond is the Engineer of Record for the rehabilitation of an existing critical master submersible pump station and the rehabilitation and conversion of an existing 16mgd wet-pit / dry-pit master pump station to an above ground inline booster station.

Project Manager, Preliminary Design of Lift Station No. 47, City of Riviera Beach, Florida. This project includes the generation of a preliminary design report for the rehabilitation and conversion of the existing 9.8mgd submersible master lift station to an above ground inline booster station on constrained project site with limited additional space.

Professional History

2005 to Date	C Solutions Inc. – Fort Lauderdale, Florida
1996 to 2005	Camp Dresser & McKee Inc. – Fort Lauderdale, Florida
1988 to 1996	Newco Structures, Inc. - Miami, Florida

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James D. Stoner, P.S.M.
President

Education

Land Surveying Program
Palm Beach Community College, 1979

Professional Registrations

State of Florida Professional Surveyor and Mapper
License Number LS4039, 1983

Professional Affiliations

Former Vice President Florida Surveying and Mapping Society – State Level
Former President Florida Surveying and Mapping Society – Broward Chapter
Former Florida Surveying and Mapping Society – Area 6
American Congress on Surveying and Mapping
Leadership Broward

Professional Experience

- **South Florida Water Management District**
  - STA 3/4 – Topographic Survey
  - East Coast Buffer Cells 28 & 29 – Boundary Survey
  - C-4 Canal Conveyance – Topographic Survey
  - Lake Hicpochee – Boundary and Topographic Surveys

- **Broward County Aviation**
  - Annual Runway Approach Surface Surveys
  - Numerous Lease Parcel Surveys
  - Design Surveys for Expansion of Airport Terminals

- **Broward College Continuing Contract for Surveying Services**
  - North Campus – Boundary survey overall Campus
  - Central Campus - Boundary survey overall Campus
  - South Campus - Boundary survey overall Campus
  - Numerous Topographic and As-built Surveys for expansion of Facilities

STONER & ASSOCIATES, Inc.
SURVEYORS - MAPPERS

4341 S.W. 62nd Avenue, Davie, Florida 33314
T: (954) 585-0997 • F: (954) 585-3927 • www.stonersurveyors.com

- **City of Sunrise Continuing Contract for Surveying Services**
  - Southwest Water Treatment Plant – As-Built Survey
  - Sunrise Road Improvements – Various Topographic Surveys
  - Five Vacant Parcels – Boundary Surveys
  - Park City Water Treatment Plant – Updated Boundary Survey
  - Passive Park – Topographic and Utility Surveys
  - City Hall Parking Lot – Topographic Survey
  - N.W. 44th Street – Topographic Survey
  - Lutheran Church Site Acquisition – Boundary Survey

- **Town of Davie Continuing Contract for Surveying Services**
  - Oakes Road Fire Station – Boundary Survey
  - Lift Station Number 11 Improvement Project – Topographic Survey
  - Silver Lakes Park – Construction Layout Survey
  - Wachovia Bank Parcels – Boundary, Topographic, & Tree Surveys
  - Parks & Recreation Building at Pine Island Park – Topographic Survey
  - Orange Drive – Topographic & Tree Surveys
  - Eastside Community Hall – Topographic & Tree Surveys
  - N-20 Canal – Topographic Survey
  - Public Works Gas Pump Station – Topographic Survey
  - S.W. 130th Avenue Canal – Topographic Survey
  - Sunny Lake Expansion – Boundary Survey

STEPHEN E. BAILEY
President

Bailey Engineering Consultants, Inc.

QUALIFICATIONS SUMMARY

Mr. Bailey is a licensed electrical engineer experienced in designing electrical and SCADA control systems for water and wastewater treatment facilities, drainage projects, movable bridges and industrial facilities. His project management responsibilities encompass preliminary and final design, cost estimating, and construction/start-up services. He participates on quality assurance/quality control teams to evaluate electrical systems' technical conformance to codes and adherence to a project's overall design scheme. He interfaces with other project consultants, as well as client and vendor representatives. Mr. Bailey is also familiar with NFPA codes and their adaption to water and wastewater system design.

EXPERIENCE

Mr. Bailey is experienced in electrical project engineering and project management. He has practiced applied electrical engineering on a variety of environmental projects having been involved from concept to preliminary and final design through construction start-up. His experience involves electrical engineering for water treatment plants, wastewater treatment and disposal facilities, water reuse and irrigation systems, and instrumentation and control systems.

Mr. Bailey was the project manager, in responsible charge, for all electrical design concerns for the following projects:

Miramar WTP Expansion - Electrical & instrumentation/controls design associated with the renovation of the 6.0 MGD Water Treatment Plant located in the City of Miramar, Florida.

Davie - Tindall Hammock WWTP Improvements - Electrical, control system design and construction management services associated with the electrical system for the water and wastewater facilities, providing EPA Class 1 reliability.

Palm Coast Wastewater Treatment Plant No. 2 - Electrical, Instrumentation/Control design and construction administration services associated with the facility's emergency power system upgrade, new switchgear, and the City's new SCADA network.

Volusia County Water Reclamation Facility - Electrical, Instrumentation/Control design and construction administration services associated with the 1.5 MGD expansion of the facility.

Sanford South Water Reclamation Facility - Electrical, Instrumentation/Control design and construction administration services associated with the expansion of the City's water, wastewater, reclaimed facilities and lift stations.

EDUCATION Bachelors of Electrical Engineering, Georgia Institute of Technology, 1983

REGISTRATION Professional Engineer, Florida (1989) No. 42461
Professional Engineer, New York (2015) No. 94774

PROFESSIONAL SUMMARY

April 1992 to Date	President, Bailey Engineering Consultants, Inc. Lake Worth, Florida
1987 - 1991	Office Manager, C.E. Bailey & Associates, Inc., Fort Lauderdale, Florida
1984 - 1986	Field Engineer, Advanced Micro Devices, Huntsville, Alabama - Worked with microprocessors, local area networks (LANS), and Data-communicators
1983 - 1984	Field Engineer, Hewlett-Packard, Components Division, Atlanta - Worked with microwave technology, Diodes, Transistors, and Fiber Optics

SOCIETIES

National Society of Professional Engineers (NSPE)
Institute of Electrical and Electronic Engineers (IEEE)
Florida Engineering Society (FES)
National Fire Protection Association (NFPA)
Instrument Society of America (ISA)

JAY LIBO-ON
Electrical Engineer

Bailey Engineering Consultants, Inc.

QUALIFICATIONS SUMMARY

Mr. Libo-on is an electrical engineer experienced in designing power systems for water and wastewater treatment facilities, above and below ground distribution systems and industrial facilities. His electrical designing responsibilities encompass all aspects of drawing production, as well as system design.

EXPERIENCE

Mr. Libo-on is experienced in electrical design. He has worked at Bailey Engineering Consultants for 16 years and has a keen understanding of the water treatment plant design marketplace. He has been involved in the electrical system design on a variety of projects. His experience includes electrical designs for water treatment plants, water reclamation facilities and water reuse projects, and lighting projects.

Mr. Libo-on was involved in the following projects:

Margate Lift Station No. 22 - Electrical and control system for the duplex lift station improvements in accordance with the City standards. Our design included solid state starters for the pump motors.

Volusia County Water Reclamation Facility - Electrical, Instrumenation/Control design and construction administration services associated with the 1.5 MGD expansion of the facility.

Pembroke Pines Water Treatment Plant Expansion - Electrical, Instrumentation/Control design and construction administration services associated with the 6 MGD expansion to the existing 12 MGD WTP, as well as plant and SCADA systems upgrades.

North Miami - Norwood Oeffler Water Treatment Plant - Electrical, Instrumentation/Control design and construction administration services associated with the 32 MGD facility.

Palm Coast Wastewater Treatment Plant No. 2 - Electrical, Instrumentation/Control design and construction administration services associated with the facility's emergency power system upgrade, new switchgear, and the City's new SCADA network.

Mount Dora East Water Treatment Plant - Electrical, instrumentation and controls design for the 1 MGD East Water Treatment Plant located in the City of Mount Dora, Florida. This included the electrical and instrumentation design for the proposed wells, high service pumps and hypochlorite metering system.

EDUCATION Bachelors of Science, Electrical Engineering
Florida Atlantic University, 1999

REGISTRATION Engineer Intern – Florida No. 1100006452

PROFESSIONAL SUMMARY

1998 to Date	Electrical Engineer, Bailey Engineering Consultants, Inc. Cooper City, Florida

PRINCIPAL AREAS OF EXPERTISE Electrical and Control Design of Water and Wastewater Treatment Facilities, Pump Stations, Industrial, Environmental, Municipal and Commercial Projects

PETER MOORE, P.E., ENV SP, LEED AP, F. ASCE
PRESIDENT

Education

Bachelor of Science, Civil Engineering, University of Florida, 1997
Master of Engineering, Civil Engineering, University of Florida, 2004

Registration

Professional Engineer, Florida, 58709, 2002

Professional Affiliations

American Society of Civil Engineers
Florida Engineering Society
Florida Stormwater Association
National Society of Professional Engineers

Certifications

Certified Stormwater Inspector
LEED Accredited Professional

Office Location

Fort Lauderdale

CHEN·MOORE &ASSOCIATES

Mr. Moore has over 18 years of design, permitting, construction management and project management experience in utility projects domestically and internationally, with significant experience in South Florida and for Broward County. Mr. Moore is well versed in the guidelines, design standards, policies and procedures of Broward County and BCWWS. Having completed over $100M in projects locally and serving as an advisor on an addition $500M in projects domestically and internationally, Mr. Moore brings both a strong depth of local knowledge and a wide breadth of the developing trends in utility engineering.

Project Experience

Broward County UAZ 110/111 & 113 Water Sewer Improvements 113B, Lauderdale Lakes, FL. The Water and Sanitary Sewer Improvements for the UAZ 110/111 & 113 Project will include the improvements to the existing water distribution system, sanitary sewer system, and transmission systems within the project area along with the restoration of surface areas disturbed for the construction of said improvements. The existing system being replaced consists of approximately 168,100LF of water mains, 122,100 LF of sanitary sewer mains and 23,600 LF force main. The existing water main consists of asbestos cement, cast iron, ductile iron, galvanized steel, polyvinyl chloride pipe ranging from 2" - 24" in diameter size. The sanitary sewer consists of vitrified clay, fold and form liner, cured in place liner and ductile iron pipe ranging from 8" – 15" in diameter size. The force main consists of asbestos cement, cured in place liner, ductile iron and polyvinyl chloride pipe ranging from 6" – 16" in diameter size. There are 8 Broward County lift stations in these UAZ areas and 1 private lift station which sanitary sewer systems will need to connect to. Two of these stations will need rehabilitation/ replacement, the extent of rehabilitation of existing stations will be determined. The restoration of roadways, sidewalks, driveways, and landscape areas will need to be performed as needed for water and sanitary sewer improvement construction.

Broadview Park Neighborhood Improvement Program. The Broadview Park Neighborhood Improvement Program (BPNIP) was the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and to design and administer the construction of improvements to subsequent bid packages. The three Bid Packages addressed water, sanitary sewer and drainage improvements, while introducing sidewalks and enhancing the community's roadway and landscape.

The basis of design report included population projections, an analysis of water source and sewage discharge points and a hydraulic model of the water, wastewater and stormwater systems.

The first bid package included the replacement of the entire water distribution system within the neighborhood, which was previously owned and maintained by a private utility. This project was designed utilizing digital orthography and aerial maps to fast track the replacement.

The second and third bid packages included conversion of the entire area from septic to gravity collection, the installation of a backbone forcemain network and connection into an inline booster station, installation of a positive drainage system, sidewalks, hardscape and landscape improvements.

An added fourth bid package was the design of a 20" water main to serve as the transmission source water for the area. Also change ordered into the project was the installation of a 20" raw water main for future use. The project was complicated by groundwater contamination, proximity to a wellfield, the existence of a fire station and elementary school in the neighborhood and the existence of rock in the area. All of the projects were completed on budget and on or ahead of schedule.

BC UAZ 307 / 315. The Broward County UAZ 307 / 315 Utilities project included replacing existing water main and providing sanitary sewer for County Service Areas in the City of Dania Beach, near Griffin Road and Ravenswood Road. The main technical components included replacing a 12-inch water main on Ravenswood Road, replacing the residential water distribution system, providing sanitary sewerto connect existing septic tanks and rehabilitating and installation of new lift stations and force main. In order to achieve the necessary information, site visits concentrated on contacting residents to determine the location of existing tanks. A great deal of coordination was required to accommodate developer projects, tie into County projects, and obtain easements for crossing private properties. A total of 20,000 linear feet of water main replacement, three lift stations and 14,000 linear feet of sanitary sewer, which will tie in over 400 parcels, were designed for this project. Chen Moore and Associates is also performing construction administration for this project.

UAZ 303, 314 and 318. The Broward County UAZ 303,314 and 318 project was part 1 of what was projected to be an $8.8 million project replacing existing water and providing sanitary sewer for County Service Areas in the City of Dania Beach, just east of State Road 7, north and south of Griffin Road. The main technical components included replacing water mains on County roads, replacing the residential water distribution system, providing sanitary sewer systems to eliminate existing septic tanks, and rehabilitating or installing new lift stations. GIS was used to keep track of all ongoing projects, log pertinent site information, determine the projected flow rates, track questions from residents of the area and track responses from utility companies regarding their existing facilities. The design of these improvements began in January 2009 and UAZ 303 has been completed.

UAZ 316. The Broward County UAZ 316 project is part 2 of the estimated $8.8 million project servicing Broward County utility zones in the City of Dania Beach which includes replacing existing water and providing sanitary sewer just east of State Road 7, and south of Griffin Road. The main technical components include replacing water mains, replacing the residential water distribution system, providing sanitary sewer systems to eliminate existing septic tanks and rehabilitating or installing new lift stations

SAFIYA BREA, P.E., LEED AP
SENIOR PROJECT MANAGER

Education

Bachelor of Science, Civil Engineering, University of Florida, 2002

Registration

Professional Engineer, Florida, 66388, 2007

Professional Affiliations

American Society of Civil Engineers
Engineers Without Borders
Florida Engineering Society

Certifications

Qualified Stormwater Management Inspector
OSHA Certification
LEED AP
Advanced Work Zone Traffic Control Certification

Office Location

Fort Lauderdale

CHEN·MOORE &ASSOCIATES

Ms. Brea has over 13 years of experience with neighborhood improvement projects, including the design of roadways, sidewalks, drainage, water and wastewater infrastructure. As a senior civil engineer, she has managed projects ranging from thousands of dollars to multi-million dollar, large-scale neighborhood improvement programs. Ms. Brea has managed and designed streetscape improvements, roundabouts, lift station, stormwater improvements and master plans, and booster station basis of design reports. Her duties include construction management, managing GIS and Autocad design work, Cascade modeling, sewer modeling, and report preparation for municipalities throughout South Florida.

Project Experience

Broward County UAZ 110/111 & 113 Water Sewer Improvements 113B, Lauderdale Lakes, FL. The Water and Sanitary Sewer Improvements for the UAZ 110/111 & 113 Project will include the improvements to the existing water distribution system, sanitary sewer system, and transmission systems within the project area along with the restoration of surface areas disturbed for the construction of said improvements. The existing system being replaced consists of approximately 168,100LF of water mains, 122,100 LF of sanitary sewer mains and 23,600 LF force main. The existing water main consists of asbestos cement, cast iron, ductile iron, galvanized steel, polyvinyl chloride pipe ranging from 2" - 24" in diameter size. The sanitary sewer consists of vitrified clay, fold and form liner, cured in place liner and ductile iron pipe ranging from 8" – 15" in diameter size. The force main consists of asbestos cement, cured in place liner, ductile iron and polyvinyl chloride pipe ranging from 6" – 16" in diameter size. There are 8 Broward County lift stations in these UAZ areas and 1 private lift station which sanitary sewer systems will need to connect to. Two of these stations will need rehabilitation/ replacement, the extent of rehabilitation of existing stations will be determined. The restoration of roadways, sidewalks, driveways, and landscape areas will need to be performed as needed for water and sanitary sewer improvement construction.

Broadview Park Neighborhood Improvement Program.

The Broadview Park Neighborhood Improvement Program (BPNIP) was the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and to design and administer the construction of improvements to subsequent bid packages. The three Bid Packages addressed water, sanitary sewer and drainage improvements, while introducing sidewalks and enhancing the

community's roadway and landscape.

The basis of design report included population projections, an analysis of water source and sewage discharge points and a hydraulic model of the water, wastewater and stormwater systems.

The first bid package included the replacement of the entire water distribution system within the neighborhood, which was previously owned and maintained by a private utility. This project was designed utilizing digital orthography and aerial maps to fast track the replacement.

The second and third bid packages included conversion of the entire area from septic to gravity collection, the installation of a backbone forcemain network and connection into an inline booster station, installation of a positive drainage system, sidewalks, hardscape and landscape improvements.

An added fourth bid package was the design of a 20" water main to serve as the transmission source water for the area. Also change ordered into the project was the installation of a 20" raw water main for future use. The project was complicated by groundwater contamination, proximity to a wellfield, the existence of a fire station and elementary school in the neighborhood and the existence of rock in the area. All of the projects were completed on budget and on or ahead of schedule.

Broward County BCWWS WWED UAZ 307/315 Utilities. Broward County Water and Wastewater's Utility Analysis Zone (UAZ) 307 / 315 Utilities project included replacing existing undersized water main and providing sanitary sewer for County Service Areas in an urban neighborhood within the City of Dania Beach, near Griffin Road and Ravenswood Road. The main technical components included replacing a 1,900 LF of 12-inch water main on Ravenswood Road, replacing 10,961 LF of 8-inch of residential water mains, including services, providing sanitary sewer to connect existing septic tanks and rehabilitating and installation of new lift stations and force main. In order to achieve the necessary information, site visits concentrated on contacting residents to determine the location of existing tanks. A great deal of coordination was required to accommodate developer projects, tie into County projects, and obtain easements for crossing private properties. GIS was used to keep track of all ongoing projects and determine/update projected utility flow rates. A total of 12,800 LF of water main replacement, three lift stations and 14,000 LF of sanitary sewer, which will tie in over 400 parcels, were designed for this project. Chen Moore and Associates also performed construction administration for this project.

The project had a significant Public Outreach Program which included several meetings with homeowners, included door hangs and construction notices through the entire construction phase.

BC UAZ 316 Bid Pack 2. The Broward County UAZ 316 project is part 2 of the estimated $8.8 million project servicing Broward County utility zones in the City of Dania Beach which includes replacing existing water and providing sanitary sewer just east of State Road 7, and south of Griffin Road. The main technical components include replacing 12-inch water mains on County Roads, replacing the residential water distribution system, providing sanitary sewer systems to eliminate existing septic tanks and rehabilitating or installing new lift stations. In order to obtain the necessary information, site visits concentrated on contacting residents to determine the location of existing tanks. A great deal of coordination was required to accommodate developer projects, tie into County projects and obtain easements for crossing private properties. GIS was used to keep track of all ongoing projects, determine the projected flow rates, track questions from residents of the area and track responses from utility companies regarding their existing facilities. This project is under construction.

David McNabb, P.G.

McNabb Hydrogeologic Consulting, Inc.

Project Related Experience

McNabb Hydrogeologic Consulting, Inc. (2006-present)
President/Hydrogeologist- Provide hydrogeologic consulting services with emphasis on deep injection well and aquifer storage and recovery systems design, permitting and construction oversight services.

Florida Power & Light Okeechobee Clean Energy Center Deep Injection Well System – Provided design, permitting, construction oversight and reporting services for the deep injection well system at the FPL Okeechobee Clean Energy Center. The system consists of two Class I deep injection wells constructed to a depth of 3,200 feet and a dual zone monitor well. The wells were completed with a 40-inch diameter final casing and 18-inch diameter FRP injection tubing.

Florida Power & Light Turkey Point Exploratory/Injection Well – Provided design, permitting and construction oversight services for a 3,230 foot deep exploratory well and dual-zone monitor well at the FPL Turkey Point site. The wells were constructed to Class I injection well standards with a 24-inch diameter final casing and 18-inch diameter FRP injection tubing. Provided permitting services for the conversion of the exploratory well to a Class I deep injection well. Assisted FPL in the preparation of injection well system (12 injection wells and 6 dual-zone monitor wells) preliminary construction schedule.

City of Lake Worth Class I Industrial Deep Injection Well System – Provided design, permitting and construction oversight services for a 3,300 foot deep injection well system for disposal of reverse-osmosis concentrate. The well is used for disposal of reverse-osmosis concentrate.

Okeechobee Utility Authority Deep Injection Well – Provided construction oversight services for construction of a 3,200-foot deep Class I deep injection well and associated 2,000 foot deep dual-zone monitor well at the Cemetery Road Wastewater Treatment Plant.

Fort Pierce Utilities Authority Water Treatment Facility Industrial Deep Injection Well IW-2 – Provided consulting services for design and permitting of Class I Industrial deep injection well IW-2 at the Authority's Water Treatment Facility.

Imperial Irrigation District Deep Injection Wells – Provided construction oversight services for construction of two 2,750-foot deep Class I deep injection wells at the El Centro Generation Center in El Centro, California.

Florida Power & Light West County Energy Center Deep Injection Well System – Provided design, permitting, construction oversight and expert witness services for the deep injection well system at the FPL West County Energy Center. The system consists of two Class I deep injection wells constructed to a depth of 3,400 feet and a dual zone monitor well. The wells were completed with a 20-inch diameter final casing and 16-inch diameter FRP injection tubing. Also provided mechanical integrity testing and injection well system permit renewal services.

City of West Palm Beach Dual-Zone Monitor Wells – Provided construction oversight services for construction of three 2,300-foot deep dual-zone monitor wells associated with the Class I deep injection well system at the East Central Water Reclamation Facility. The project included the plugging and abandonment of three monitoring tubes that are no longer in service.

Martin County Utilities North W/WWTF Dual-Zone Monitor Well – Provided design, permitting and construction oversight services for construction of one 2,229-foot deep dual-zone monitor well associated with the Class I deep injection well at the North Water/Wastewater Treatment Facility. The project included the plugging and abandonment of two monitoring tubes that are no longer in service.

City of West Palm Beach Injection Wells IW-1 through IW-7 – Provided mechanical integrity testing professional and operating permit services for seven deep injection wells at the East Central Water Reclamation Facility.

Charlotte County Burnt Store Class I Industrial Deep Injection Well – Provided design, permitting and construction oversight management services for a 3,268-foot deep Class I Industrial deep injection well for disposal of reverse osmosis concentrate and treated wastewater at the Burnt Store Water Treatment Facility. Also provided operating permit renewal services for deep injection well IW-1 at the facility.

David McNabb, P.G.

McNabb Hydrogeologic Consulting, Inc.

LBFH, Inc. (2003 – 2006)
Hydrogeology Manager
Hydrogeology manager focused primarily on deep injection well, Aquifer Storage and Recovery (ASR) well, and production well design, permitting and construction management projects. Duties included groundwater-related project business development and project management for deep injection well, shallow injection well, aquifer storage and recovery well, and production well projects.

> **Martin County Tropical Farms Class I Industrial Deep Injection Well System** – Project manager for the design, permitting and construction oversight for two Class I Industrial deep injection wells used for disposal of reverse osmosis concentrate and treated wastewater.
>
> **City of Belle Glade** - Provided mechanical integrity testing engineering services for the Belle Glade wastewater disposal deep injection well. Provided monitor well repair engineering services for the City's dual-zone monitor well. Repair included installation of an FRP liner after the lower monitor zone steel casing had developed holes due to corrosion.

Arcadis, Inc. (2002 – 2003)
Deep Injection Well Services Program Manager
Served as the firm's program manager for deep injection well design, permitting, and construction oversight projects. Duties included project business development for deep injection well projects. Additional responsibilities included technical quality control of Groundwater Program projects.

CH2M HILL, Inc. (1995 – 2002)
Project Manager and Hydrogeologist
Was responsible for managing projects involving siting, design, construction oversight, testing, and obtaining permits for deep injection wells and ASR wells. Work included siting and design of injection wells and ASR wells, preparation of Florida Department of Environmental Protection (FDEP) injection well permit applications and responses to requests for information, development and interpretation of deep injection well and ASR well construction and testing programs, preparation of construction contract documents and management of well construction contracts. Other responsibilities included providing resident observation services during well construction and testing, and preparation of well construction completion reports. Communication with clients and contractors was an integral part of the responsibilities.

> **City of Boynton Beach Injection Well Retrofit** – Served as project manager for the design, permitting, services during construction and reporting for the modification of the City's injection well. The project included installation of a 12-inch diameter FRP liner inside an existing Class I injection well with a 16-inch diameter final steel casing.
>
> **City of Key West** – Project manager of a $4.8 million deep injection well facility. Responsibilities included design of the injection well facility, preparation of permit applications, management of field personnel, communications with the FDEP, and management of the budget for the project. The project was completed under budget and on schedule. Also prepared the FDEP-approved plugging and abandonment plan for a 2,000 foot deep exploratory well located approximately 1 mile from the injection well site.

Florida Department of Environmental Protection, Underground Injection Control (1992-1995)
Professional Geologist
Responsibilities included the review and evaluation of Class I and Class V injection well and ASR well permit applications and proposed well construction and testing plans. Also responsible for reviewing well construction and testing engineering reports, weekly construction progress reports, monthly operating reports, and performing annual inspections of Class I injection well facilities. Interaction with consultants and key utility staff were instrumental in resolving regulatory issues.

Mobil Oil Corporation (1987-1992)
Exploration Geologist
Was responsible for conducting large-scale regional geologic studies to assess the hydrocarbon potential of numerous Mesozoic rift basins. Also conducted short-term and long-term mapping projects for much of Southeast Asia and South America, using conventional and computer-aided design.

Education
1985, B.S. Geology, Indiana University
1991, M.S. Geology, University of Texas at Arlington

CURRICULUM VITAE

JAMES L. ANDERSEN, P.G.

Principal Hydrogeologist, JLA Geosciences, Inc.

QUALIFICATIONS AND EXPERIENCE

President of JLA Geosciences, Inc., Jupiter, Florida and is responsible for company operations, project management, technical oversight, well design and construction phase services team leader. Mr. Andersen has over 30 years working experience in hydrogeology, groundwater water resource investigations, well field design, construction, development, well problem evaluations and well rehabilitation. He has been responsible for the construction of and completion of hundreds of water supply wells in South Florida including over 100 in the Upper Floridan Aquifer. He has an extensive groundwater experience, working with coastal plain aquifer systems; well design; groundwater monitoring, geophysical well logging and interpretation; reverse osmosis (RO) raw water supply investigations and RO concentrate disposal by injection well; aquifer performance testing, analysis and computer modeling; wellfield contamination investigations, collection and analysis of water quality data; rehabilitation of old wells, and supervising various types of drilling. Mr. Andersen has served as a Florida Chamber of Commerce short course instructor for environmental permitting, an invited speaker for the Florida Department of Environmental Protection on contamination cleanup, a regular conference speaker for AWWA, AWRA, AGWT, AMTA and SEDA on topics such as Aquifer Storage and Recovery, hydrogeology, water use permitting and well design, construction and rehabilitation strategies. Jim serves on the Southeast Desalting Association and Palm Beach County Natural Resources Protection boards. He is also on the board and Secretary of Connect Consulting, Inc., a hydrogeologic and well rehab specialty consulting firm.

PROJECT EXPERIENCE

Principal Hydrogeologist/Project Hydrogeologist, Rehabilitation of Water Treatment Plant No. 3 & 9 Surficial Aquifer Production Wells, Palm Beach County Water Utilities Department, Delray Beach and Boca Raton, Florida (2015-2016) Provided hydrogeologic consulting services during construction phases for rehabilitation program of WTP 3 and 9. Project included four (4) new replacement or re-drills of surficial aquifer production wells and electrical improvements. Replacement wells added 4 MGD capacity and are capable of at least 5.8 MGD firm capacity.

Principal Hydrogeologist/Project Hydrogeologist, FPL Turkey Point FLEX UFA Cooling Water Well, Homestead, Dade County, FL. (2015) Project design, construction and testing of one (1) new 2,000 gpm, 20-inch diameter FRP Upper Floridan aquifer well. The well was constructed within the Unit 3&4 Protected Area to provide beyond-design-basis-event cooling water.

Principal Hydrogeologist/Project Hydrogeologist, FPL Turkey Point Seawater Intake Wells for Supplemental CCS Supply, Homestead, Dade County, FL. (2015) Project design, construction and testing of two (2) new 12,000 gpm, 36-inch diameter Biscayne Aquifer seawater supply wells located on the Point. Combined with one smaller existing well, the project produced over 45 MGD of supplemental cooling water for the CCS during the 2015 summer months.

Principal Hydrogeologist/Project Hydrogeologist, FPL Turkey Point Units 3&4 Uprate Monitoring Plan Implementation, Homestead, Dade County, FL. (2010, 2015) Project included installing 16 cluster monitor wells in and around the Turkey Point Plant Cooling Canal System (CCS), including land based, wetland based, CCS based and Biscayne Bay based drilling drilling systems. Project included collaboration/coordination with SFWMD, FDEP, Biscayne National Park, Miami-Dade, US Geological Survey and FPL. Geotechnical work included continuous coring, aquifer system flow zone mapping, sophisticated geophysical logging, and cluster well construction to depths of 200 feet.

Principal Hydrogeologist/Project Hydrogeologist, Dewatering Permit Services, Monitoring, Loxahatchee River Environmental Control District, Jupiter, Florida (2015). Provided professional hydrogeologic consulting services to prepare a SFWMD dewatering permit application for gravity sewer installation and provided monitoring oversight. Evaluated and addressed potential for adverse impacts on existing legal users of groundwater resource, natural surface water bodies, and movement of saline water.

Principal Hydrogeologist/Project Hydrogeologist, ASR Permitting, Testing Services, The City of West Palm Beach, West Palm Beach, Florida. (2009-2018, ongoing) Project scope of services included assisting the City in obtaining funding opportunities with cycle testing activities through various entities, assistance with obtaining FDEP Underground Injection Control (UIC) permit modification, UIC monitor well design, permitting, construction and bidding phase services, exploration of Limited Aquifer Exemption assistance through FDEP, ASR Cycle Testing assistance, and evaluation of the City's recovery discharge alternatives.

Principal Hydrogeologist/Project Hydrogeologist, Bio-solids Processing Facility Industrial Wastewater Force Main Construction Dewatering Permit, New England Fertilizer Company (NEFCO)/Solid Waste Authority (SWA), West Palm Beach, Florida. (2012) Project scope of services included preparation of a dewatering plan, including analytical modeling, to South Florida Water Management District for the construction of a new Industrial Wastewater Force Main for SWA Biosolids Processing Facility.

Principal Hydrogeologist/Project Hydrogeologist, Class V Reverse Osmosis Concentrate Injection Well Permitting and Design Services, La Gorce Country Club, Miami Beach, Florida. (2011-2012, ongoing) Project scope of services included all phases of injection well permitting and construction, including preparation of the FDEP injection well construction and testing permit (approved), well design and contractor bidding services, in addition to observation and testing during construction, mechanical integrity testing and well summary report preparation.

Principal Hydrogeologist/Project Hydrogeologist, Injection Well Mechanical Integrity Testing and Rerate Testing, Seacoast Utility Authority, Palm Beach Gardens, Florida. (2010) Included permitting and FDEP UIC re-rating of a 24-inch, 3,320 feet deep domestic wastewater injection well and preparation of the MIT summary report. Mechanical integrity testing included an injection casing pressure test, high resolution temperature survey, video survey and radioactive tracer survey. JLA also performed rerating injection test of Injection well IW-1 including conducting a 24-hour injection test in order to permit the well at a higher rate. The successful test resulted in FDEP permitting the well at the higher rate of 10 fps.

ACADEMIC BACKGROUND

Bachelor of Science - Geology; Florida Atlantic University, 1985.
40 hour Hazardous Materials Health and Safety Training, Geraghty & Miller, 1989.

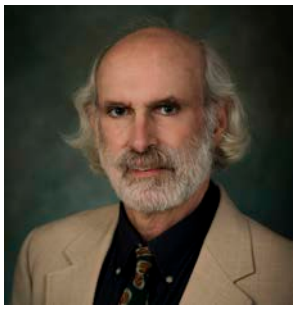
PROFESSIONAL REGISTRATION

State of Florida, Professional Geologist, No. 1103

CURRICULUM VITAE

PAUL M. STOUT, PH.D, P.G.

Principal Hydrogeologist, JLA Geosciences, Inc.



QUALIFICATIONS AND EXPERIENCE

Dr. Stout has more than 30 years' professional experience in the general areas of: water resource evaluation; soil, surface water, and groundwater investigations; and groundwater flow and geochemical modeling. His work experiences have involved positions in teaching, research, government, and technical consulting. Projects in Florida have concentrated on water resource development and water use permitting issues, primarily associated with the largest municipal public water suppliers and other large water users of the Floridan and Surficial Aquifers. Work on these projects has involved groundwater modeling, aquifer performance testing, wellfield design and well construction. Dr. Stout has provided expert witness testimony and support for projects involving landfills, former manufactured gas plants, and water use permitting issues. While employed in academia, he received funding from state and federal agencies such as the US Environmental Protection Agency and the National Science Foundation to conduct research in the areas of hydrogeology and geochemistry. He also served as director of a state-certified analytical laboratory in Florida specializing in the chemical analysis of drinking water and environmental soil and water samples.

KEY EXPERIENCE

- Senior Hydrogeologist – Assist City of West Palm Beach in groundwater modeling and permit renewal to Evaluate Long-Term Water Supplies. Modified existing WPB MODFLOW Model including creating numerous scenarios followed by simulations assuming extreme drought rainfall conditions and development and application of WEAP modeling. Obtained 20-year permit renewal
- Senior Hydrogeologist – Assist the City of Lake Worth to evaluate the influence of future sea level riser on groundwater conditions through calibrated SEAWAT modeling of past, present, and future withdrawals from the City and ELUs and through the evaluation of technical literature.
- Senior Hydrogeologist – Assist Palm Beach County Water Utilities Department in evaluating climate change and sea level rise issues relevant to the County's water supply. Prepare a technical report detailing SLR and water resource management impacts.
- Senior Hydrogeologist – Groundwater flow modeling of existing SAS wellfields to support application for CUP renewal, and preparation of Consolidated System Permit for Martin County Utilities.

- Senior Hydrogeologist - Assist City of West Palm Beach to evaluate future public water supply options. Developed and applied calibrated MODFLOW groundwater model to assess feasibility of constructing SAS wellfield to augment and/or replace City's existing surface water supply. Developed and applied analytical groundwater model to evaluate potential FAS wellfield.
- Senior Hydrogeologist – Assist City of Lake Worth to assess safe yield for existing SAS wellfield. Development and application of MODFLOW groundwater flow model and SEAWAT variable density groundwater model to address historical and potential future saline intrusion adjacent to wellfield.
- Senior Hydrogeologist –Aquifer performance testing and groundwater flow and transport modeling to develop raw water supply for reverse osmosis (RO) system in US Virgin Islands. Included evaluation of well production capacities, potential for saline intrusion, and potential influence from adjacent landfill.
- Senior Hydrogeologist – Groundwater flow modeling and South Florida Water Management District (SFWMD) permitting support for existing and proposed Surficial Aquifer System (SAS) wellfields for the Town of Jupiter.
- Senior Hydrogeologist – Groundwater flow modeling to support letter modification of Palm Beach County Water Use Department (PBCWUD) consumptive use permit for their existing Surficial Aquifer System (SAS) System 9 wellfield.
- Senior Hydrogeologist – Geochemical evaluation and variable-density groundwater modeling to address historical saline intrusion for South Martin Regional Utilities.
- Senior Hydrogeologist - Assisted South Martin Regional Utilities (SMRU) with consumptive use permitting at its South System Surficial Aquifer wellfield. Developed a calibrated, MODFLOW model to evaluate cumulative drawdown from the SRMU wellfield and nearby existing legal users (ELUs).

ACADEMIC BACKGROUND

Bachelor of Arts - Geology; High Honors, Colgate University, 1977
Master of Science – Geology, Duke University, 1979
Doctor of Philosophy – Earth Sciences, Scripps Institution of Oceanography, University California, San Diego, 1985
Postdoctoral Associate – Marine Geology/Geophysics, University of Miami, RSMAS 1986
Postgraduate Research Geochemist - Marine Science Institute, University California, Santa Barbara, 1987
Assistant Research Scientist/Adjunct Assistant Professor, Institute of Coastal & Marine Resources/Geology Department, East Carolina University, 1988
Adjunct Faculty, Palm Beach Community College, 2003

PROFESSIONAL REGISTRATION

State of Florida, Professional Geologist, No. 1118
State of North Carolina, Licensed Geologist, No. 1064

LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) SUBCONTRACTOR/SUPPLIER

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Solicitation Number: PNC2115559P1

Project Title: Professional Engineering Services for Studies and Reports

Bidder/Offeror Name: Brown and Caldwell

Address: 1560 Sawgrass Corporate Parkway Ste 240 City: Sunrise State: Florida Zip: 33232

Authorized Representative: Celia Earle, PhD Phone: 954.200.7611

CBE Subcontractor/Supplier Name: Bailey Engineering Consultants, Inc.

Address: 10620 Griffin Road, Suite 202 City: Cooper City State: Florida Zip: 33328

Authorized Representative: Stephen E. Bailey, P.E., President Phone: 954.448.7930

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform subcontracting work on this project.
B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
C. By signing below, the above-named CBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm			
Description	NAICS*	CBE Contract Amount†	CBE Percentage of Total Project Value
Electrical engineering services	541330		3%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Subcontractor/Supplier Authorized Representative

(Signature) President (Title) 05/10/2018 (Date)

Bidder/Offeror Authorized Representative

(Signature) Vice President (Title) 5/10/2018 (Date)

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
† To be provided only when the solicitation requires that bidder/offer include a dollar amount in its bid-offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) SUBCONTRACTOR/SUPPLIER

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Solicitation Number: PNC2115559P1

Project Title: Professional Engineering Services for Studies and Reports

Bidder/Offeror Name: Brown and Caldwell

Address: 1560 Sawgrass Corporate Parkway Ste 240 City: Sunrise State: Florida Zip: 33232

Authorized Representative: Celia Earle, PhD Phone: 954.200.7611

CBE Subcontractor/Supplier Name: Cordova, Rodriguez and Associates, Inc.

Address: 6941 SW 196th Ave, Suite 28 City: Pembroke Pines State: Florida Zip: 33332

Authorized Representative: Rosana Cordona Phone: 954.880.0180

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform subcontracting work on this project.
B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
C. By signing below, the above-named CBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm			
Description	NAICS*	CBE Contract Amount†	CBE Percentage of Total Project Value
Civil Engineering	541330		5%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Subcontractor/Supplier Authorized Representative

(Signature)	Principal (Title)	5/8/18 (Date)

Bidder/Offeror Authorized Representative

(Signature)	Vice President (Title)	5/8/2018 (Date)

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
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Solicitation Number: PNC2115559P1

Project Title: Professional Engineering Services for Studies and Reports

Bidder/Offeror Name: Brown and Caldwell

Address: 1560 Sawgrass Corporate Parkway Ste 240 City: Sunrise State: Florida Zip: 33232

Authorized Representative: Celia Earle, PhD Phone: 954.200.7611

CBE Subcontractor/Supplier Name: C Solutions, Inc.

Address: 610 SE 14th Ct. No 2 City: Fort Lauderdale State: Florida Zip: 33316

Authorized Representative: Mark Drummond, P.E., BCEE Phone: 954.320.7899

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform subcontracting work on this project.
B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
C. By signing below, the above-named CBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm			
Description	NAICS*	CBE Contract Amount†	CBE Percentage of Total Project Value
Pump Stations	237110		5%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Subcontractor/Supplier Authorized Representative

(Signature) | President (Title) | 5/7/2018 (Date)

Bidder/Offeror Authorized Representative

(Signature) | Vice President (Title) | 5/7/2018 (Date)

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
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LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) SUBCONTRACTOR/SUPPLIER

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Solicitation Number: PNC2115559P1

Project Title: Professional Engineering Services for Studies and Reports

Bidder/Offeror Name: Brown and Caldwell

Address: 1560 Sawgrass Corporate Parkway Ste 240 City: Sunrise State: Florida Zip: 33232

Authorized Representative: Celia Earle, PhD Phone: 954.200.7611

CBE Subcontractor/Supplier Name: McCafferty Brinson Consulting, LLC

Address: 633 S Andrews Ave, Suite 4028 City: Fort Lauderdale State: Florida Zip: 33312

Authorized Representative: Audra McCafferty Phone: 954.797.7100

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform subcontracting work on this project.
B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
C. By signing below, the above-named CBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm			
Description	NAICS*	CBE Contract Amount†	CBE Percentage of Total Project Value
Water treatment plants	221310		10%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Subcontractor/Supplier Authorized Representative

(Signature)	(Title)	(Date)
Audra McCafferty	President	5/4/18

Bidder/Offeror Authorized Representative

(Signature)	(Title)	(Date)
	Vice President	5/4/2018

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
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LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) SUBCONTRACTOR/SUPPLIER

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Solicitation Number: PNC2115559P1

Project Title: Professional Engineering Services for Studies and Reports

Bidder/Offeror Name: Brown and Caldwell

Address: 1560 Sawgrass Corporate Parkway Ste 240 City: Sunrise State: Florida Zip: 33232

Authorized Representative: Celia Earle, PhD Phone: 954.200.7611

CBE Subcontractor/Supplier Name: Stoner & Associates, Inc.

Address: 4341 SW 62nd Avenue City: Davie State: Florida Zip: 33314

Authorized Representative: James D. Stoner, PSM, President Phone: 954.585.0997

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform subcontracting work on this project.
B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
C. By signing below, the above-named CBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm

Description	NAICS*	CBE Contract Amount†	CBE Percentage of Total Project Value
Land Surveying	541370		3%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Subcontractor/Supplier Authorized Representative

(Signature)	(Title)	(Date)
	President	5/1/2018

Bidder/Offeror Authorized Representative

(Signature)	(Title)	(Date)
	Vice President	5/7/2018

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
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Broward County
Request for Proposals for
Water and Wastewater Engineering Services for Studies and Reports
Broward County, Florida

CONFIDENTIAL, NOT FOR DISTRIBUTION
BROWN AND CALDWELL

Litigation History: All Vendors are required to disclose to the County all "material" cases filed, pending, or resolved during the last three (3) years prior to the solicitation response due date, whether such cases were brought by or against the Vendor, any parent or subsidiary of the Vendor, or any predecessor organization.

The following responses are considered highly confidential and we are providing this information with on the understanding that you will protect its confidentiality accordingly and restrict distribution solely to the extent required to review Brown and Caldwell's qualifications. No matter pending below has any potential for adversely impacting Brown and Caldwell's ability to render services requested in this RFP. Brown and Caldwell has had no judgments entered against it. It is or has been a party in the following material cases filed, pending or resolved in the 3-year period preceding the date of our response to the RFP. Any additional questions should be directed to Robert D. Goodson, Senior Vice President and General Counsel of Brown and Caldwell.

Renfrow Brothers, Inc., Plaintiff v. The Haskell Company, Brown and Caldwell, Inc., David Froula, John Diedrich and Bush Brothers and Company, Defendants, Case No. 17-CV-132, filed in the Chancery Court for Jefferson County, Tennessee, on October 27, 2017. This is a subcontractor change order/cost claim on a wastewater facility project against the Design-Builder (a Joint Venture between Brown and Caldwell and Haskell, although those entities were incorrectly named directly instead), two of Brown and Caldwell's employees (Froula and Diedrich), and the owner (Bush Brothers). The Joint Venture denies the nature and extent of costs asserted by the subcontractor, has initially agreed to mediation to attempt to resolve the matter, and continues to defend it.

Timothy Pearson, Plaintiff v. BASF, Inc.; Brown and Caldwell, Inc.; John Does (1-5); ABC Cos (1-5), Defendants, Case No. MID-L-003363 17, filed in the Superior Court of New Jersey on June 2, 2017. Brown and Caldwell Constructors (BCC), incorrectly named as BC, performed operations and maintenance services in connection with a continuing environmental remediation effort at a BASF site at Toms River, New Jersey. Plaintiff, an onsite security guard, claimed a slip and fall accident occurred due to ice and snow or other conditions. BCC does not believe it is responsible for the injury, and discovery and investigation is ongoing.

Hans and Barbara Gaiser and Villa Ventura Apartments LLC v. Valley Metro Rail et al., Case No. CV2015-010237, filed in Superior Court, Maricopa County, Arizona on August 19, 2015. Plaintiffs alleged that Brown and Caldwell and others were negligent and caused damage to an apartment complex adjacent to a light rail line expansion project. Brown and Caldwell demonstrated that its limited role working for City of Phoenix Water Department to develop standards as to their utilities, that then had to be complied with by others that designed and constructed the light rail expansion, were not related to the claims asserted in the lawsuit. Plaintiffs agreed, and subsequently dismissed Brown and Caldwell from the action in 2015.

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☒ Material Case(s) are disclosed below:

Is this for a: (check type) ☒ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Brown and Caldwell Or No ☐
Party	
Case Number, Name, and Date Filed	CV2015-010237, Hans and Barbara Gaiser and Villa Ventura Apartments LLC v. Valley Metro Rail et al., August 19, 2015
Name of Court or other tribunal	Maricopa County Superior Court
Type of Case	Bankruptcy ☐ Civil ☒ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	Negligence; property damage
Brief description of the Subject Matter and Project Involved	Plaintiffs alleged that Brown and Caldwell and others were negligent and caused damage to an apartment complex adjacent to a light rail line expansion project
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☐ Dismissed ☒ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: Jamie L. Mayrose, Gordon & Rees Email: Telephone Number: 602-794-2460

Vendor Name: Brown and Caldwell

LITIGATION HISTORY FORM

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☐ There are no material cases for this Vendor; or
☐ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Brown and Caldwell Constructors (BCC) Or No ☐
Party	
Case Number, Name, and Date Filed	Case No. MID-L-003363 17, Timothy Pearson, Plaintiff v. BASF, Inc.; Brown and Caldwell, Inc.; John Does (1-5); ABC Cos (1-5), Defendants, 6/2/2017
Name of Court or other tribunal	Superior Court of New Jersey
Type of Case	Bankruptcy ☐ Civil ☐ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	Injury due to slip and fall
Brief description of the Subject Matter and Project Involved	Plaintiff alleges slip & fall accident occurred due to ice, snow at a site where BCC performed O&M operations
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: Keith Murphy, Gordon & Rees Email: Telephone Number: 973-549-2517

Vendor Name: Brown and Caldwell

LITIGATION HISTORY FORM

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☐ There are no material cases for this Vendor; or
☐ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Brown and Caldwell Constructors (BCC) Or No ☐
Party	
Case Number, Name, and Date Filed	Case No. MID-L-003363 17, Timothy Pearson, Plaintiff v. BASF, Inc.; Brown and Caldwell, Inc.; John Does (1-5); ABC Cos (1-5), Defendants, 6/2/2017
Name of Court or other tribunal	Superior Court of New Jersey
Type of Case	Bankruptcy ☐ Civil ☐ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	Injury due to slip and fall
Brief description of the Subject Matter and Project Involved	Plaintiff alleges slip & fall accident occurred due to ice, snow at a site where BCC performed O&M operations
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: Keith Murphy, Gordon & Rees Email: Telephone Number: 973-549-2517

Vendor Name: Brown and Caldwell

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

RFP No. R2115559P1, Professional Engineering Services for Studies and Reports

Reference for: Brown and Caldwell

Organization/Firm Name providing reference:

City of Hollywood, Florida

Contact Name: Steve Joseph Title: Director Reference date:

Contact Email: sjoseph@hollywoodfl.org Contact Phone: 954 921 3522

Name of Referenced Project: Distribution System Water Quality Improvement

Contract No. Date Services Provided: Project Amount:

01/01/2016 to 06/02/2017 $ 30,000.00

Vendor's role in Project: ☑ Prime Vendor ☐ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

Supported the City with its efforts improve chlorine residuals in areas of its system. Analysis included system modeling, monitoring, optimized operational practices. Implemented operational improvements that significantly raised (from approx 0.5 to 2.0 mg/L) chloramine residuals in the most challenging area of the system.

Please rate your experience with the referenced Vendor:	**Needs Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☐	☐	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☑	☐
c. Regulatory Agency(ies)	☐	☐	☑	☐

Additional Comments: (provide on additional sheet if needed)

Effort included system modeling, monitoring and excursion response procedures, optimization of stored inventory management, unidirectional flushing pilot assessment, and treatment process evaluation.

THIS SECTION FOR COUNTY USE ONLY

Verified via: ____EMAIL ____VERBAL Verified by: _____ Division: _____ Date: _____

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

RFP No. R2115559P1, Professional Engineering Services for Studies and Reports

Reference for: Brown and Caldwell

Organization/Firm Name providing reference:

City of Hollywood, Florida

Contact Name: Steve Joseph Title: Director Reference date:

Contact Email: sjoseph@hollywoodfl.org Contact Phone: 954 921 3522

Name of Referenced Project: Distribution System Water Quality Improvement

Contract No. Date Services Provided: Project Amount:

01/01/2016 to 06/02/2017 $ 30,000.00

Vendor's role in Project: ☑ Prime Vendor ☐ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

Supported the City with its efforts improve chlorine residuals in areas of its system. Analysis included system modeling, monitoring, optimized operational practices. Implemented operational improvements that significantly raised (from approx 0.5 to 2.0 mg/L) chloramine residuals in the most challenging area of the system.

Please rate your experience with the referenced Vendor:	**Needs Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☐	☐	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☑	☐
c. Regulatory Agency(ies)	☐	☐	☑	☐

Additional Comments: (provide on additional sheet if needed)

Effort included system modeling, monitoring and excursion response procedures, optimization of stored inventory management, unidirectional flushing pilot assessment, and treatment process evaluation.

THIS SECTION FOR COUNTY USE ONLY

Verified via: ____EMAIL ____VERBAL Verified by: _____ Division: _____ Date: _____

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

RFP No. R2115559P1, Professional Engineering Services for Studies and Reports

Reference for: Brown and Caldwell

Organization/Firm Name providing reference:

Palm Beach County Water Utilities Department

Contact Name: Ali Bayat Title: Assistant Director Reference date:

Contact Email: abayat@pbcwater.com Contact Phone: 561 493 6128

Name of Referenced Project: System 8 Water Quality Assessment

Contract No.	Date Services Provided:			Project Amount:
17-021 CSA#21	01/02/2017	to	01/15/2018	$ 89,360.00

Vendor's role in Project: ☐ Prime Vendor ☑ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

Brown and Caldwell led assessment of contributing causes to low system residuals, troubleshooting treatment processes, special testing and data analysis, improvements to operating protocols, monitoring/control system and treatment process.

Please rate your experience with the referenced Vendor:	**Needs Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☐	☑	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☐	☐
c. Regulatory Agency(ies)	☐	☐	☐	☐

Additional Comments: (provide on additional sheet if needed)

Consultant worked collaboratively with operating, maintenance, engineering and laboratory staff to develop insight into contributing factors and implement improvements

THIS SECTION FOR COUNTY USE ONLY

Verified via: ____EMAIL ____VERBAL Verified by: _____ Division: _____ Date: _____

BROWARD COUNTY FLORIDA

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

RFP No. R2115559P1, Professional Engineering Services for Studies and Reports

Reference for: Brown and Caldwell

Organization/Firm Name providing reference:

City of West Palm Beach, Florida

Contact Name: Jay Kwag Title: Project Manager Reference date: 5/9/2018

Contact Email: hjkwag@wpb.org Contact Phone: 561 494 1041

Name of Referenced Project: Modeling and Infrastructure General Engineering Consulting Assigments

Contract No.	Date Services Provided:		Project Amount:
GEC 14872	11/03/2014	to MAY/2018 (ONGOING)	

Vendor's role in Project: ☑ Prime Vendor ☐ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

Planning and General Engineering Services inclusive of: Water/wastewater System Master Plan, asset management program development/asset criticality assessment; Master PS #5 and sewer condition assessment; hydraulic modeling of LS 5 and force main sizing; water system Capacity Analysis Report; hydraulic modeling of operational challenges, lift station analysis, facilitate inspection of major FM, and new development impacts; pipeline design, lift station condition assessment and rehabilitation (Various Projects).

Please rate your experience with the referenced Vendor:	**Needs Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☐	☑	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☑	☐
c. Regulatory Agency(ies)	☐	☐	☑	☐

Additional Comments: (provide on additional sheet if needed)

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All information provided to Broward County is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code.

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

DBA:
Business Name: BROWN AND CALDWELL

Receipt #: 315-244519
Business Type: ENGINEER

Owner Name: CELIA EARLE
Business Location: 1560 SAWGRASS CORP PKWY STE 24
SUNRISE
Business Phone:

Business Opened: 10/17/2011
State/County/Cert/Reg: 2602
Exemption Code:

Rooms	Seats	Employees	Machines	Professionals
		8		

For Vending Business Only

Number of Machines: **Vending Type:**

Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
37.50	0.00	0.00	0.00	0.00	0.00	37.50

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

CELIA EARLE
1527 COLE BLVD STE 300
LAKEWOOD, CO 80401

Receipt #01A-16-00007025
Paid 08/08/2017 37.50

2017 - 2018

State of Florida
Department of State

I certify from the records of this office that BROWN AND CALDWELL (CORPORATION) is a California corporation authorized to transact business in the State of Florida, qualified on May 2, 1977.

The document number of this corporation is 838321.

I further certify that said corporation has paid all fees due this office through December 31, 2018, that its most recent annual report/uniform business report was filed on January 2, 2018, 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 Eighth day of January, 2018

Ken Detzner

Secretary of State

Tracking Number: CU0963369089

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

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

Florida Board of Professional Engineers
2639 North Monroe Street, Suite B-112
Tallahassee, FL 32303-5268

Brown And Caldwell
2301 LUCIEN WAY
SUITE 250
MAITLAND, FL 32751

Each licensee is solely responsible for notifying the Florida Board of Professional Engineers in writing the licensee's current address.

Name changes require legal documentation showing name change. An original, a certified copy, or a duplicate of an original or certified copy of a document which shows the legal name change will be accepted unless there is a question about the authenticity of the document raised on its face, or because the genuineness of the document is uncertain, or because of another matter related to the application.

At least 90 days prior to the expiration date shown on this license, a notice of renewal will be sent to your last known address. If you have not yet received your notice 60 days prior to the expiration date, please call (850) 521-0500, or write, Florida Board of Professional Engineers, 2639 North Monroe Street, Suite B-112,Tallahassee, FL 32303-5268 or e-mail: board@fbpe.org. Our website address is http://www.fbpe.org.

State of Florida

Board of Professional Engineers

Attests that

Brown And Caldwell

FBPE
FLORIDA BOARD OF PROFESSIONAL ENGINEERS

Is authorized under the provisions of Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes.

Expiration: 2/28/2019
Audit No: 228201905666 R

CA Lic. No:
2602