STATEMENT OF QUALIFICATIONS FOR

TRENCHLESS INSTALLATION OF UTILITIES ACROSS FLEMING CHANNEL

CITY OF KEY WEST

RFQ # 22-008 | SEPTEMBER 14, 2022

BLACK & VEATCH

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BLACK & VEATCH CORPORATION
2121 Ponce de Leon Blvd, Suite 305
P (786) 347-1313 | E LytvynO@BV.com@bv.com

City Clerk, City of Key West
1300 White Street
Key West, Florida 33040

RE: Trenchless Installation of Utilities Across Fleming Channel RFQ# 22-008

Dear Mr. Kelly,

The City of Key West (the City) takes pride in providing reliable utilities services to its residents and visitors. To this end, Black & Veatch is committed to support the City by providing a highly-qualified team that is trusted, local, and available. This team is conformed by experienced professionals in trenchless and pipeline installation as well as with direct involvement with the City's General Engineering Services contracts over the years. This team will bring national expertise to implement the best solution adapted to the City's needs.

The City will receive the most constructible and cost efficient trenchless solutions. Our design approach will ensure that the existing services being routed on the bridge will not be impacted, and minimum disruption will happen on the Navy's property. the City will received a successful project based on Black & Veatch's team experience managing numerous tunnelings, horizontal directional drilling (HDD) projects, and construction support services.

The Black & Veatch team will successfully deliver the Trenchless Installation of Utilities across Fleming Channel project by providing the City with the following value:

- **Comprehensive knowledge and high standard trenchless design:** Black & Veatch has supported the City for many years. As a result, we have an extensive knowledge of your Minimum Design and Construction Standards and Specifications, processes, goals and expectations. We have extensive national and local experience on similar projects, from micro tunneling to HDD ensuring that we bring the less intrusive and most cost efficient solutions to our Clients.
- **Experienced and committed local Project Manager:** Our project manager, Olena Lytvyn, has extensive experience in pipeline design, rehabilitation and trenchless design (trenchless, HDD) across the country and specifically in Florida. Olena is located in our Coral Gables office and will be able to provide a readily available service to the City.
- **Risk management experience during construction and design:** Black & Veatch has extended experience in managing pipeline construction and construction management projects. Black & Veatch will provide the City with all the required experience to avoid any constructability or future claim issue during construction.

We look forward to the opportunity to continue working with City staff on the Trenchless Installation of Utilities across Fleming Channel Professional Engineering Services project. If you have any questions or wish to discuss the content of our proposal, please feel free to contact me (786) 457-7247.

Very truly yours,

Black & Veatch Corporation

Olena Lytvyn, PE
Project Manager

Rafael Frias, III
Associate Vice President

Information Page

PROJECT NAME:	Trenchless Installation of Utilities Across Fleming Channel City of Key West RFQ# 22-008
NAME OF FIRM:	Black & Veatch

PRIMARY CONTACT

Olena Lytvyn, PE

PROJECT MANAGER

ADDRESS:
2121 Ponce de Leon, Suite 305
Coral Gables, FL 33134

PHONE NUMBER:
(786) 347-1313

EMAIL:
LytvynO@bv.com

AUTHORIZED SIGNATORY

Rafael Frias, PE

AUTHORIZED SIGNATORY

ADDRESS:
3111 North University Drive, Suite 700
Coral Springs, FL 33065

PHONE NUMBER:
(754) 229-3049

EMAIL:
FriasRE@bv.com

We are ready to provide the City with a team that is local, responsive, and accountable that will achieve the City's goal of balanced performance."

BLACK & VEATCH

CERTIFICATE OF OFFICER

I, Andrea C. Bernica, the Assistant Secretary of BLACK & VEATCH CORPORATION, a corporation duly organized and existing under the laws of the State of Delaware, United States of America, certify that the following is a true excerpt of the by-laws of the Corporation and that said by-laws have not been rescinded or modified, and is still in full force and effect.

> RESOLVED, any note, mortgage, evidence of indebtedness, contract, share certificate, conveyance, power of attorney, or other instrument in writing and any assignment or endorsements thereof, or guarantee of any other entity's performance under any such executed document, entered into between this corporation and any other person or company shall be valid and binding on this corporation, when signed by either the Chairman of the Board, the President or any Vice President, and, if attestation is required, by either the Secretary, Assistant Secretary, Chief Financial Officer, Treasurer or any Assistant Treasurer of this corporation. Any such instruments may be signed by any other person or persons in such manner as from time to time shall be determined by the Board.

I further certify that the individual named below is an officer of the company holding the titles indicated and have signature authority to sign, seal, deliver, negotiate, accept and enter into agreements, contracts and other instruments or documents by and on behalf of the Company.

Rafael E. Frias, Associate Vice President

IN WITNESS WHEREOF, I have hereunto set my hand and attached the corporate seal of BLACK & VEATCH CORPORATION this 1st day of March 2022.

BLACK & VEATCH CORPORATION
CORPORATE
SEAL
DELAWARE

Andrea C. Bernica

Andrea C. Bernica
Assistant Secretary

Organization Chart

The City will receive a successful project through our team of highly qualified professionals that has been assembled to meet the City's needs for the Trenchless Installation of Utilities Across Fleming Channel project.

Our team combines proven client and project management with experienced local staff and specialized expertise to address any need that may arise relative to the City's Trenchless Installation of Utilities Across Fleming Channel project. We have included team members with expertise in a wide range of services and as described in the RFQ.

SUBCONSULTANTS

Black & Veatch can deliver comprehensive engineering services to all of the City's major operational departments including: Wastewater, Municipal, and Electric. While we can provide full service capabilities without the need of a major teaming partner, we recognize that trenchless technology projects require supporting field services and investigations for the development of the design tasks. These specific tasks will be efficiently provided through specialty subcontractors..

FLORIDA EXPERIENCE

NWWF Lime Residual Disposal 16-inch Pipeline Extensions | Miami, FL

Black & Veatch provided design, permitting and construction phase services for two new 16-inch pipeline extensions to deliver the water plant's sludge to the new lime disposal lagoon. Both of the pipelines had to cross a critical 96-inch PCCP raw water supply line and then immediately after, a canal reservation. Additionally, the construction of the pipelines impacted wetlands and required additional environmental permitting from Miami-Dade County.

Types of Permitting: FDPE, Class III Permit, County canal Crossings and Class IV Permit – Wetlands

Outstanding Accomplishments: The project team worked closely with the local regulatory agencies to successfully obtain and modify permits without delaying the construction of the project which ultimately allowed for the pipelines to be installed by the time FDEP approved the permit for the new lagoon.

CITY OF KEY WEST

PROJECT DIRECTOR

Arturo Burbano, Ph.D, PE, PMP, BCEE*

QA/QC

Isabel Botero, PE*

MANAGEMENT TEAM

PROJECT MANAGER
Olena Lytvyn, PE*

TECHNICAL ADVISOR

Mike McCure, PE

PROJECT EXECUTION

PIPELINE PLANNING
Olena Lytvyn, PE*
Mike McGee, PE, BCEE

PIPELINE DESIGN
Mike McGee, PE, BCEE
Jessica Hernandez, PE

MICROTUNNELING DESIGN
Steve O'Connell, PG
Mark Bradford, PE

PAVEMENT DESIGN/ REPLACEMENT/GENERAL CIVIL/MAINTENANCE OF TRAFFIC
Pablo Gala Serra, PE*
Irene Testa, PE*

HORIZONTAL DIRECTIONAL DRILLING
Ahmed Kamla
Cary Hirner, PE

ELECTRICAL
David Garcia, PE*
Jeff Austin, PE

CLIMATE CHANGE ADAPTATION/STORMWATER CONTROL
Jon Dinges, PE
Sam Miller

SURVEYING/UTILITY LOCATES/UTILITY COORDINATION/EASEMENT ACQUISITION
William Evans, CST II ■
Russel Dame ■

ENVIRONMENTAL ASSESSMENTS/HABITAT EVALUATIONS/PERMITTING
Jena Mier, PWS, PMP
Erica Ann Dorn
Steve King, PE
Tommy Crenshaw, PE*

GEOTECHNICAL DESIGN
Jeff Beriswill, PE
Mark Chomtid, PE

GEOTECHNICAL INVESTIGATION
Arvind Kumbhojkar ■

STRUCTURAL
Elias Pourladian, PE

COST ESTIMATING
Mike Mackenzie

PROCUREMENT SUPPORT
Tammy Martin, PE*

CONSTRUCTION ADMINISTRATION
Melody Gonzalez*
Casey Suarez

CONSTRUCTION INSPECTIONS
Jeff Thompson
Craig Peterson

CONSTRUCTABILITY
George Joyce, PE, PMP

SCHEDULING
Roberto Santiago, PE

CAD/GIS
Clayton Glatt

GRANT COMPLIANCE
Francesca McCann

SUBCONSULTANTS

■ Avirom Surveying | Surveying
■ HP Consultants | Geotechnical

* Located in the local Coral Gables or Coral Springs office

Company Information

BLACK & VEATCH

Black & Veatch Corporation is a leading global engineering, construction, and consulting company specializing in civil infrastructure development in the fields of pipeline systems,water, wastewater, reclaimed water, stormwater, environmental, energy, management consulting, and telecommunications. We provide a full complement of conceptual and preliminary engineering services, engineering design, procurement, construction, financial management, asset management, information technology, environmental, security, and management consulting service. We will leverage our diverse capabilities to successfully complete the Trenchless Installation of Utilities Across Fleming Channel.

Black & Veatch was founded as a partnership in 1915. Today, the firm operates as an employee-owned corporation and maintains more than 100 offices worldwide with more than 9,000 professionals. Through our network of offices, the City will have continued access to sophisticated design and planning tools as well as our global network of highly-skilled and experienced engineers, scientists, and technicians who specialize in linear infrastructure technologies.

These experts lead the linear infrastructure industry by conducting research and developing new and innovative technologies, enhancing existing installation techniques, and integrating the latest industry developments into realistic, reliable, and affordable solutions for our clients.

OUR ENR RANKINGS DEMONSTRATE OUR INDUSTRY-LEADING EXPERTISE

2022 ENR RANKINGS
TOP DESIGN FIRMS

TOP DESIGN FIRMS BY SECTION:
#7 Water, #2 Power, #8 Sewer & Wastewater, #2 Telecommunications

TOP 500 DESIGN FIRMS IN ENVIRONMENT:
#4 Sanitary & Storm Sewers, #9 Water Transmission Lines & Aqueducts, #6 Water Treatment, #7 Water Supply, #7 Wastewater Treatment, #11 Dams & Reservoirs

OVERVIEW

100+ YEARS CREATING WATER INFRASTRUCTURE

7TH LARGEST EMPLOYEE-OWNED COMPANY IN THE U.S.

9.2K+ GLOBAL WORKFORCE

IN FLORIDA

400+ PROFESSIONALS IN FLORIDA

7 OFFICES IN FLORIDA

- CORAL GABLES
- CORAL SPRINGS
- LAKE WORTH
- FORT MYERS
- ORLANDO
- TAMPA
- JACKSONVILLE

Florida-Specific Solutions Built on Decades of Service

Black & Veatch has worked in Florida since the 1950s. Our services have included peer review, studies, preliminary and final design, construction-phase services, and/or design-build on a wide variety of projects undertaken in one of the most famous coastal areas in the world. Our wide range of disciplines include: civil, structural, water, wastewater, reclaimed water, geotechnical, environmental, electrical, and mechanical engineering, as well as permitting, bidding assistance, construction contract administration, resident engineering, startup and commissioning, operations, science, planning, asset management, project/program management, and finance.

Our experience in Florida includes executing projects for more than 400 different agencies. Our relevant experience includes pipe routing studies, pipeline design, trenchless crossings, master planning; wastewater system engineering reports; public participation programs; infiltration/inflow analyses; sewer system evaluation surveys; environmental assessments; assistance in preparing federal and state grant applications; design of facilities for collection, treatment, reuse, and disposal; and utility rate, financial, management, and operations studies. Our team offers unique depth and breadth of experience, successfully delivering pipeline trenchless installations, water, wastewater, and reuse projects throughout Florida.

The City of Key West will have access to a dedicated team of highly-qualified, local professionals with proven experience designing, permitting, and providing construction support services for linear infrastructure systems.

SUCCESSFULLY DELIVERING WATER TRANSMISSION MAIN PROJECTS IN SOUTH FLORIDA AND THROUGHOUT THE STATE

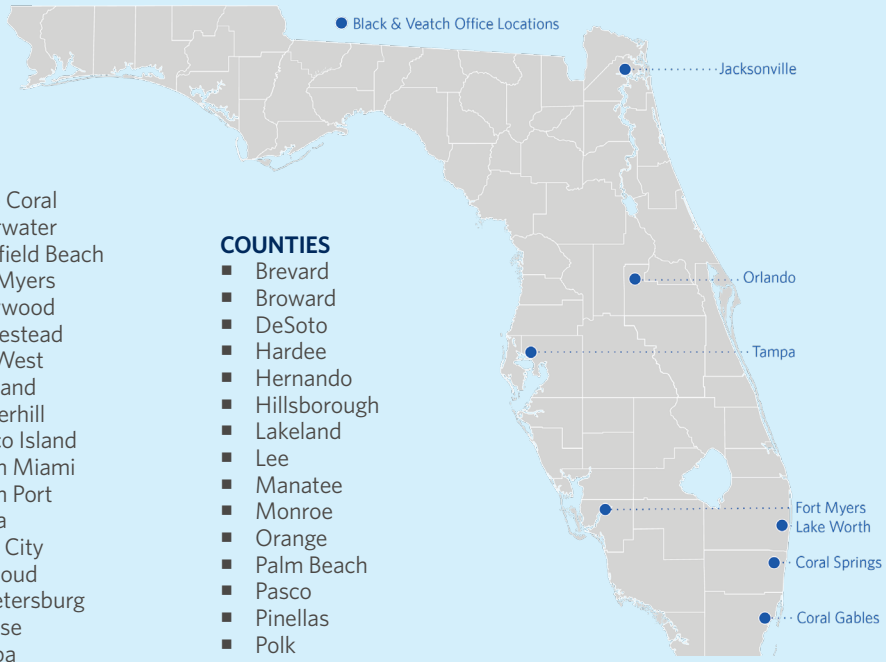
The City will directly benefit from our team's long history with key Florida utilities and stakeholders, as well as our detailed understanding of local, regional, state, and federal policies and regulations, which allows us to execute this project in a cost-effective manner.

AGENCIES

- Cypress Energy
- Emerald Coast Utilities
- Florida Keys Aqueduct Authority
- Florida Municipal Power Agency
- Florida Power & Light
- Fort Pierce Utilities Authority
- Gainesville Regional Utilities
- Gulf Power Company
- Heartland Water Alliance
- JEA (Jacksonville)
- Keys Energy
- Florida Governmental Utility Authority
- Lee County Electric Cooperative
- Miami-Dade Water & Sewer
- Orlando Utilities Commission
- Peace River Authority
- Progress Energy
- Reedy Creek Energy Services
- Seminole Electric
- South Florida WMD
- Southwest Florida WMD
- St. Johns River WMD
- Suwannee River WMD
- Suntory Water Group
- Tampa Bay Water
- Tampa Electric Company

CITIES

- Cape Coral
- Clearwater
- Deerfield Beach
- Fort Myers
- Hollywood
- Homestead
- Key West
- Lakeland
- Lauderhill
- Marco Island
- North Miami
- North Port
- Ocala
- Plant City
- St. Cloud
- St. Petersburg
- Sunrise
- Tampa
- Venice
- Winter Haven



COUNTIES

- Brevard
- Broward
- DeSoto
- Hardee
- Hernando
- Hillsborough
- Lakeland
- Lee
- Manatee
- Monroe
- Orange
- Palm Beach
- Pasco
- Pinellas
- Polk
- Sarasota

SUBCONSULTANTS

HP Consultants, Inc. | *Geotechnical*

Since 2002, HPCI has been providing civil, geotechnical, geo-environmental, traffic/ITS, and value engineering services to private and public sector clients. Its past and present municipal clients include Cities of Coral Gables, Hallandale Beach, Lauderdale Lakes, Miami, Miami Beach, Miami Gardens, Miramar, Opa-Locka, Pembroke Park, Pembroke Pines, and Village of Palmetto Bay.

HPCI provides the full range of geotechnical services- subsurface exploration, design/analysis and recommendations, field inspections and problem solving. Its expertise covers the entire spectrum of geotechnical structures: shallow, deep and specialty foundations for office, public, and industrial buildings, skyscrapers, and bridges; slopes, embankments, and micro-tunnels; pipelines and drainage structures; roads and highways; and electrical/signal systems and ITS infrastructure.

Avirom Surveying | *Surveying*

Avirom has a staff of over 40 employees with an average length of service of 18 years. The dedication their employees is a testament to Avirom & Associates' integrity and values as both an employer and a professional land surveying firm. They are one of the few firms in the State of Florida that has 6 Registered Land Surveyors. Their 41-year history represents the firm's strength and stability in South Florida and the Florida Keys. Avirom & Associates has branch offices at 2506 SE Willoughby Boulevard, Stuart, Florida and 402 Applerouth Lane in Key West, Florida. They have worked with many municipalities throughout South Florida, and strive to provide a seamless product.

Black & Veatch has extensive experience developing geotechnical investigation plans and geotechnical data and baseline reports for trenchless replacement projects. The picture above shows an example of soil borings drilled via floating barge within a wetland area in support of one of our projects in Charleston, SC.

Methodology & Approach

UNDERSTANDING OF THE SCOPE OF WORK

The City will receive efficient and quality project delivery as a result of Black & Veatch's first-hand knowledge and experience with your staff, local, regional, and national pipeline contractors, and local permitting requirements. We have project-specific experience with trenchless pipeline installations in local soils.

There are a currently seven utilities attached to the existing bridge across Fleming Channel at Trumbo Point. These utilities include two 30-inch force mains, 8-inch potable water main, and four 4-inch electrical conduits. These pipelines are welded steel and are showing signs of corrosion. These utilities service the Richard A. Heyman Environmental Protection Facility and the force mains convey raw sewage from City of Key West to the WWTP for treatment. Failure of these pipelines would have detrimental environmental impacts and would prohibit the City from treating raw sewage.

In addition to the deterioration of the pipelines, any damage to the existing bridge would have similar negative implications. The City of Key West is being proactive and hardening their vulnerable infrastructure by replacing the aerial crossings of the pipelines attached to the Fleming Channel bridge at Trumbo Point with subaqueous crossings.

The project consists of installing a 30-inch force main, 8-inch water main, four 4-inch electrical conduits, and 12-inch reclaimed main via a trenchless installation underneath Fleming Channel.

The second existing 30-inch aerial force main is to remain for redundancy purposes. Upon the completion of the installation of the new subaqueous utilities, the new pipelines will need to be reconnected to the existing on both sides of the crossing.

The project will start with the review and confirmation of the most appropriate installation technique for the pipelines crossing. The critical factors in selecting the proper trenchless installation technique include fully understanding the existing soil and groundwater conditions , evaluating the horizontal and vertical alignments, determining tie-in locations and connections, and evaluating the available work area.

The geotechnical investigation completed by Ardaman & Associates, Inc. on November 18, 2019 has been reviewed and a minimum of one supplemental boring will be performed in the middle of the Fleming Channel using a barge. Subsurface utility engineering (SUE) will be completed early on in the project to confirm that the construction of the proposed utilities will not be in conflict with any existing underground utilities and to confirm the exact location of the existing utilities at the tie-in points.

WHY BLACK & VEATCH

Commitment

Dedicated management to get the job done right

Technical Excellence

Proven solutions and award-winning innovation

Collaboration

Trusted partner for responsive services to ensure project success

PROJECT APPROACH

Black & Veatch understands key challenges that are important to the City to successfully complete the trenchless crossings of Fleming Channel. **The following challenges and proposed solutions are specific to the Trenchless Installation of Utilities Across Fleming Channel project.**

Challenge 1. Permit and special requirements

Various regulatory agencies were identified as potentially having jurisdiction within the project limits.

- US Army Corps of Engineers (USACE)
- Florida Department of Environmental Protection (FDEP)
- Florida Keys National Marine Sanctuary (FKNMS)
- United States Coast Guard

In addition to the regulatory agencies, a critical stakeholder on this project is the Naval Air Station Key West. The project is located within the Naval Base and while the project is exempt from City permits due to its location, close coordination will be required with the Naval Base to ensure minimal impacts during construction.

The Black & Veatch team has unmatched knowledge of the potential environmental challenges the project will face, and of the permitting requirements including the local agents representing the regulatory agencies (FDEP, USACE, FKNMS, United States Coast Guard). Black & Veatch has previous experiences at the same location at the Richard A Heyman Environmental Control Facility through the existing General Engineering Service contract. Requirements for anticipated permitting regulations include:

TABLE 1. Summary of Permits Potentially Required for the Fleming Channel Crossing

PERMITTING AGENCY	PERMIT
USACE	Section 408 Permit
US Coast Guard	Bridge Permit
FKNMS	Authorization Permit
FDEP	Wastewater Collection/ Transmission System Permit

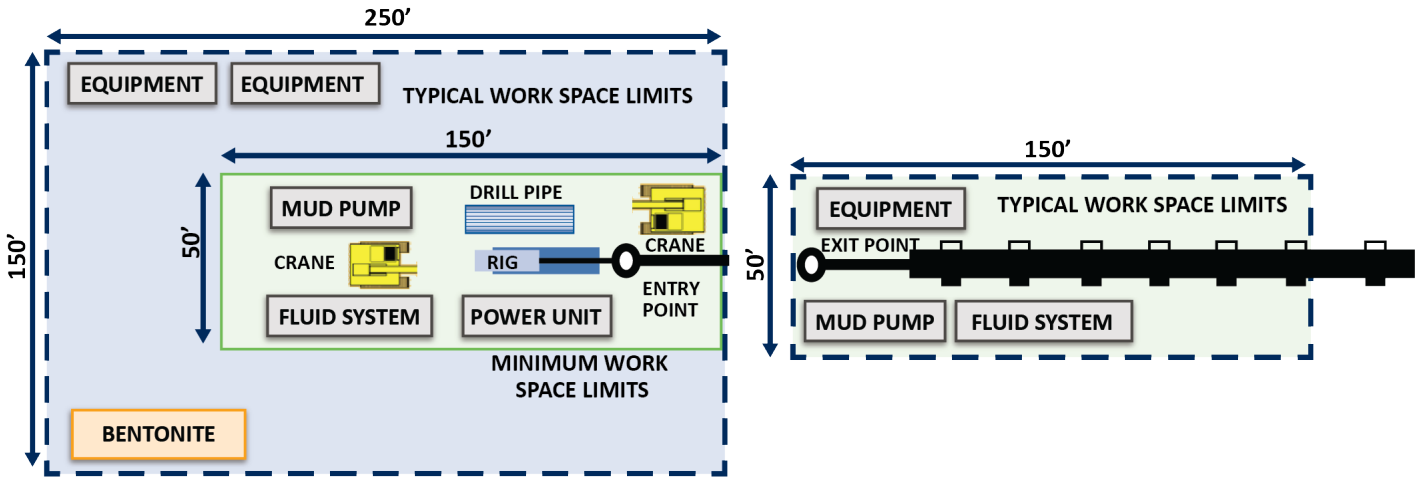
Challenge 2. Utility coordination and tie-in to existing utilities to minimize disruptions

The new utilities will need to connect to the existing on both sides of the Fleming Channel Crossing. Construction sequencing will be critical to ensure minimal service disruption to the operation of Richard A. Heyman Environmental Control Facility. Pending the outcome of Preliminary Design Report and the resulting optimal crossing location of the new utilities, short open cut segments will be required to facilitate the necessary pipe connections. Open-cut pipeline installation will need to be minimized and closely coordinated with Naval Base to ensure minimal adverse impacts to the Naval Base installations, such as jack-and-bore, will need to be utilized.

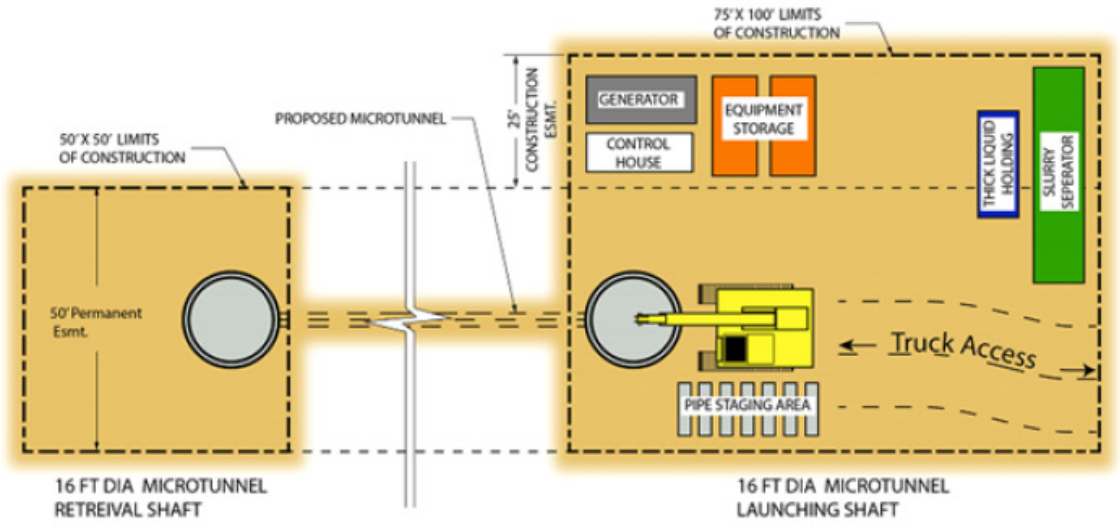
Challenge 3. Site constraints for construction activities and staging areas

An important aspect for this pipeline replacement design will be the minimum disruption to the Naval Base and Richard A. Heyman Protection Facility. All trenchless installation techniques require a work area on both sides of the crossing. Black & Veatch has extensive experience with trenchless installation projects and fully understand the minimum necessary construction footprint and installation area. The two figures below highlights two trenchless installation methods: horizontal directional drilling (HDD) and microtunneling. The figures how the optimal and minimum work area requirements. It should be noted that HDD will also require additional area for the fusing and stringing of the pipe.

WORK AREA FOR HDD



WORK AREA FOR MICROTUNNEL



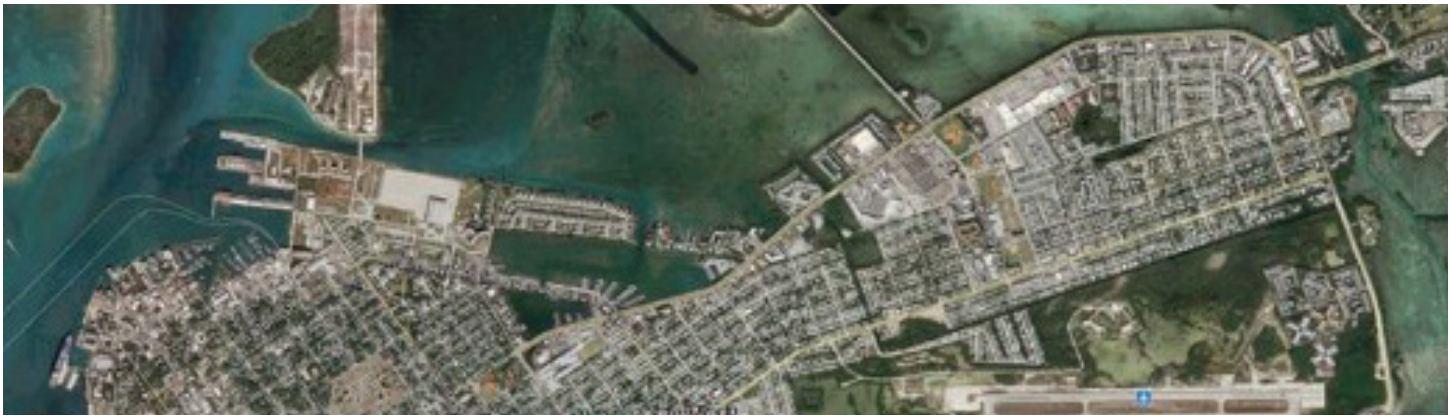


TABLE 2. Summary of Cost Effectiveness, Creativity, and Innovation of Proposed Solutions

POTENTIAL SOLUTIONS	BLACK & VEATCH VALUE	BENEFIT TO THE CITY
1. Perform SUE designating and locating existing underground utilities early in the preliminary design of the project.	With this knowledge, we can determine the best location of the entry and exit pits and provide utility conflict avoidance by mapping existing underground utilities and determining accurate tie-in points.	**PROJECT DELIVERY ON SCHEDULE AND UNDER BUDGET.** Eliminating design rework and construction change orders due to unforeseen existing utilities.
2. Safety by Design (SbD).	Techniques to identify risks to construction workers as well as local residents. Black & Veatch's Experience Modification Rate (EMR) is consistently below the industry average and is a testament to our continuous focus on safety.	**FOCUS ON SAFETY.** Eliminate risks to local residents and mitigations to avoid negative environmental events.
3. Readiness to perform proactive schedule management through facilitated permitting discussions and negations.	Based upon discussion with regulatory agencies having jurisdiction, we understand the permitting requirements and will incorporate them in our design and begin the permitting process with 30% design to ensure timely approval of long lead time permits. Any environmental assessment and additional boring will be coordinated along with the preliminary engineering report	**FLAWLESS PERMIT APPROVAL PROCESS.** All regulatory agency requirements will be incorporated into the design resulting in shortened permitting duration.
4. Effective QA/QC process.	Black & Veatch has ISO 9000-compliant quality management SOPs and QA/QC plans.	**QUALITY PROJECT DELIVERABLES.** High-quality deliverables requiring minimal review effort from the City's staff.
5. Proven and committed local project manager, and team backed by global and national experts available to the City. Local leadership with decision-making authority on all project matters, including scope of work and fees.	Black & Veatch has supported the City with engineering services for many years and delivered many successful projects for the City during that period. Our experienced local professionals in our South Florida offices are ready and available.	**TRUSTED RESOURCES.** No learning curve and ready to go. We have extensive knowledge of your Standards Manual, processes, goals, and expectations. We know how decisions made by City staff today will affect the operations and maintenance of your water system into the future.

PROJECT MANAGEMENT APPROACH

The City will receive a Trenchless Installation of Utilities Across Fleming Channel project on schedule, on budget, and of high technical quality by leveraging our proven project control tools and ISO 9001-compliant Quality Management System.

Our project management approach describes the process Black & Veatch has successfully implemented on previous City projects, as well as the process planned for this contract. Additionally, we have described the process envisioned to interface with the City through our Project Director, Arturo Burbano, our Project Manager, Olena Lytvyn, and our Technical Advisor, Mike McCure.

A key objective of our approach to this contract is to ensure that we have a firm understanding of your needs. We will gain this understanding by working with the City's Project Manager and City staff involved with this project.

By focusing on the City's specific needs and asking the right questions, we will work with your staff to zero-in on the most cost-effective scope of work that truly meet the project objectives.

Once we have this in-depth understanding, we will utilize our local resources with the appropriate background to best address your needs. However, we will not hesitate to bring the full resources of Black & Veatch to bear on a problem, whenever appropriate. As Project Director, Arturo Burbano will support Olena and Mike and address any client request. By selecting Black & Veatch, the City will have easy access to some of the most renowned experts in the world supporting local talent in a fast and economical manner.

Black Veatch's project management approach involves enhanced single point-of-contact communications, firm understanding of this project, use of local resources, continuous progress reporting, schedule and budget control, and detailed quality control.

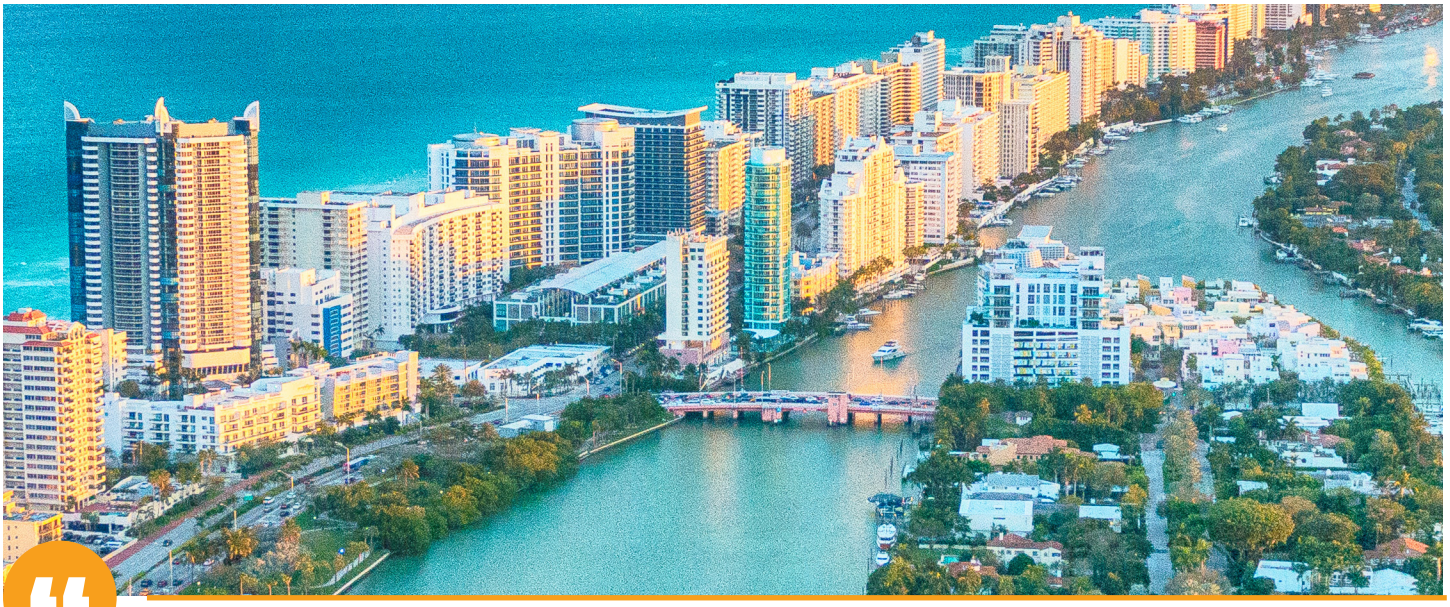
Communication Ability

Project Manager, Olena Lytvyn will provide the City with a primary point of contact, therefore, facilitating communication and ensuring consistency in administrative functions. Olena's skills and experience are well suited for this role. Olena has a strong working knowledge of the City's organization; processes; wastewater, and collection system; and staff. She will identify the best engineers and scientists to assign to this project and the most knowledgeable specialists to solve the tough and complex challenges that this pipeline project may involve.

COMMUNICATION METHODS

- DOCUMENT CONTROL & MANAGEMENT
- EMAIL
- FACE-TO-FACE
- WRITTEN DOCUMENTS
- PHONE & CONFERENCE CALLS
- VIDEO CONFERENCING & SCREEN SHARING

The City's job will be made easier by leveraging our proven project management plan that will improve project quality, eliminate rework, and keep tasks on schedule and budget.



Black & Veatch has always provided innovative ideas for solving MDWASDs challenges. They really think outside of the box, and deliver innovative solutions to problems that result in cost and schedule savings, while meeting the preferences of our operations staff."

- MARISELA ARANGUIZ
DEPUTY DIRECTOR- CAPITAL IMPROVEMENTS PROGRAM AND REGULATORY COMPLIANCE MIAMI-DADE WATER AND SEWER DEPARTMENT (WASD)

Access to Industry Proven Project Control Tools

The City will receive successful, quality projects as a result of Black & Veatch's complete library of state-of-the-art project control tools. Our project controls approach includes the following:

SCHEDULE CONTROL | We will work with the City and staff during the scope development phase of each assignment to establish a schedule that will meet your established goals. Schedules may be developed in **Microsoft Project.** We will provide the City's project managers with updated project schedules at each project milestone and other times as determined to be beneficial.

BUDGET CONTROL | Our project manager has access to an array of tools to facilitate tracking and management of project costs. For example, **EcoSys** is a newly-developed earned-value management-based system that enables the establishment of control accounts so that expenditures can be tracked and managed by both task and work group (such as engineering disciplines).

QUALITY CONTROL | Black & Veatch employs a strict QA/QC program in alignment with the key principles of **ISO 9000.** QA/QC reviews will be conducted at key milestones, which support schedule and budget success through early identification of developing issues and avoiding rework. Black & Veatch will also proceed with internal QA/QC review process on every submittal.

DOCUMENT CONTROL | Black & Veatch utilizes the **ProjectWise** document management system, which provides a secure environment for storage and retrieval of project drawings, specifications, reports, and data. This system provides the City with increased cyber-security, avoids document loss, and supports efficient production.

CONSTRUCTION COST CONTROL | Black & Veatch is a leading contractor in the water and wastewater industry. The resulting expertise and available estimating tools (i.e. **Timberline**) and resources enable us to develop accurate construction cost estimates to support the City's budget process.

CONSTRUCTABILITY | Our experience as a contractor also provides the expertise and resources to develop sound designs that can be constructed efficiently from the perspective of both cost and schedule. By thoroughly addressing construction sequencing and maintenance of operations during design, the City will benefit from avoidance of costly change orders and delays during construction.

PROJECT STAFFING | Black & Veatch manages concurrent projects by maintaining our TEMPUS database, which includes current and upcoming projects, the specific professional resources assigned to each, and the monthly time commitment of each professional assigned to each project. TEMPUS allows our team to ensure the City that: each upcoming project has adequate resources and the right resources for the job.

BUDGET AND SCHEDULE CONTROL

At the commencement of this project, Olena will define project scope, schedule, and budget in consultation with the City's Project Manager. Our Project Manager, Olena Lytvyn, will closely monitor and measure critical path activities to ensure the project is delivered on time and on budget.

Black & Veatch's project controls system, complete with budget information, will be used to track time and cost expenses for earned value (EV) reporting on all aspects of this project with the City. EV is a method of reporting project performance against in terms of schedule and budget. Every month as part of the invoicing process, the EV of each activity is computed based on the percent complete of each task and the budget expended. This process reveals problem tasks in terms of budget or schedule (or both), allowing for timely corrective actions.

Our project controls system and commitment to accountability for change is crucial to meeting project quality and budget goals and will save money to the City by preventing cost overruns.

TABLE 3. Performance Examples of Black & Veatch's Ability to Meet Project Budgets

RECENT PROJECTS COMPLETED BY BLACK & VEATCH'S SOUTH FLORIDA OFFICES	ORIGINAL BUDGET	FINAL BUDGET	
City of Key West | Key West TO-10 Dewatering Design & Bid Services	$261,257	$261,257	✓
City of Key West | WW 20-yr Needs Assessment	$56,990	$56,990	✓
FKAA | J. Robert Dean WTP Electrical Improvements	$268,738	$264,238	✓+
FKAA | Islamorada 30-inch Water Main Replacement Route Analysis	$64,617	$49,255	✓+
FKAA | Stock Island Kermit H. Lewin Seawater Desalination Reverse Osmosis Facility Plan and Cost Estimate	$209,541	$209,541	✓
Broward County | Clarifier Rehabilitation	$79,711	$78,546	✓+
Broward County | In-House Electrical O&M Services	$95,245	$88,226	✓+
SFWMD | S-127 CCC North Shore Automation Construction Phase Services	$503,288	$477,896	✓+
SFWMD | GG4 Structure Construction Phase Services	$290,556	$290,556	✓
MDWASD | Hydraulic Modeling Support	$58,766	$58,766	✓
MDWASD | Sewer Service to Commercial Properties	$178,662	$178,662	✓
Deerfield Beach | East WTP Site Improvements	$84,052	$84,052	✓

QUALITY ASSURANCE/QUALITY CONTROL DURING DESIGN

Quality Assurance

Our Quality Assurance program encompasses engineering/ design, procurement (if applicable), construction/construction management, and commissioning. Maintenance and improvement of the QMS are accomplished by quality audits, continuous improvement, and QMS management review.

Quality Audits

Black & Veatch's internal quality auditors perform planned, systematic audits to give our management team and the City's project managers two-fold assurance: that the project is being executed in accordance with quality plans, and the resultant products and services will meet specified requirements. Audit requirements come from industry standards, client contractual requirements, QMS compliance, and project specific requirements. Audit follow-up actions, including corrective and preventive action, are tracked through to closure, and are reviewed and verified through subsequent audits.

Continuous Improvement

Black & Veatch reviews quality metrics, including audit reports, corrective action and preventative action records, customer feedback, verification records, and non-conformance records, along with other pertinent performance feedback information. These reviews include the search for adverse process trends across functions and multiple projects. **The purpose is to determine if revisions to the QMS are required and, to promote continuous improvement.** These reviews also promote the critical nature of timely, transparent, and deliberate communication of the QMS documents.

Black & Veatch understands that most projects fail because of lack of communication – not because QA documents were not maintained. Black & Veatch will use these reviews to communicate with appropriate technical staff to reach consensus quickly and efficiently.

QMS Management Review

Black & Veatch reviews overall performance of the QMS annually, issuing written performance reports that includes recommendations for improving the system. The report is reviewed by Black & Veatch's leadership team and the results of the review are a set of action items that are assigned to our project managers with target completion dates. Our project managers plan, initiate, complete, and report the action item's completion. Completed actions are verified through subsequent audits. In this way, the City is assured that we are following best management practices as they pertain to quality and continuous improvement.

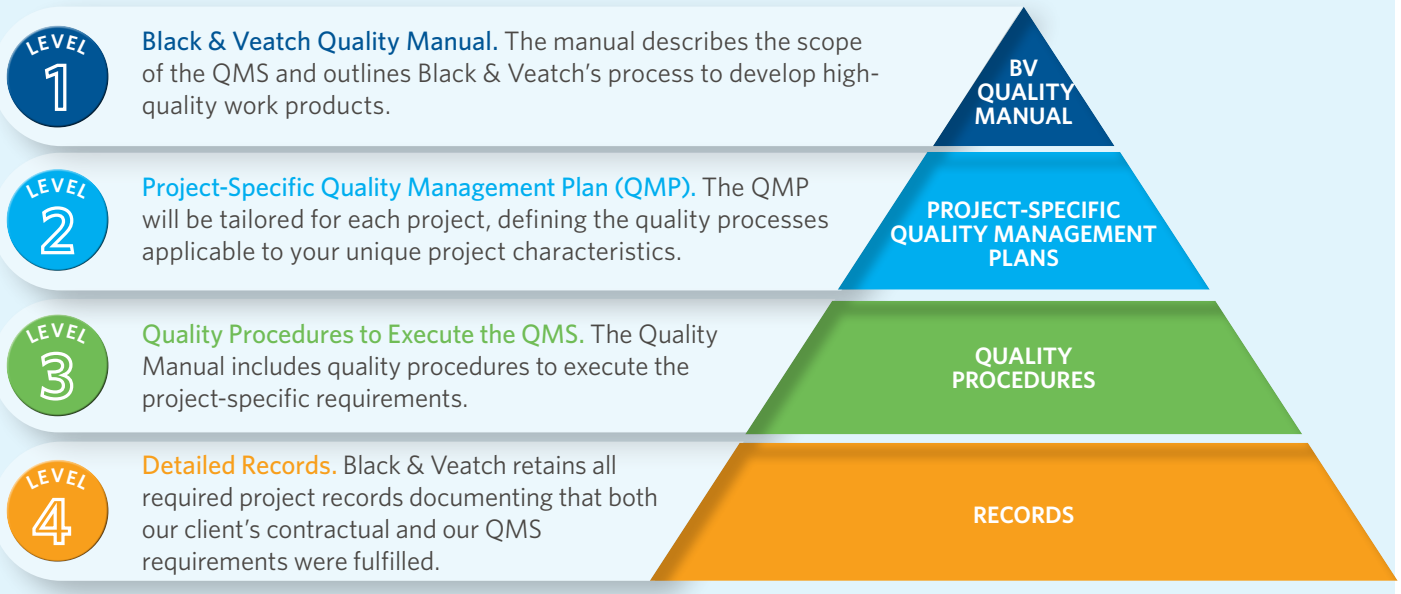
Understanding and Awareness of Permitting Requirements

Our team will focus on early stakeholder engagement and communication which will provide as a benefit a smoother permitting process, as the agencies are aware of the project long before a permit application is delivered. Our approach is to communicate with the required regulatory agencies early and often to keep them abreast of the project status, ensure timely approval of permits, and minimize delays. We will develop a permit matrix as one of our technical submittals so that responsibility for permits is clearly identified to avoid a permit falling through the cracks.

Ability to Perform Expeditiously

Black & Veatch will approach tasks in a consistent and uniform manner that will allow us to efficiently respond to changing project requirements, while developing engineering solutions that meet the City's needs. The foundation of this strategy is effective communications and establishing clear responsibility and understanding of the work requirements at the outset of the task.

Our Clients Receive High-Quality Projects from Black & Veatch's QMS Governance



The numerous technical and non-technical issues of potential projects will require a collaborative approach that encourages the direct involvement of City staff in workshops and selected meetings; we believe this approach is vital to the success of the project. Our collaborative approach will bring together project stakeholders on a regular basis.

Black & Veatch recognizes the importance of meeting schedule and budget requirements. We are prepared to devote the necessary resources to meet even the most challenging schedules. We control the schedule and budget on projects through experienced and attentive project management. Development of a Work Plan at the beginning of each project and diligent adherence to that Work Plan are the key to executing projects in an efficient and timely manner. Our Project Manager and Support Staff are experienced in the types of work to be performed under this contract, providing them the knowledge to develop a solid Work Plan and efficiently guide the work.

TEAM AVAILABILITY

Every member of our team was chosen to provide the best value and optimum service to the City for the Trenchless Installation of Utilities Across Fleming Channel project. We commit each member shown in our proposal to this contract and confirm each has the capacity to excel in their role. Project tasks are organized within our Project Execution Plan, which includes a detailed work breakdown structure.

Each task within the work breakdown structure is sequenced on the schedule and includes the staff assigned to accomplish each task. This information is entered into our company-wide resource allocation tracking system to allow our Project Manager, Olena Lytyvn, PE, to track workload and assure availability of our support staff. If overloads are predicted, our systems enable allocation of additional resources to maintain the project schedule and commitment to this project.

Personnel

The Black & Veatch team provides the City with proven local experience and national expertise on pipelines that will result in the following benefits:

Optimal selection of pipeline materials. Black & Veatch provides professionals with vast experience in steel and other pipe materials that may be an option for the Trenchless Installation of Utilities Across Fleming Channel. Our team is ready to evaluate the proper pipe materials that may result in cost savings for the City.

Optimal selection of trenchless pipeline-installation technologies. Minimal disruption will be achieved at major crossings or high-traffic areas through the implementation of the right trenchless installation technology, such as micro-tunneling, HDD, or Jack & Bore, among others.

Minimal disruption through properly coordinated maintenance of traffic (MOT). Black & Veatch's proven national experience will provide the City with attentive and coordinated MOT planning that will result in no surprises during the construction of this pipeline project.

Successful project execution through seamless utilities coordination. Our team's local experience and professional network will provide the City with seamless coordination that will result in effective project execution.

Expedited permitting and avoided project delays. Our team will leverage our local relationships and experience to provide the City with expedited permitting and proactive coordination with local agencies and municipalities. The City will benefit from avoided project delays by leveraging our team's relationships with local authorities.

Community consensus of this linear project. Our team will provide the City with proactive public involvement support and clear project communication to achieve consensus with the community and project stakeholders during the design and construction sequencing of this project.

ABOUT OUR LINEAR DESIGN CENTER

Black & Veatch has specialized experience to plan, design, and build pipeline infrastructure with expertise for timely service as an extension of your staff.

Our Linear Design Center is led by a talented team of professionals with specific and extensive experience with collection and distribution projects such as pipelines, pump stations, and storage tanks, who have equally important peripheral experience with easements, permitting, funding, interacting with the public; things that are fundamental to a linear project's success.

In addition, Black & Veatch offers deep bench strength to initiate and complete engineering, design, permitting, bidding, and construction tasks on accelerated or shifting schedules resulting in time and cost savings for our clients and ultimately their ratepayers.

Arturo Burbano, PHD, PE, PMP, BCEE

PROJECT DIRECTOR

VALUE & BENEFIT TO THE CITY

The City will benefit from Arturo's involvement due to his extensive experience as Project Director. Currently serving as the local leader of Black & Veatch's Coral Gables office, he will ensure that Olena has access to the required staff and resources from the overall Black & Veatch organization to successfully complete this project while meeting all of the City's expectations.

Arturo is a local Project Director with over 30 years of experience delivering design and construction of infrastructure facilities totaling more than $1B in cumulative construction costs. He has extensive experience executing a variety of adaptation infrastructure projects and programs focused on sustainable and resilience operations for leading utilities in Florida and across the U.S. such as the Miami-Dade Water and Sewer Department (WASD), the Hillsborough County Public Utilities Department or the Metropolitan Water District of Southern California. Dr. Burbano has extensive experience as project and program manager delivering a variety of infrastructure projects, including design and construction of treatment facilities ranging from 20 gpm to 750-mgd in capacity.

OFFICE LOCATION

Coral Gables, FL

EDUCATION

- PhD, Environmental Engineering, University of Cincinnati, 2003
- MS, Industrial Engineering, Escuela Politécnica Nacional, (Quito, Ecuador), 1998
- BS/MS, Chemical Engineering, Escuela Politécnica Nacional, (Quito, Ecuador), 1992

YEARS EXPERIENCE

30

PROFESSIONAL REGISTRATION

- PE - FL, #81183
- PE - CA, #C72460
- PE – NV, #021571
- PMP - #1795409

PROJECT EXPERIENCE

Miami Dade Water and Sewer Department | Ocean Outfall Legislation (OOL) Program for Wastewater Treatment Plants | Miami, FL

Program Manager. The program includes engineering services for the design and construction of multiple infrastructure upgrades at WASD's wastewater treatment plants, to meet the OOL legislation by 2025. Supports the detail design of the High-Level Disinfection (HLD) facilities and the Injection Well Pump Station (IWPS) of the North District Wastewater Treatment Plant (NDWWTP), as well as the Electrical Distribution Building 3 (EDB3) at the South District Wastewater Treatment Plant (SDWWTP).

Provides project management support to complete all phases of these projects through completion. Serves as technical reviewer of the design of the chlorination and disk filtration systems of the HLD facilities, with a focus on water quality and treatment performance.

Miami Dade Water and Sewer Department (WASD) | CD2.17 Chlorination Facilities Detailed Design | Miami, FL

Project Manager. Project Manager for the detail design of the $22M chlorination facilities for the 143-MGD Central District Wastewater Treatment Plant (CDWWTP). The objective of this Consent Decree (CD) project was to replace the existing chlorine gas system with a new liquid sodium hypochlorite system. The latter was a bulk storage facility with eighteen 20,000-gallon FRP tanks, transfer and dosing pumps and a satellite facility with two 2,500-gallon HDPE day tanks and dosing pumps.

Miami Dade Water and Sewer Department (WASD) | CD2.07(3) Central District Wastewater Treatment Plant (CDWWTP) Plant 1 Clarifiers Structural Rehabilitation | Miami, FL

Project Manager. Managed this Consent Decree project through completion of the following scope of work: (i) condition assessment of the clarifiers; (ii) development of 50% and 100% (bid-ready) design documents, including specifications and standard details for cleaning / sandblasting, spalling concrete repairs and coatings; (iii) bidding services for contractor selection; and (iv) engineering services during construction (ESDC).

Peace River Manasota Regional Water Supply Authority (PRMRWSA) | Regional Evaluation of Disinfection By-Products (DBPs) in the Distribution System | Lakewood Ranch, FL

Project Manager/Technical Lead. Led a comprehensive water quality evaluation of the occurrence of chlorinated DBPs in the Authority's regional transmission mains, the distribution systems of the Member Governments and selected Authority's customers. The goal was to determine the current performance of these systems with respect to current DBP regulations, and to evaluate potential compliance risks that may need further action at an individual or regional level.

Hillsborough County Public Utilities Department; South Hillsborough Aquifer Recharge Project Phase II | Tampa, FL

Technical Advisor/Principal in Charge. This landmark water reuse project was originally developed by PUD to determine the feasibility of using available reclaimed water to recharge the Upper Floridian aquifer within the Southern Water Use Caution Area (SWUCA). The promising results from Phase I of this project, led PUD to proceed with Phase II. consisted of providing site identification and Underground Injection Control (UIC) permitting services for five (5) additional aquifer recharge sites, detailed design for the construction of two of these 5-MGD wells, including its surface facilities (transmission pipelines, wellheads, instrumentation and controls, and a recharge booster pump), and construction phase services (bidding services, construction oversight, startup and commissioning).

City of Tampa | David L. Tippin (DLT) Solids Dewatering Facility Improvements | Tampa, FL

Technical Advisor. Served as Task Manager/Technical Advisor for the Polymer Supply Systems, as part of the City of Tampa's 120-MGD DLT WTP Solids Dewatering Facility Improvements. As result of pilot studies of solids handling alternatives, the City concluded that centrifuges would produce more effective dewatering than the existing belt-filter press units, and that transitioning from dry polymer to a liquid emulsion would reduce operational issues. Led the preliminary evaluation and detailed design of the proposed liquid emulsion polymer system to accommodate a solids loading rate of approximately 50 tpd. The scope included polymer unloading, storage, recirculation, activation mixing, and conveyance to the proposed centrifuges, and it was completed in Revit 3D BIM.

Olena Lytvyn, PE

PROJECT MANAGER

VALUE & BENEFIT TO THE CITY

The City will have access to a local Project Manager in Olena Lytvyn, who served as the Engineer Manager for Project Engineering Services for the Rehabilitation of a Water Main and Force Main Pipes between Sunset Islands 2 & 3, and for the Normandy Dr Roadway Improvements for the Miami-Dade Water and Sewer Department.

Olena has 11 years of experience in route analysis, design, permitting, procurement, construction management and administration of pipelines in various materials and in sizes ranging from 4" to 108". Her experience includes pipeline installation in open trench and trenchless techniques including HDD, jack and bore, and microtunnel.

Olena managed and coordinated the design efforts for the FKAA Route Analysis for the Replacement of an Existing 30-inch Water Main. The project scope included the route evaluation to install approximately five miles of new 36-inch water main, to serve as a replacement to the existing failing 30-inch ductile iron water main in Islamorada; site review, municipal jurisdiction/permit and special requirements, environmental evaluations, data collection, site reconnaissance, existing utilities, data analysis & evaluation, design criteria, pipe material evaluation, installation and constructability, and route analysis.

OFFICE LOCATION

Coral Gables, FL

EDUCATION

- BS, Civil and Environmental Engineering, Florida State University, 2012

YEARS EXPERIENCE

11

PROFESSIONAL REGISTRATION

- PE – 2017, FL, 82696
- PE – 2017, IL, 062069139

PROJECT EXPERIENCE

Miami-Dade Water and Sewer Department | Ocean Outfall Large Diameter Pipelines; Miami, FL

Engineering Manager. Responsible for managing and coordinating the execution of design of 60-inch PCCP force main. Ms. Lytvyn was responsible for the horizontal and vertical alignment. Additionally, Ms. Lytvyn was responsible for managing subconsultants.

Miami-Dade Water and Sewer Department | Central District WWTP Tertiary Filtration Pilot Test and Effluent PS Evaluation; Miami, FL

Engineering Manager. The objectives of the effluent pump station evaluation were to determine whether the existing pumps should be rehabilitated as recommended in the current OOL plan for the CDWWTP or replaced. In addition, the current capacity of the existing effluent pumps was verified through field testing and comparison to manufacturer information, so that the recommended design criteria.

UEP North 1; Cape Coral, FL

Engineering Manager. Black & Veatch is the Engineer of Record (EOR) for providing design, permitting, and bid-phase support services for three separate large sub-areas within UEP N1. The project area is over one square mile (approximately 654 acres) and includes

approximately 1,800 parcels that will be provided new City water, wastewater, reclaimed water, and fiber optic services. The project also included permitting for: FDEP, Lee County Department of Health (Lee DOH), SFWMD and USACE.

City of Miami Beach | Engineering Services on "As-Needed Basis"; Miami Beach, FL

Project Manager. Project Normandy Dr. Roadway Improvements: responsible for development of the construction documents that included: plans, profiles, drainage plans,l cross section, maintenance of traffic plans, signing and marking plans and details, project phasing and all associated details. Project Engineering Services for the Rehabilitation of a Water Main and Force Main Pipes between Sunset Islands 2 & 4: Rehabilitation of the existing 8-inch diameter subaqeous force main and water main between Sunset Islands No. 2 and No. 3 in the City; approximately 600 linear feet of 8-inch force main and 8-inch water piping.

Miami-Dade Water and Sewer Department | 72-inch Force Main Design Build Criteria Package; Miami, FL

Engineer. Assisted in the feasibility study for a Pipeline Rehabilitation/Replacement for Miami-Dade County WASD. The scope of the project required recommendations for a pipeline rehabilitation method(s), preparation of the Design-Build Criteria Package for the selected alternative, assisting the County during selection process of contractor, and providing compliance reviews and support services during the design and construction phases of the replacement/ rehabilitation of the 72-inch force main Interceptor, approximately 3.5 miles long. Assisted in the review of proposed construction drawings, design calculation, and shop drawings to ensure compliance with WASD standards and the Design-Criteria Package.

City of West Palm Beach | Condition Assessment of the 42-inch/48-inch PCCP Force Main; West Palm Beach, FL

Engineer. Assisted in reviewing Condition Assessment of 42-inch and 48-inch Diameter PCCP Force Main report prepared by Pure Technologies and providing recommendations on rehabilitation methods. Also assisted in providing technical support for this project.

Miami-Dade Water and Sewer Department | Route Analysis for the Replacement of 16,200 LF of 54-inch Water Main along Red Road; Miami, FL

Engineer. Performed the duties of Project Engineer for the evaluation of route alternatives for the replacement of a 54-inch transmission main. Record drawings were obtained and reviewed from all utility companies in the area. Three routes were developed for an alignment of a 54-inch water main. Upon the completion of site reviews and cost estimates, the most optimal route was selected. The recommended route contains several canal and railroad crossings. A report was created documenting all finding and basis of recommendation. Assisted in the preparation of a presentation given to the Water and Sewer Department on the recommended route.

Miami-Dade Water and Sewer Department | 48-inch PCCP Condition Assessment and Assessment of Carbon Fiber Repairs; Miami, FL

Engineer. Prepared a condition assessment report for a 48-inch PCCP located along SW 56th St. Performed a limited manned entry assessment of the pipeline's internal condition. The condition assessment included 24 pipe sections previously rehabilitated with CFRP liner and 143 non-rehabilitated pipe sections.

Isabel Botero, PE

QA/QC

VALUE & BENEFIT TO THE CITY

- The City will benefit from Isabel's experience executing infrastructure projects for the City of Key West for the last 10 years.
- Isabel is currently managing the installation of dual 96-in microtunnels for the C-51 water supply reservoir project in Palm Beach County for the Black & Veatch team providing quality assurance during construction.

Isabel is a civil and environmental engineer with twenty-two years of experience and knowledge of water and wastewater systems. Ms. Botero has served as project manager, engineering manager, and project engineer on many environmental engineering projects including analysis of piping systems, pipeline design, tunnel design, water and wastewater treatment plant facilities design. She has participated in detailed design of water and wastewater projects for alternative delivery methods (design/build/ operate). She is also experienced in implementation of quality assurance programs for quality control of design deliverables and construction phase services for infrastructure systems..

OFFICE LOCATION

Coral Springs, FL

EDUCATION

- MS, Environmental Engineering, University of Kansas, 2004
- BS, Civil and Environmental Engineering, University of Missouri-Kansas City, 1999

YEARS EXPERIENCE

22

PROFESSIONAL REGISTRATION

- PE – 2007, FL, 67176
- PE – 2005, MO, 2005001044
- PE – 2013, PR, 25626

PROJECT EXPERIENCE

City of Key West | Dennis Street Storm Water Improvements Pump Station | Key West, FL

Project Manager. Participated in the preliminary design of an 11 cfs storm water pump station and 750 linear feet of discharge pipeline for the City of Key West. The project is currently in the final design stages. Project elements include diesel generator, new electrical extension to the site, triple chamber box for stormwater treatment and connection to an existing outfall. The project will alleviate flooding near the Key West high school.

MDWASD | Ocean Outfall Legislation - Task 03 Deep Injection Well Permitting | Miami, FL

Project Manager. Under the Hydrogeological and Engineering Services for Disposal, Water Supply, Monitoring Wells and Aquifer and Storage Recovery Wells, Black & Veatch performed the following services. FDEP underground injection control, design and assistance with the procurement of a contractor for multiple deep injection wells at NDWWTP, CDWWTP and SDWWTP for disposal of the wastewater plants' effluent.

MDWASD | Lime Residuals Disposal - FDEP Permitting and Modeling Support | Miami, FL

Project Manager. The project included services to obtain the Environmental Resources Permit from FDEP to add a new 120-acree sludge lagoon to store lime residuals from the Hialeah and Preston water treatment plants. Groundwater modeling was performed on the effects of the lime disposal site and the Northwest wellfield. The design of the 16-in sludge pipe extension to transfer the sludge to the new lagoon and a new berm around the lagoon are included in the project.

MDWASD | Preston WTP High Service Pump Station Electrical Upgrades | Miami, FL

Project Manager. The electrical upgrades include replacement of existing synchronous motors with induction motors and addition of variable speed drives for operational flexibility. A new medium voltage switchgear will be added. The six existing pumps include 4-1,500 hp and 2-700 hp units.

City of Deerfield Beach | Water Treatment Plant General Engineering Services | Deerfield Beach, FL

Project Manager. Assisted the City with an evaluation of their Corrosion Control Plan for compliance with FDEP. Other assignments included the rehabilitation of the lime softening basin and the development of the AMR/AMI Strategy for the Utility. Currently Ms. Botero is leading the demolition of a decommissioned water treatment plant.

MDWASD | Sewer to Commercial Properties

Engineering Manager. Assisted the Miami-Dade Water & Sewer Department (MDWASD) with developing a plan, including planning level cost estimates and project schedules for the addition of sewer infrastructure to commercial zoned properties within MDWASD's service area currently not connected to these systems to bolster commercial re-development. Over 3,000 parcels sites were analyzed for sewer system extensions.

Palm Beach Aggregates | C-51 Reservoir

Project Manager. The Project is to connect the existing L-8 FEB to the newly constructed C-51 Reservoir (C-51). This will facilitate water supply deliveries between the C-51 and the L-8 FEB. Operating in concert, the L-8 FEB and C-51 can meet water supply deliveries for participating utilities and provide environmental benefits.

Two 96-inch (in) inside diameter (I.D.) centrifugally cast, fiberglass-reinforced, polymer mortar (CCFRPM) pipes will connect C-51 to the L-8 FEB and enable bi-directional, gravity flow between the L-8 FEB and C-51.

Bogota Water & Sewer Authority | Water Pipeline Geotechnical Stabilization; Bogota, Colombia

Project Manager. Preparation of the final design of geotechnical stabilization measures for two water distribution mains, a 24-inch and a 60-inch situated in critical locations of the City of Bogota.

SFWMD | Golden Gate Weir Replacement; Collier County, FL

Project Manager. Led the design and construction phase services including the quality control with the use of DrChecks for the SFWMD of a new water control structure with two automated roller gates, overflow weir structure and new control building to replace an existing weir structure with smaller manual gates.

MDWASD | Water Service Improvement to Non-Residential Properties; Miami, FL

Project Manager. Assisted the Miami-Dade Water & Sewer Department (MDWASD) with developing a plan, including planning level cost estimates and project schedules for the improvements of water infrastructure to non-residential zoned properties within MDWASD's service area currently under-sized to bolster commercial re-development. Once the project is implemented, over 15,000 parcels sites will have improved water service.

Mike McCure, PE

TECHNICAL ADVISOR

Mike is a senior project manager responsible for the design and development of large scale water conveyance projects. Mike predominantly leads projects that involve design of large diameter multi-mile pipelines and high capacity pumping stations. He has participated in a wide range of project activities including project management, design management, and construction management.

OFFICE LOCATION
Fort Worth, TX

EDUCATION
- BS, Civil Engineering, University of Illinois, 1990

YEARS EXPERIENCE
31

PROFESSIONAL REGISTRATION
- PE – 1997, TX
- PE – 2006, NV

PROJECT EXPERIENCE

Dallas Water Utilities | New Tawakoni Raw Water Transmission Line | Dallas, TX

Design Manager. Responsible for final design of 16 miles of 144-inch diameter PCCP raw water pipeline with a hydraulic capacity of 365 MGD (maximum static pressure = 100 psi). Project includes crossing gas pipelines in several locations along with five state highway crossings each requiring two pass tunnel method. Pipeline also crosses a large slough and the East Fork Trinity River by way of tunneling. Project includes a screening facility at the Tawakoni balancing reservoir. This facility ties in existing 72-inch and 84-inch pipelines and is designed for an ultimate capacity of 800 MGD.

Tarrant Regional Water District | Integrated Pipeline Project | Fort Worth, TX

Project Manager. Responsible for Preliminary and Final Design of 30 mile 108-inch water transmission pipeline and associated facilities, including pressure control/tie-in facility at tie-in to existing 72-inch and 90-inch pipelines, metering station, and 108" yard piping and by-pass piping associated with a new balancing reservoir.

Midland County Fresh Water District #1 | T-Bar Ranch Well Field Development & Delivery Project | Midland, TX

Design Manager. Responsible for design of 58-miles of 48-inch diameter transmission main. Associated work included establishment of pipeline route; development of early procurement packages for pipe and valves, production of construction documents (plans & specifications); and review of submittals/shop-drawing.

Tarrant Regional Water District (TRWD); Dallas Water Utility (DWU) | Lake Palestine Raw Water Transmission System | Dallas/Fort Worth, TX

Project Engineer. Planning study and routing analysis of raw water pipeline delivery system from Lake Palestine serving turnouts for TRWD and Dallas Water Utility. Analysis involved evaluating several pipeline alignment scenarios ranging in size from 84" to 108" over a distance of 135 miles with a capacity to ultimately provide integrated raw water delivery to DWU and TRWD. Delivery rates evaluated range from 128 MGD to 339 MGD. Project responsibilities involved developing preliminary pipeline and pumping station sizing, estimating project capital costs and life-cycle costs, and identifying and quantifying project constraints for each potential alignment.

Southern Nevada Water Authority | Planning and Engineering Services of McCullough Lateral Project | Las Vegas, NV

Deputy Project Manager. Engineering services related to pumping station planning and pipeline cost analysis for the McCullough Lateral Project. Planning phase involved evaluating multiple pipeline routes under various hydraulic scenarios and pumping conditions. Project involved evaluating 6 miles of raw water transmission main delivering water from Lake Mead to the River Mountains Treatment Facility and 26 miles of treated water transmission main (diameters of 114" and 120") routed through the southern portions of the Las Vegas Valley. The transmission system will have a design capacity of 407 million gallons per day (MGD) and includes multiple pumping stations. Responsibilities included planning for three pumping stations and preparation of project cost estimates. Project cost estimates included life-cycle cost for several pipeline alignments and hydraulic scenarios where multiple pumping station combinations were studied to optimize facility operating cost and overall project capital cost.

Trinity River Authority | Preliminary Design of Elm Fork Interceptor EF-7 | Arlington, TX

Project Manager. New 96-inch sanitary sewer relief interceptor paralleling an existing 90-inch diameter RCP pipeline. Multiple alignment alternatives were investigated along with rehabilitation alternatives of the existing infrastructure with a goal of providing an ultimate conveyance capacity of 210 cfs. Project included a State highway crossing, a railroad crossing and an inverted siphon river crossing. The siphon crossing of the Trinity River employs 48" and 60" pipelines.

TRWD | Construction Phase Services of Richland Chambers High Capacity Expansion | Fort Worth, TX

Project Manager. Engineering services provided during construction of the Ennis and Waxahachie Booster Pump Stations. These pump stations are a major part of the high capacity expansion of the Richland Chambers Pipeline System. The two booster pump stations provide delivery of 244 mgd in high capacity mode and meet year 2020 projected demand. Each station includes five 34,000 gpm horizontal split-case pumps. Each pump is driven by a 5000 hp synchronous motor for optimum power factor and efficiency. At Waxahachie, two pumps are equipped with variable frequency drives to match lake pumpage while minimizing power cost without having throttle valves. Project utilizes foundation fieldbus/device net control system to ensure high reliability and connectivity. The control system is interfaced with TRWD's SCADA system to provide remote operation and monitoring from TRWD's Central Control Center.

Mike McGee, PE, BCEE

PIPELINE PLANNING

Mike has more than 28 years of experience in successfully delivering a variety of water, wastewater, and reclaimed water projects for municipal, industrial, and private clients. His experience includes projects involving the installation of more than 100 miles of water, wastewater, and reclaimed water pipelines in Florida over the past 20 years ranging in size from 8 to 66 inches and including materials such as DIP, PVC, fusible PVC, HDPE, Steel, and FRP. Mike is recognized as a technical expert in horizontal directional drilling (HDD) and has successfully designed, permitted, and supported construction of over 80 HDD's in Florida over the past 15 years, many of which crossed under FDOT ROW's, SGRR/CSX railways, and environmentally sensitive Outstanding Florida Waterways.

PROJECT EXPERIENCE

City of Fort Myers | Central AWWTP Trunk Main Replacement; Fort Myers, FL

Sr Project Manager & Design Lead. Led all aspects of detailed design, permitting, and construction phase services for this $22M sanitary sewer trunk main replacement project which involved construction of over 9,500 LF of 42- and 36-inch gravity sewer piping and 61 large diameter manholes, one upsized master wastewater lift station with VFD's rated for over 3,300 gpm; over 2,900 LF of 36-inch wastewater force main piping; over 6,900 LF of new 12- and 8-inch potable water piping transmission mains.

Peace River Manasota Regional Water Supply Authority | 66-inch X 48-inch PRF WTP Raw Water Interconnect; Arcadia, FL

Sr Project Manager & Design Engineer. Performed the detailed design, bidding, permitting, and construction phase administration of the 66-inch X 48-inch diameter Raw Water Interconnect pipeline that provides reliable raw water gravity supply to the WTP directly from perched Reservoir #2 as a backup to the Reservoir Pump Station. Design and construction of this new pipeline interconnect included provisions for a tie-in to a 66-inch steel transmission main and major shoring and dewatering provisions that were successfully conducted over 21 feet below-grade.

Lee County Utilities | San Carlos Force Main Replacement; Fort Myers, FL

Project Manager & Design Engineer. Led all aspects of design and permitting of route selection, detailed design, and permitting of this project to replace a failing 20-inch wastewater force main.

OFFICE LOCATION
Fort Myers, FL

EDUCATION
- MS, Civil Engineering, Environmental, Auburn University
- BS, Mechanical Engineering, United States Naval Academy

YEARS EXPERIENCE
31

PROFESSIONAL REGISTRATION
- PE – 1991, FL, #44055
- BCEE – 2016, DE, #16-20003

Jessica Hernandez Rebollo

PIPELINE DESIGN

Jessica has three years of experience in schedule planning, construction coordination and pipeline design. She has worked as a pipe field engineer on the construction of natural gas, combined cycle, power plants. Most recently, she has been involved in the design of pipelines for different applications on water treatment projects.

OFFICE LOCATION
Jacksonville, FL

EDUCATION
- BS, Mechanical Engineering, Texas Tech University, 2018

YEARS EXPERIENCE
3

PROJECT EXPERIENCE

JEA | Ranch Road Gravity Sewer Replacement; Jacksonville, FL

Civil Engineer. Currently working as a civil engineer on the design of the replacement of a gravity sewer main. Responsible for the design of the proposed line as well as a temporary bypass line and specifications.

City of Clearwater | Fort Harrison Ave. Design; Clearwater, Fl

Civil Engineer. Currently working as a civil engineer on the design of a reclaimed water pipeline and a force main. Responsible for the design and specifications.

Florida Power & Light | Clean Water Recovery Center Project; Miami-Dade, FL

Civil Engineer. Currently working as a civil engineer on the design of a reclaimed water pipeline. Responsible for the design specifications, existing utility coordination and submittal coordination.

The Island Water Association | Raw Header Piping and PRV Replacement; Sanibel Island, FL

Civil Engineer. Currently working as a civil engineer on the design for the replacement of a raw water header on a reverse osmosis water treatment plant. Responsible for the pipeline design including demolition of existing line, planning of construction phases and replacement pipe.

Collier County | Sidewalk Improvements; Immokalee, FL

Civil Engineer. Currently working as a civil engineer on the design of a new sidewalk for Collier County. Responsible for the sidewalk design including, site clearing and grubbing, sidewalk and driveways placement, utility coordination, storm water protection and erosion-control. Also responsible of the permitting needed for the project.

Mark Bradford, PE

MICROTUNNELING DESIGN

Mark's experience spans all aspects of civil engineering from surveying and inspection of utility and roadway construction, to department management of a geotechnical engineering and construction materials testing firm. He has been responsible for the design, implementation and analyses associated with managing geotechnical engineering investigation projects ranging from roadways and multi-span bridges to high rise structures and CSO tunnel projects across the State of Indiana, areas of Michigan, OH, IL and North Carolina.

PROJECT EXPERIENCE

City of Indianapolis, Department of Public Works; all Creek/White River Tunnel System Design | Indianapolis, IN

Senior Geologist. Design engineer involved in the design of drop shafts used to convey the CSO flows to the tunnel level. Additional involvement includes detailed design of tunnel alignment, support and excavation methods as well as development of the Phase II Geotechnical Data Report for the tunnel alignment. The Fall Creek/White River Tunnel System includes approximately 45,000 feet of 18 ft diameter tunnel 190 to 230 ft below ground level in limestone and dolomite. Forty-Three CSOs will be consolidated and more than 95% of the CSO flows introduced into the tunnel via 21 drop shafts.

Bradshaw Construction; Belmont North Interceptor Project; Indianapolis, IN

Geotechnical Engineer. Geotechnical oversight and management of the installation of shallow and deep, settlement point extensometers for a 6 foot, inside diameter (I.D.) microtunnel in soft ground in Indianapolis, IN. Duties included project management, field oversight, shop drawing submittal and management of subcontractors

Indianapolis Department of Waterworks/Citizens Energy Group | White River North WTP UV Disinfection and Pump Station | Indianapolis, IN

Geotechnical Engineer. Responsible for geotechnical evaluation associated with preliminary engineering for a 45 mgd UV Disinfection System and Pump Station. The pump station was designed in accordance with Hydraulic Institute Standards using a trench-style pump station.

OFFICE LOCATION
Indianapolis, IN

EDUCATION
- MS, Civil Engineering, Geotechnical, Purdue University, 1999
- BS, Civil Engineering, NA, Valparaiso University, 1995

YEARS EXPERIENCE
23

PROFESSIONAL REGISTRATION
- PE – Indiana, 2001, 10100266

Pablo Gala-Serra, PE

PAVEMENT DESIGN/REPLACEMENT/GENERAL CIVIL/ MAINTENANCE OF TRAFFIC

Pablo has experience executing projects for the City of Key West. He has been involved in both traditional design and design-build-operate projects, and in that role has designed both new and retrofitted facilities. Some of Mr. Gala Serra key recent assignments have included:

- Project Manager for multiple task orders for waste water project at the Richard A. Heyman Environmental Protection Facility for the City of Key West including blower and electrical switchgear replacement, RAS/WAS pumps replacement, and dewatering system rehabilitation.

OFFICE LOCATION
Coral Gables, FL

EDUCATION
- MCE, Civil Engineering, Universidad Politécnica de Cataluña, 2007
- MS, Civil Engineering, INSA de Lyon, 2006

YEARS EXPERIENCE
16

PROFESSIONAL REGISTRATION
- PE – FL, PE90447

PROJECT EXPERIENCE

Project Manage | Coral Gables, FL

Engineer Manager. Responsible for executing water and wastewater projects. Working in bid and execution phases. Interdisciplinary coordination managing subcontractors and Client's interface.

- Key West RAS WAS Pumps Replacement
- Key West Dewatering Design & Bid Services
- Key West Blower/Electrical Switchgear
- SDWWTP Electrical Distribution Building 3
- CDWWTP High Level Disinfection Program
- Preston WTP HSPS Electrical Upgrades
- NDWWTP High Level Disinfection
- NDWWTP Injection Well Pump Station

Florida Keys Aqueduct Authority (FKAA) | J.Dean WTP Electrical Improvements; Florida City, FL

Project Manager. Managed the engineering services during construction to modify, enclose, and improve an existing storage room within the existing K1 building to be repurposed as a new electrical room with air conditioning. The design also included the new 480V standby power system switchgear, new 480V motor control center, and modification of several automatic transfer switches to manual switches.

Florida Keys Aqueduct Authority (FKAA) | Stock Island Stand by Generator Facility; Key West, FL

Project Manager. Project manager for the FKAA Stock Island Standby Generator Facility design services and engineering services during construction. This design includes Services for Standby Power Generation Systems General to provide bid and construction package for an emergency electrical power generation facility to provide backup power to the new reverse osmosis facility electrical distribution switchgear.

Cary Hirner, PE

HORIZONTAL DIRECTIONAL DRILLING

Cary has 25 years of experience in heavy civil, tunnel, and geotechnical engineering. His focus has been on project management, risk mitigation, claims analysis, planning, design and providing construction phase services on tunneling projects, including intakes and outfalls, quarry to reservoir conversions; and deep foundation grouting projects. He has consulted on over 100 miles of soft ground and rock water, wastewater, storm water, and CSO tunnels. This includes serving as Project Manager, Engineering Manager, Design Manager, Tunnel Lead, Quality Control Lead and Risk Manager on over $3 billion in tunneling projects with sizes ranging from a few feet in diameter to over 30 feet. He is accomplished at preparing predesign reports and decision documents, technical memoranda, drawings, specifications, geotechnical field services, risk registers, geotechnical reports (GBR, GDR and GDSR) and contract documents.

OFFICE LOCATION
Kansas City, MO

EDUCATION
- BS, Geological Engineering, University of Missouri-Rolla, 1994

YEARS EXPERIENCE
27

PROFESSIONAL REGISTRATION
PE – 1999, KS, 15599

PROJECT EXPERIENCE

Charleston Commissions of Public Works | Cooper River Replacement Tunnel; Charleston, SC

Geotechnical Engineer. Designed the initial support requirements for the horseshoe-shaped portion of a 15,000-foot long sewage conveyance tunnel that underlies a settlement sensitive downtown historical district. Also, oversaw the drilling and sampling of barge mounted borings in the Cooper River shipping channel as part of the tunnel crossing design.

Johnson County Wastewater | Mill Creek Regional WWTP Effluent Tunnel; Shawnee, KS

Tunnel Engineer. Responsible for leading the design and construction phase services of an 8-foot diameter, 2-mile-long treated effluent tunnel that connects the treatment plant to an existing outfall diffuser in the Kansas River. The tunnel excavation is up to 180 feet deep in a shale formation that contains methane requiring additional ventilation requirements in the tunnel and an intrinsically-safe tunnel boring machine. Design included geotechnical investigations and preparing plans, specifications, Geotechnical Data Report, and Geotechnical Baseline Report.

City of Toronto | Coxwell Bypass Tunnel; Toronto, ON

Risk Manager/Technical QC Reviewer. Responsible for facilitating risk management workshops for 22km of 6.1 m diameter tunnel in highly urbanized environment. Performed quality control reviews on preliminary and detailed design documents related to system configuration, tunnel and shaft excavation and lining, diversion structures and outfalls.

Jeff Austin, PE

ELECTRICAL

Jeff has a combined 28 years of experience as a commercial electrician and as an electrical engineer. Engineering experience includes generator test witnessing, solar DC and AC design, managing electrical teams, performing design calculations such as Arc-Flash Analysis, Short Circuit Analysis, Load Flow Analysis, Motor Starting Analysis, Relay Coordination, Cable Sizing, Ground Grid Sizing and more. Jeff has also written equipment technical specifications and created one-line diagrams, three-line diagrams, metering and relay diagrams, schematics and wiring diagrams.

PROJECT EXPERIENCE

Florida Power and Light (FPL) | FP&L Martin Tank Conversion; FL

Lead Electrical Engineer. Electrical design for converting a purge oil storage tank to a storage tank for Biodiesel fuel. Scope of project involves installing new MCC, new fuel unloading skid, new oil water separator and new instrumentation on tank. Supervised the development of schematics, wiring diagrams, raceway composites, grounding drawings, lighting drawings and design calculations.

PowerSecure | American Legion and Baker Solar PV Project; Roanoke Rapids, NC

Lead Electrical Engineer. Manage Electrical team of engineers and designers to create construction drawings for the purposes of building a Solar PV Plant. The drawings included design calculations, equipment specifications, one-line diagrams, three-line diagrams, communications diagrams, ground grid design, Combiner Box Layout, Inverter layout, DC and AC trench design, and MV details for point of interconnection with the utility.

Duke Energy | East Bend Arc Flash Mitigation; Union, KY

Lead Electrical Engineer. Managed team of electrical engineers to make necessary modifications to plant drawings to replace old electromechanical relays with solid state relays for selected medium voltage breakers and add maintenance switches to reduce the arc flash hazard at these breaker locations. I also supervised creating relay settings sheets and files for the newly installed relays. The drawings modified included one-line diagrams, three- line diagrams, schematics and wiring diagrams.

OFFICE LOCATION

Cary, NC

EDUCATION

- BS, Electrical Engineering, Power, Georgia Institute of Technology, 2000
- Associates, Engineering General, Gainesville College, 1997

YEARS EXPERIENCE

28

PROFESSIONAL REGISTRATION

- PE - #29869, AL, 2008
- PE - #25992, KY, 2008
- PE - #17340, WV, 2007
- PE - #32645, NC, 2007

Jon Dinges, PE

CLIMATE CHANGE ADAPTATION/ STORMWATER CONTROL

Jon has more than 27 years of experience in civil and environmental engineering with a water resources focus. His extensive water resources experience includes more than 15 years of water management district experience where he served in multiple roles, including management and executive responsibilities. Jon's public-sector program and project experience includes storm water, floodplain restoration and management, water supply assessment and planning, water quality improvement, hydrologic assessment and restoration, establishment of minimum flows and levels, modernization of water resource data collection and management systems, natural systems restoration, and resource management planning.

OFFICE LOCATION
Florida (Virtual)

EDUCATION
- BS, Environmental Engineering, Water Resources, University of Florida, 1994
- AA, Pre-Engineering, FL Gateway College, 1991

YEARS EXPERIENCE
28

PROFESSIONAL REGISTRATION
- PE – 1999, FL 54747

PROJECT EXPERIENCE

City of Winter Haven One Water Master Plan | Polk County, FL |

Project Manager. The Winter Haven One Water Master Plan is a comprehensive, watershed-based planning approach to address the challenges of rapid development in a region with impaired waters and hydrologically-impacted natural systems. This project involves planning all aspects of Winter Haven's water future in a 50-year timeframe including water, wastewater, and reclaimed water systems, stormwater assessment, watershed restoration, and management strategies for improving water quality of impaired waters. Essential elements of the planning process include public and stakeholder engagement, stormwater and watershed planning, water conservation planning, water supply planning, alternative water supply development, water demand projections, projects optimization, project conceptualization, future land use planning, economic analysis of solutions, and funding plans.

South Florida Water Management District | Cutler Flow Way S-701 Pump Station CFD Modeling; FL

Project Manager. Black & Veatch, as a subcontractor to Northstar, was tasked with performing computational fluid dynamics modeling for the proposed Cutler Flow Way Pump Station. The project involved configuring the model, establishing the model domain, developing model simulation scenarios, evaluating alternatives to improve flow patterns in the vicinity of the intakes for the five proposed pumps, and preparing modeling documentation.

Sam Miller, PE

CLIMATE CHANGE ADAPTATION/ STORMWATER CONTROL

Sam joined Black & Veatch in 2017 and has worked on several different types of projects ranging from solar but primarily civil/site roles and water resource project. He has developed experience in Grading, Stormwater modelling, yard piping, Site Design, master planning, environmental permitting, and construction phase services.

OFFICE LOCATION
Orlando, FL

EDUCATION
- MEng, Energy System Engineering, Water Resources, Lehigh University, 2015
- BS, Environmental Engineering, Water Treatment, Wilkes University, 2014

YEARS EXPERIENCE
7

PROFESSIONAL REGISTRATION
- PE – 2020, FL, PE089926

PROJECT EXPERIENCE

City of Winter Haven | One Water Master Plan; Winter Haven, FL

Project Engineer. Responsibilities included development of high-level population and demand projections and conceptualization of an integrated hydrologic model to be implemented as part of phase 2B scope of work. Additional support included coordination between the land use planning and population projection team.

City of Cape Coral | Cape Coral Utilities Extension Program; Fort Myers, FL

Stormwater Designer. This project involved the coordination on stormwater design criteria and evaluation of over 300 catch basins for pipe upsizing and catch-basin design.

Florida Fish and Wildlife Commission | Dinner Island Wildlife Management Area Hydrologic Restoration; Clewiston, FL

Engineering Manager. This project involved collection of survey and geotechnical data and assessment of existing conditions for preliminary design of hydrologic restoration plans. Black & Veatch prepared a preliminary design report with restoration drawings and concepts to implement the restoration master plan.

South Florida Water Management District | Cutler Bay CFD Project; Miami, FL

Project Engineer. Developed alternative scenarios for the CFD model and supported the team with data collection and developing model boundary conditions.

Jena Mier, PWS, PMP

ENVIRONMENTAL ASSESSMENTS/HABITAT EVALUATIONS/PERMITTING

Jena has more than 30 years of experience in environmental resource permitting and licensing, with 12 years of energy project experience, providing environmental project management for large scale energy projects including solar energy centers, transmission lines, natural gas pipelines, and power plants. She experience includes providing environmental guidance to clients throughout the project life cycle, from early in project development with siting and design, through permitting and construction, to post-construction monitoring and reporting. Jena is a certified Professional Wetland Scientist and Project Management Professional.

OFFICE LOCATION
Florida (Virtual)

EDUCATION
BA, Marine Science/Biology, University of Tampa, 1985

YEARS EXPERIENCE
36

PROFESSIONAL REGISTRATION
- Project Management Professional | Certification, Professional Wetland Scientist

PROJECT EXPERIENCE

Duke Energy Florida | Bay Ranch Solar; FL

Project Manager. The project manager responsible for obtaining state and local permits for the new 74.9 MW solar facility in Bay County, Florida.

Orlando Utilities Commission | St Cloud East to Magnolia Ranch Transmission Line; Orange & Osceola Counties, FL

Environmental Consultant. Drafted the Transmission Line Siting Act permit application for a new 230 kV transmission line extending approximately 21 miles in Orange and Osceola Counties, Florida.

Florida Power & Light Company | Multiple Solar Energy Centers; FL

Senior Environmental Services Project Manager. Responsible for managing the environmental permitting of several 74.9 MW solar facility projects in Florida, including Twin Lakes Solar Energy Center in Putnam County, Echo River Solar Energy Center in Suwanee County, Magnolia Springs Solar Energy Center in Clay County, Egret Solar Energy Center in Baker County, Discovery Solar Energy Center in Brevard County, Union Springs Solar Energy Center in Union County, and Nassau Solar Energy Center in Nassau County.

NextEra Energy, Inc | Mountain Valley Pipeline; VA

Environmental Services Manager. Served as the Environmental Project Manager representing NextEra for the review and coordination FERC licensing, and USACE and state permitting process for the new 303-mile new natural gas pipeline in West Virginia and Virginia. Responsible for negotiating the approval of an easement with the Virginia Outdoors Foundation to allow the pipeline cross over conservation lands.

Erica Ann Dorn

ENVIRONMENTAL ASSESSMENTS/HABITAT EVALUATIONS/PERMITTING

Erica Dorn is a Natural Resources Biologist within Black & Veatch's Power business and Environmental Services group. Ms. Dorn's main responsibilities include assessing wetland and other environmental impacts, and assisting clients with local, state, and federal permitting strategy for power delivery, oil, and natural gas projects across the United States. Ms. Dorn has over 11 years of direct regulatory experience with Environmental Resource Permitting (ERP) and Compliance related work within the state of Florida.

PROJECT EXPERIENCE

Orlando Utilities Commission (OUC) | OUC Weber to Pershing 230 kV Transmission Line Project; Orlando, FL

Biologist/ Regulatory Specialist. Prepared State Environmental Resource Permit Applications, U.S. Army Corps of Engineers Applications, Gopher Tortoise Removal Applications, and NPDES Construction Generic Permit Applications, performed gopher tortoise trapping and monitoring, and performed weekly SWPPP construction inspections for multiple phases of the project.

JEA; JEA Patrol Roads | Jacksonville, FL

Biologist/ Regulatory Specialist. Served as Environmental Lead on Project. Conducted wetland delineations and completed Threatened and Endangered Species surveys on 3 separate JEA Patrol Roads Project Sites. Prepared State Environmental Resource Permit Applications, U.S. Army Corps of Engineers Applications, FAA Applications, and Gopher Tortoise Removal Applications.

Environmental Resource Permitting (ERP) and Compliance Review at State Agency; Maitland, FL

Regulatory Scientist II. Responsible for processing of moderate to complex Environmental Resource Permits, conducting compliance/enforcement related inspections and providing compliance assistance to permit holders and other facilities regulated by the District's Environmental Resource and Consumptive Use Permitting Programs, conducting jurisdictional wetland determinations, evaluating mitigation areas, preparing technical staff reports, assisting applicants with pre-application conversations/meetings, reviewing construction plans, and assessing sites for proposed environmental impacts.

OFFICE LOCATION
Tennessee (Virtual)

EDUCATION
- BS, Environmental Biology, State University of New York College of Environmental Science and Forestry, 2006

YEARS EXPERIENCE
16

PROFESSIONAL REGISTRATION
Certification, Florida Stormwater, Erosion, and Sedimentation Control Inspector (FSESCI) Qualification Program, #20045- FL

Steve King, PE

ENVIRONMENTAL ASSESSMENTS/HABITAT EVALUATIONS/PERMITTING

Steve has gained a variety of experience in Civil Engineering and Project Management since graduating. Design projects have included many different types of water/wastewater projects including: RO WTP upgrades, RO WTP studies, energy efficiency studies, WTP pump stations, Ground Storage Tanks, water and wastewater plant design, project management, utility investigation, water supply, pipeline design, regulatory compliance and permit preparation and review.

He has extensive experience obtaining regulatory approvals for a variety of water and wastewater projects. Prior experience includes working as Permitting Supervisor during a seven-year employment with FDEP.

PROJECT EXPERIENCE

Tampa Bay Water | Desalination Facility Pump Station and Piping Repair (Design-Build); Tampa, FL

Engineering Manager. Responsibilities include civil and mechanical design of a replacement desalination pump station and leading the engineering team's efforts. The project involves new suction, discharge and concentrate piping and a new concentrate splitter box. Duties also have also included leading the permitting efforts, including the Environmental Resource Permitting (ERP), FL Department of Environmental Protection (FDEP) Potable Water Construction Permitting, Hillsborough County Development Services Site Plan Review and Building Department Permitting, and FDEP Dewatering Notice of Intent.

Tampa Bay Water | Wellfield Assessment Update; Multiple Counties, FL

Staff Engineer. The updated summary report for 2010 and 2011 is an update of action items and remediation activities that were presented in the previous year's reports. This 2011 report presents updated information on the progress of action items with revised tables and a discussion of each remediation project's status. The duties included review of the 2010 report, coordination of new environmental site reports for each well/wellfield, gathering updated data on the sites identified in the 2010 report from state databases and a file review office visit to Hillsborough County's Environmental Protection Commission office. Duties also included writing the report, interpreting groundwater and soil sample data, updating the tables and appendices, and formatting the report for delivery to the client.

OFFICE LOCATION
Tampa, FL

EDUCATION
- BS, Chemical Engineering, University of South Florida, 1998

YEARS EXPERIENCE
22

PROFESSIONAL REGISTRATION
- PE – 2012, FL, 74954

Tommy Crenshaw, PE

ENVIRONMENTAL ASSESSMENTS/HABITAT EVALUATIONS/PERMITTING

Tommy is a dedicated Civil/Environmental Engineer with passion for designing and assessing the environmental impact of engineering plans. Experience in reviewing water and wastewater projects, writing water quality monitoring technical reports, and improving environmental issues with environmental regulations. Strong prioritizing skills with the ability to meet deadlines with clear deliverables.

OFFICE LOCATION
Coral Springs, FL

EDUCATION
- BS, Environmental Engineering, Florida Gulf Coast University, 2017

YEARS EXPERIENCE
5

PROFESSIONAL REGISTRATION
- PE – 2021, FL, PE092833

PROJECT EXPERIENCE

Broward County | Domestic Wastewater Program Wastewater Construction License Review; Broward County, FL

Staff Engineer. Review of wastewater construction permit applications, provide RFIs to consultants, and verify calculations for various projects ranging from neighborhood improvement projects to water reuse main extensions.

Broward County | NPDES Permit Coordination; Broward County, FL

Staff Engineer. Communication and coordination with staff from 26 municipalities in Broward County for various NPDES permit requirements including water quality monitoring program, pollutant loading reduction activities, proactive/reactive inspection program, and public outreach events.

Broward County | Annual Ambient Water Quality Monitoring Report; Broward County, FL

Staff Engineer. Data analysis of 5 continuous monitoring sites across the major waterways of Broward County. Data analyzed against rainfall records to provide ambient water quality parameters and assess monitoring assessment plan effectiveness at meeting TMDL requirements.

Broward County | Pollutant Loading Calculations and Analysis; Broward County, FL

Staff Engineer. NPDES permit annual reporting requirement to evaluate 26 municipalities as well as Broward County's monitoring assessment plan submitted previously. Calculated pollutant loading based on GIS land use and drainage areas for major outfalls located in each municipality and compared with previous permit cycle loading rates.

Jeff Beriswill, PE

GEOTECHNICAL DESIGN

Jeff has more than 30 years of geotechnical design and construction experience. His expertise includes numerous types of solid waste facilities, water supply reservoirs, process water cooling ponds, phosphogypsum stack expansions and closures, and mine tailings within a variety of geologic settings. In addition, he has been involved in both dam rehabilitation projects and annual dam inspections. He has also been involved in geotechnical investigations and foundation designs for a variety of structures such as pipelines, intake structures, retaining walls, spillways, and commercial buildings. He has been responsible for the design and construction QA/QC of soil-cement and roller compacted concrete dam facings. His experience includes the design of construction shoring systems, cofferdams, and several deep cutoff wall systems.

OFFICE LOCATION
Tampa, FL

EDUCATION
- MS, Civil Engineering (Geotechnical), University of Florida, 1987
- BS, Civil Engineering, University of Florida, 1984

YEARS EXPERIENCE
37

PROFESSIONAL REGISTRATION
- PE – FL, 41823
- PE – IL, 062067791
- PE – MO, 2010039814
- PE – NC, 022671

PROJECT EXPERIENCE

South Florida Water Management District | C-43 Reservoir Package 4 Engineering During Construction; La Belle, FL

Project Manager. Providing Engineering During Construction (EDC) services for the $530 million construction of 19 miles of reservoir embankment, canal improvements, and 15 ancillary water control structures for the 10,500-acre C-43 Reservoir located adjacent to the Caloosahatchee River. The dam is an earthen embankment with soil-cement slope protection within the interior. Seepage control consists of an approximately 70-foot deep soil-bentonite cutoff wall, vertical chimney and horizontal sand drains, and a toe drain. Work includes review of submittals and requests for information by the contractor, evaluation of potential change orders and value engineering proposals, and completion of design changes, as required. Full-time resident engineers verify and review results of the contractor's quality control program and the District's quality assurance program.

Palm Beach Aggregates, LLC | C-51 Phase 1 Reservoir Detailed Design & Construction EDC services, Palm Beach Aggregates, LLC, Palm Beach County, FL

Project Manager. Black & Veatch is providing final design and Engineering During Construction (EDC) services on the C-51 Phase 1 Reservoir. This reservoir is the first of two phases of a predominately below-grade water storage reservoir. It has a storage volume of 16,000 acre-ft, approximately 20,000 lineal-foot (lf) perimeter embankment consisting of about 14,000 lf of earthen embankment and 6,000 lf of roller compacted concrete (RCC). The earthen embankment section will be constructed with compacted on-site borrow fill material.

Mark Chomtid, PHD, PE

GEOTECHNICAL DESIGN

Mark has more than 20 years of engineering experience mainly focused on geotechnical engineering. He has had technical responsibility for more than 500 public and private projects, as well as more than 1,500 sinkhole investigations throughout Florida. He has extensive experience in design, construction and inspection of earthen embankments including levees, reservoirs and phosphatic clay settling area. His responsibilities have included overseeing geotechnical engineers, geologists, and scientists specializing in geotechnical investigation, design and construction. He also has comprehensive background in investigating and remediating sinkhole-impacted structures and resolving other settlement challenges. He has worked extensively with clients and contractors to resolve construction difficulties and determine viable solutions.

PROJECT EXPERIENCE

Palm Beach Aggregates, LLC | C-51 Reservoir; Palm Beach County, FL

Geotechnical Engineer. Responsible for the geotechnical design and preparation of construction drawings for a water supply reservoir with more than 70,000 acre-feet of storage volume constructed in a limestone quarry. The project includes approximately 250,000 cubic yards of roller compacted concrete within a 6,000-foot long overflow spillway and the interior slope of the perimeter embankment.

Southwest Florida Water Management District | Medard Reservoir Piezometer Data Analysis; Plant City, FL

Senior Geotechnical Engineer. Assisted SWFWMD in compiling, summarizing, evaluating, and reporting piezometer and underdrain seepage flow data. Instrumentation measurements were taken by the client monthly. Provided quarterly reports summarizing the data and comparing it with reservoir operations and historical performance. Identified critical piezometers for automated monitoring and reporting using SCADA.

South Florida Water Management District (SFWMD) | L-40/L-85 Levee; Palm Beach County, FL

Senior Geotechnical Engineer. Responsible for the geotechnical investigations and analyses of as-built sections for seepage, stability, and settlement of the L-40/L-85 levee system consisting of approximately 30 miles of levees constructed from the 1950s to the 2000s in Palm Beach County. The purpose of the study was to assess the levee system in accordance with FEMA's requirements provided in 44 CFR 65.10.

OFFICE LOCATION
Tampa, FL

EDUCATION
- PhD, Geotechnical Engineering, University of Texas at Arlington, 2003
- MS, Geotechnical Engineering, University of Texas at Arlington, 2000
- BS, Civil Engineering, Kasetsart University, 1995

YEARS EXPERIENCE
24

PROFESSIONAL REGISTRATION
- PE – FL, 66256

Tammy Martin, PE

PROCUREMENT SUPPORT

Tammy is an engineering manager and environmental engineer with 13 years of experience and knowledge of water and wastewater engineering and pump station mechanical process design. She has served as project engineer on many environmental engineering projects including stormwater design, permitting, and construction management. Tammy is proficient with WaterGEMS modeling, HEC-RAS modeling, and Arc GIS. She has participated in detailed design and construction of alternative delivery methods (design/build/operate).

OFFICE LOCATION
Coral Springs, FL

EDUCATION
- BS, Civil Engineering, FL Atlantic University, 2005

YEARS EXPERIENCE
16

PROFESSIONAL REGISTRATION
- PE – 2011, FL, 73892

PROJECT EXPERIENCE

Miami-Dade Water and Sewer Department | South District Wastewater Treatment Plant Electrical Distribution Building 3; Miami, FL

Engineering Manager. Managed the design of a new electrical distribution building at the plant. The project includes a new 45,000 square foot building with 10 generators and decommissioning of existing Electrical Distribution Building 1 with redistribution of the loads to the remaining buildings.

SFWMD | Golden Gate 4 Weir Replacement; Collier County, FL

Engineering Manager. Managed the design and provided engineering services during construction of a new water control structure to replace an existing manual weir structure. The new structure consists of two automated roller gates, an overflow weir structure and new control building.

City of Key West| Dennis Street Storm Water Improvements Pump Station Phase I and Phase II; Key West, FL

Engineering Manager. Managed the design of a 5,000 gpm stormwater pump station and 750 LF of discharge pipeline.

City of Deerfield Beach | Water Treatment Plant General Engineering Services; Deerfield Beach, FL

Engineering Manager. Assisted the rehabilitation of the lime softening basin and the development of the AMR/AMI Strategy for the Utility.

Melody Gonzalez, EI

CONSTRUCTION INSPECTIONS

Melody is a project engineer with over three years of experience in civil design, including yard piping, route analysis, composing preliminary engineering reports, pipeline design of various sizes, permitting and construction management services. She has also served as design engineer on several water and wastewater treatment plant projects.

PROJECT EXPERIENCE

Seacoast Utility Authority (SUA) | Palm Beach Gardens, FL

Project Engineer. Project engineer on internal procedure coordination (QA) for multiple projects with this client including but not limited to: SUA SCADA Technical Support on-Call, SCADA System Evaluation, Reclaimed Water RTU Conversion, PGA WWTP Lucity Implementation, WWLS RTU Conversion. Responsible to developing project execution plan, health and safety procedure, workflow model, and related internal project documentation.

Miami-Dade Water and Sewer Department (MDWASD) Preston WTP High Service Pump Room Electrical Upgrades; Miami, FL

Project Engineer. Worked as a project engineer on the electrical improvements at Preston Water Treatment Plant. Ms. Gonzalez is assisting the development and editing of technical specifications, and basis of design reports. Also responsible for coordinating design submittal packages.

Miami-Dade Water and Sewer Department | NT-2C & NE-1 – NDWWTP High Level Disinfection (HLD) and HLD Injection Well Pump; Miami, FL

Project Engineer. Assisted in the design of the High-Level Disinfection facilities at the North District Wastewater Treatment Plant to the meet the Ocean Outfall Legislation. The project consists of the design of new 80 mgd outside-in type cloth media disk filters facility, sodium hypochlorite facility, chlorine contact tanks, injection well pump station, new roads, utilities, stormwater collection and conveyance and a sanitary sewer lift station.

Lee County- Hazen and Sawyer | Fiesta Village WWTP RM Upgrade & Deep Injection Well & FMB WWTP Deep Injection Well #2; Venice, FL

Design Engineer. This project consists on a new pipeline to be constructed between the FMB WRF and FV WRF to convey RJW from either plant to either DIW as backup disposal for each plant for times the DIW is out of service. Serves as the civil design lead for the placement of the 24-inch reuse line in charge of plan and profile pipeline design and HDD calculations and design.

OFFICE LOCATION
Coral Gables, FL

EDUCATION
- BS, Civil Engineering, Florida International University, 2018

YEARS EXPERIENCE
4

PROFESSIONAL REGISTRATION
- EI – 2019, FL, 1100022422

Melody has provided design and construction support services on the following projects for City of Key West:

- Dennis Street Storm Water Improvements Pump Station
- Key West Dewatering Design & Bid Services
- Key West RAS WAS Pumps Replacement

Casey Suarez, EI

CONSTRUCTION ADMINISTRATION

Casey is a Geotechnical Engineering Professional with 5 years of experience in aspects of geotechnical engineering, phosphate and limestone mining and processing industry, construction inspection, dam inspection, and materials testing. His responsibilities have included the design of earthen embankment dams and phosphogypsum stacks, analysis and evaluation of field data, analysis of subsurface field investigations, modeling seepage and stability conditions, field inspection and oversight of earthen embankment construction, conducting and overseeing construction material testing, planning and construction of groundwater monitoring wells, and materials engineering and testing.

OFFICE LOCATION
Tampa, Florida

EDUCATION
- BS, Geological Engineering, The University of Mississippi, 2016

YEARS EXPERIENCE
8

PROJECT EXPERIENCE

Palm Beach Aggregates, LLC (PBA) | C-51 Reservoir Phase I; Loxahatchee, FL

Geotechnical Engineering Professional. Responsible for the geotechnical engineering during construction for a water supply reservoir with more than 70,000 acre-feet of storage volume constructed in a limestone quarry. The project includes approximately 250,000 cubic yards of roller compacted concrete within a 6,000-foot long overflow spillway and the interior slope of the perimeter embankment.

Southwest Florida Water Management District (SWFWMD) | Medard Reservoir Piezometer Data Analysis and Dam Inspection; Plant City, FL

Geotechnical Engineering Professional. Performed quarterly dam inspections and assisted SWFWMD in compiling, summarizing, evaluating, and reporting piezometer and underdrain seepage flow data. Provided quarterly reports summarizing the data and comparing it with reservoir operations and historical performance. Identified critical piezometers for automated monitoring and reporting using SCADA.

Itafos Conda Phosphate Operation (Itafos CPO) | Phosphogypsum Stack and Tailings Pond Design, Operations, and Inspections; Caribou County, ID

Geotechnical Engineering Professional. Assisted with managing field and lab materials testing for gypsum stack and tailings pond construction. Performed field inspection and documentation for earthworks activities. Monitored construction activities and managed day-to-day quality assurance/quality control for many projects, including: Phase I, Phase II, and TP-3 Phosphogypsum Stack Construction. Tailings Pond 4 (TP-4) Construction.

Jeff Thompson

CONSTRUCTION INSPECTION

OFFICE LOCATION
Leroy, AL

YEARS EXPERIENCE
28

Jeff has over 35 years of construction experience including the last six years with building a 60 MGD waste water pumping station and refurbishing 28 MGD waste water outfall pumps. Prior to that his experience was mainly in power production building gas turbine cogeneration units, heat recovery steam generators (HRSGs), coal fueled units and two Solar Array installations. Experienced at the installation of most types of piping systems, experienced at setting, aligning and grouting many different types of pumps, proficient at electrical and mechanical installations and experienced at start ups. Experienced working with P6 schedules, cost reports, estimates, work packages, drawing and design review, material procurement, tracking and receiving, change controls, request for information (RFIs), proficient at updating drawings 'as-built'.

PROJECT EXPERIENCE

City of Charleston; Spring/Fishburne Project phase 3; Charleston, SC

Construction Inspector. Inspection of daily mining, tunneling and concrete placement activities. Track progress and report any deviations from drawings or submittals. Support the contractors work schedule by quickly turning around RFI's and answering other field questions. Also assist contractor with resolving daily safety issues that arise.

Charleston Water Systems; West Ashley Sewer Tunnel Project; Charleston, SC

Quality Inspector. Oversee the concrete placement for all pump foundations, inspected setting & alignment of the 60 MGD pumps and installation and connection of the suction and discharge piping as well as all tunnel and shaft construction for CWS including civil, structural, electrical and mechanical. Ensure adherence to the specifications and drawings by the contractor. Attend and participate in tool box meetings, comment on RFI responses and track daily progress.

Florida Power & Light; Manatee Solar Project; Parrish, FL

Quality Control Inspector. Responsibilities include inspections and documentation of pile driving, mechanical racking assembly, solar PV module installation, AC and DC cable installation above ground and below ground as well as SCADA checkout. Trenching inspection, concrete foundation and rebar inspection, Substation and control building inspections, wire harness installation, AC/DC inverter inspection.

Craig Peterman

CONSTRUCTION INSPECTIONS

Craig's experience includes overall management of field activities of construction projects, including the administration of the quality assurance and program control on a variety of projects

OFFICE LOCATION
Missouri (Field)

EDUCATION
- BS, Civil Engineering, Water/ Construction, Missouri University of Science & Technology, 2016

YEARS EXPERIENCE
20

PROFESSIONAL REGISTRATION
- N/A

PROJECT EXPERIENCE

Palm Beach Aggregates | C-51 Reservoir

Project Manager. The Project is to connect the existing L-8 FEB to the newly constructed C-51 Reservoir (C-51). This will facilitate water supply deliveries between the C-51 and the L-8 FEB. Operating in concert, the L-8 FEB and C-51 can meet water supply deliveries for participating utilities and provide environmental benefits.

Two 96-inch (in) inside diameter (I.D.) centrifugally cast, fiberglass-reinforced, polymer mortar (CCFRPM) pipes will connect C-51 to the L-8 FEB and enable bi-directional, gravity flow between the L-8 FEB and C-51.

City of Springfield | Southwest Clean Water Plant Biosolids Treatment Improvements; Springfield, MO

Construction Manager II. Work closely with the City of Springfield to maximize efficiency and productivity with the new construction and upgrades of the Southwest wastewater treatment plant. Oversee all onsite and offsite construction to monitor compliance with building and safety regulations. Coordinate and construction workers and subcontractors. Meet contractual conditions of performance. Review the work progress on a daily basis. Analyze, manage and migrate risk. Ensure quality construction standards and the use of proper construction techniques

City of Columbia | Southwest Clean Water Plant Biosolids Treatment Improvements; Springfield, MO

Construction Manager II. Work closely with the City of Springfield to maximize efficiency and productivity with the new construction and upgrades of the Southwest wastewater treatment plant. Oversee all onsite and offsite construction to monitor compliance with building and safety regulations. Coordinate and construction workers and subcontractors. Meet contractual conditions of performance. Review the work progress on a daily basis. Analyze, manage and migrate risk. Ensure quality construction standards and the use of proper construction techniques.

George Joyce, **PMP, PE**

CONSTRUCTABILITY

Results-driven senior sales professional with experience in water/wastewater infrastructure sales, management, marketing, training and strategic planning. Proven record of accomplishment of significant contribution to profit levels and productivity by developing, training and motivating a successful technical team. Dynamic leader and motivator using an effective combination of analytical and interpersonal skills. Talent for building multi-functional teams while facilitating change management.

OFFICE LOCATION
Florida (Virtual)

EDUCATION
- MS, Engineering and Environmental Management, Air Force Institute of Technology, Dayton, OH
- BS Civil Engineering, United States Air Force Academy, Colorado Springs, CO

YEARS EXPERIENCE
25

PROFESSIONAL REGISTRATION
- PE – FL, CA
- Project Management Professional
- American Society of Quality Certified Manager of Quality/ Organizational Excellence

PROJECT EXPERIENCE

City of Cape Coral | W-8 Transmission Pipeline and Pumping Stations, Program Manager at Risk Services; Cape Coral, FL

Project Manager. Project manager who led engineering and contract document preparation for bidding preconstruction services during the design and construction bidding phases. The project included 70,000 feet of wastewater and reclaimed water transmission pipelines (6 to 36 inches in diameter) and two 5,200-gpm peak-hour-flow pump stations with associated stand-by generators and odor control. The project also included designing approximately 105,000 feet of water transmission pipelines (8 to 42 inches in diameter) to connect new production wells and treatment facilities with the existing and expanded infrastructure.

City of Tampa | Blue Sink & Tampa Bypass Canal Diversion MFL Pumping Station; Tampa, FL

Project Manager. The development of design alternatives and opinions of probable construction costs for three pumping stations to deliver flow from alternative water sources to meet the minimum flow requirements at the Lower Hillsborough River.

City of Cape Coral | Lake Kennedy Canal Pumping Station; Cape Coral, FL

Project Manager. For design of the Lake Kennedy Canal Pumping Station, a 20,000-gpm canal pumping station supplies reclaimed water to customers connected to the irrigation distribution system of the Utility Extension Program. The project included an intake structure, a main building subdivided to contain a pump/strainer room, a chemical storage area, and an electrical room, as well as site facilities, such as an electrical transformer, fencing, pavement, and landscaping.

Roberto Santiago, PE

SCHEDULING

Roberto Santiago is a Professional Engineer certified by the Puerto Rico Department of State with twelve (12) years of experience. He has a Bachelor of Science in Civil Engineering from the University of Puerto Rico at Mayaguez, a university accredited by the Middle States Commission on Higher Education. Throughout his career he has worked on a wide range of water resource projects, solar energy and housing projects. His first four (4) years of experience were mainly in construction. He has acquired relevant experience in the pre-construction process as an employee of one of the top Architecture, Engineering, and Planning firms in Puerto Rico. However, his experience covers the complete life cycle of projects. As a Civil Engineer at Black & Veatch his main objective is to deliver projects with the required quality, with the least amount of resources, in the least amount of time and in the safest way, which, at the end of the equation, converts into the least amount of investment and higher client satisfaction.

OFFICE LOCATION
Orlando, FL

EDUCATION
- BS, Civil Engineering, University of Puerto Rico Mayaguez Campus, 2006, Puerto Rico

YEARS EXPERIENCE
16

PROFESSIONAL REGISTRATION
- PE – 2017, FL, 83928
- PE – 2011, PR (U.S.), 22520

PROJECT EXPERIENCE

South Water Reclamation Facility Phase 6A | Orlando, FL

Civil Engineer IV. Development of hydraulic profiles for flows through an 8 MGD aeration basin. Provided support for biological process modeling. General engineering disciplines and subconsultant engineering tasks coordination. Perform complex research and develop Civil Engineer IV - Black & Veatch. Development of hydraulic profiles for flows through an 8 MGD aeration basin. Provided support for biological process modeling. General engineering disciplines and subconsultant engineering tasks coordination. Perform complex research and develop recommendations for equipment and/or materials selection. Collect, assimilate, and manage data for engineering tasks. Prepare complex engineering calculations following standard methods and principles for 32,500 gpm firm capacity reclaim effluent pump station. Coordinate engineering design tasks between disciplines and subconsultants. Provide Project Management, Scheduling and Controls support.

City of Orlando Conserv II Water Reclamation Facility Preliminary Treatment System Improvements | Orlando, FL

Civil Engineer IV. Developed Hydraulic Profile for a 50 MGD preliminary treatment structure. Completed engineering calculations for sizing for 200 gpm grit pumps, 130 gpm screening conveying sluice channel supply pumps and 300 gpm drain pumps. Develop Preliminary Treatment Structure layout and space allocation. Performed calculation for sizing 6 mm perforated plate mechanical screens. Performed research and analysis to existing 9,000 gpm influent equalization pumps.

Clayton Glatt

CAD/GIS

Clayton is a BIM/CAD project lead for Black & Veatch water conveyance projects throughout Florida. With twenty (20) years of experience leveraging both CAD and GIS platforms across multiple engineering disciplines, Clayton can offer solutions for projects requiring any combination of detailed design and plan production, geospatial analysis, mapping, as-builts, and asset data organization.

PROJECT EXPERIENCE

City of Cape Coral | Utility Expansion Program; Cape Coral, FL

Supervising Designer. Lead designer for municipal utility expansion to 1,850 residential and commercial parcels. Design responsibilities include gravity sewer network layout for 216 manholes and 90,660 LF of pipelines, 205,000 LF of transmission and distribution water, irrigation, and force main pipelines, service laterals for 1,850 properties (water, irrigation and sewer), and storm drain modifications for 245 catch basins and 13,000 LF of pipe.

City of Cape Coral | Utility Expansion Program; Cape Coral, FL

Supervising Designer. Supervised team of designers and provided design, drawing production, and GIS mapping for more 720 miles of pipeline and 34 wastewater pump stations along 240 miles of residential roads including civil, mechanical, and structural drafting and design support for pump station and facility projects.

Los Angeles Department of Power and Water | Haiwee Reservoir Penstock

Supervising Designer. Lead design and plan production for 84" FRP penstock replacement totaling more than 9,500 LF; part of the Los Angeles city water aqueduct network.

Cape Fear Public Utilities Authority | FM Condition Assessment; Wilmington, NC

GIS Analyst. Using client GIS data, developed predictive models with ESRI ModelBuilder to assign likelihood and consequence of failure asset risk scores to identify vulnerable utility assets for field condition assessment and replacement.

OFFICE LOCATION

Lake Worth, FL

EDUCATION

- Geospatial and Database Technology, Edgecombe Community College, 2012

YEARS EXPERIENCE

22

Francesca McCann

GRANT COMPLIANCE

Francesca brings 20 years of commercial and financial leadership in the water and energy sectors. Francesca currently serves as Business Development Director for infraManagement Group (iMG), a Black & Veatch company. Her work with iMG includes project development and evaluation and optimization of funding and financing options, including new federal money from the American Rescue Plan Act (ARPA) and the Infrastructure Investment and Jobs Act (IIJA).

Francesca has an extensive network of industry contacts that includes investors, regulatory experts, policymakers, and publicly-traded and privately-held management teams. She has been featured in print and on television including the New York Times, Business Week, Barron's, Bloomberg and MSNBC. She frequently speaks at prominent water conferences in the U.S. and abroad.

OFFICE LOCATION
Washington, DC

EDUCATION
- MBA, International Finance, UCLA Anderson School
- BA, International Political-Economy, Colorado College

YEARS EXPERIENCE
22

PROJECT EXPERIENCE

Various water, Wastewater, and Stormwater Utilities

Project Manager. Developed comprehensive funding assessments and strategies for projects ranging from $8 million-$10 billion including:

- Evaluation of funding options, aligning project elements with specific objectives of various funding programs.
- Development of a strategy that best leverages multiple state and federal programs and matching funds.
- Assistance with grant and loan applications.

City of Memphis | Stormwater Management Funding Evaluation and Strategy; Memphis, TN

Project Manager. Black & Veatch/iMG developed a comprehensive funding evaluation and strategy for the City of Memphis' Stormwater Management Program. The evaluation identified and assessed federal, state and local grant and loan programs, as well as regional and private sector opportunities. The strategy detailed the best path forward to optimize funding programs and match local funding sources. Black & Veatch also assisted with a WIFIA Letter of Interest and is assisting with the WIFIA Application. Program size $90 million, WIFIA loan request 44.1 million.

Avirom & Associates, Inc.

William R. Evans, CST II

Senior Survey CAD Technician

Years with Avirom & Associates: 15
Total Years of Experience: 31

Education

1992 / Associate / Civil Technology
2010 / Bachelor of Science / Information Technology

Professional Experience

Bill Evans has been in the surveying industry since 1991. His experience includes working as a party chief, survey technician and an AutoCAD draftsperson. He is responsible for design surveys, topographic surveys, boundary surveys, control surveys and condominium documents.

Professional Projects

Keys Overnight Temporary Shelter, Stock Island – Boundary, Mean High-Water Line, Tree, and Topographic Survey; Aerial Mapping; Ground Control Jurisdictional Wetlands Mapping; Sketch and Description for proposed site

Monroe County Detention Center, Stock Island – Spot Elevations at Proposed Elevators, on-site and FEMA Elevation Certificates

Key West Streets – Patterson Avenue to Staples Avenue and Sunset Drive to 12th Street – Terrestrial LiDAR Scans of Various Streets in the vicinity of Salt Pond

Key West International Airport – Interior Topographic Scan of Fort with Underground Utility Locates

Isla Bella Resort, Marathon – ALTA/NSPS Land Title Survey and Mean High-Water Line Survey

Caloosa Cove, Lower Matecumbe Key – ALTA/NSPS Land Title Survey and Mean High-Water Line Survey

5O SW 2nd Avenue, Suite 102, Boca Raton, Florida 33432

Avirom & Associates, Inc.

Russel T. Dame

Party Chief

Years with Avirom & Associates: 29
Total Years of Experience: 37

Professional Experience

Russel Dame has been in the surveying field since 1983. He joined the Avirom & Associates team in 1991 and is an integral part of the firm's field crew staff. He is involved in making plane and/or geodetic surveys for construction, topographic, right-of-way and control survey projects; participates in pre-survey plan meetings with project managers and contractor representatives; assigns and monitors work and provides input for evaluation of members of the survey crew; instructs and trains crew members in surveying and mapping methods, use of equipment and field safety procedures. As a Party Chief, he gathers field survey data through use of conventional and Global Positioning System (GPS) methods; sets up, adjusts and operates surveying equipment, including electronic total station, data collector and GPS equipment, in order to measure distances, elevations and angles; prepares field notes and drawings; and performs field surveying for roadway, bridges, and flood control projects; including installing surveying construction stakes; tying out existing intersection ties, and locating or establishing vertical and horizontal control, right-of-way, monuments, corners, boundaries and property lines; provides survey information for Geographic Information System (GIS); and prepares finished grade sheets, topographic maps, records of survey, corner records and other survey reports.

Professional Projects

Key West International Airport – Boundary and Terrestrial LiDAR scan survey of the runway and taxiway; Topographic survey of Feraldo Circle, commercial apron, departure hall/restroom area (utilizing 3D scanner); detailed topographic survey of proposed EMAS system Runway 9; boundary survey; establish ground control on 13 ID points and 5 check points

Mallory Square, Key West – Bathymetric survey

Marathon Airport – Topographic survey of Rick Turner Airport access road; topographic and tree survey to support design of proposed car wash; topographic survey to support design of FDOT drainage pond; topographic survey for design of 11 hangars; specific purpose survey

Ocean Key Resort and Spa, 0 Duval Street, Key West – ALTA/NSPS Land Title Survey

Rest Beach, Key West – Boundary, topographic and mean high-water survey to FDEP permit requirements; map coastal vegetation

Home Depot, Key West – Terrestrial LiDAR scan survey

City of Key West –Topographic and route-of-line surveys of various streets throughout the city

Keys Overnight Temporary Shelter (KOTS) on Stock Island – Boundary survey, Mean High-Water Line Survey and Wetlands Delineation

East Martello Tower Fort – Topographic survey

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HP Consultants Inc.

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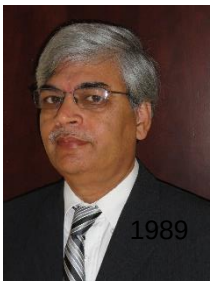
hpconsultantsinc@earthlink.net



Arvind S. Kumbhojkar, Ph.D., P.E
President and Principal Engineer

LICENSURE

Professional Engineer, State of Florida (License # 41067)

EDUCATION

▪ State University of NY at Buffalo, Buffalo, NY	Ph.D.	(Civil Engineering)	1987
▪ Rensselaer Polytechnic Institute, Troy, NY	M.S.	(Civil Engineering)	1982
▪ Walchand College of Engineering, Sangli, India	B.E.	(Civil Engineering)	1974

HONORS

- Diplomate, Geotechnical Engineer, American Society of Civil Engineering 2011
- Fellow, American Society of Civil Engineering 2009

EXPERIENCE

Dr. Kumbhojkar has 25+ years of experience in Geotechnical, Transportation, Value and Forensic Engineering, ITS, CEI, and Construction, and Program Management. He leads **HP Consultants Inc. (HPCI),** since **'02**. His career positions include Vice President, **Hughes & Huges Inc.**, Ft L. **('02)**, Geotechnical Dept Manager **PSI ('01-'02)**, Dy. Traffic Ops Engineer & SunGuide/ITS Administrator **FDOT D-6 ('94- '01),** and faculty of Civil & Arch. Engineering and leader of the Geotechnical group, **University of Miami ('86-'94)**. He is an internationally known expert in geotechnical and foundation engineering. His work on foundation design and field instrumentation is widely referred in geotechnical texts and handbooks, respectively. He has up-to-date knowledge of FDOT, AASHTO and ASTM standards/procedures and the Florida Building Code. At **PSI,** he served as the Manager-Engineer for more than 100 geotechnical projects for public and private sector clients. At **HPCI,** he has completed 400+ projects.

PAST AND PRESENT MEMBERSHIPS

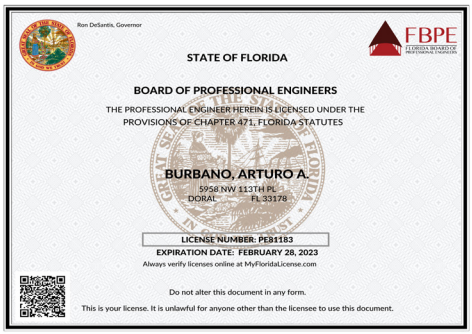
- Member, Technical Committee on Shallow Foundations, Geo Institute, ASCE
- Member, Technical Committee on Earth Retaining Structures, Geo Institute ASCE
- Former Member, LRFD Task Force, ASCE
- Former Member, Technical Committee on Applications of Emerging Technologies, A2F09, TRB
- Former Member, Technical Committee on Soil and Rock Instrumentation, A2K01, TRB
- Former Member, Water and Sewage Technical Committee on Lifeline Earthquake engineering, ASCE
- Former Member, Peer reviewer for Geotechnical J. of ASCE, J. of Plasticity, TRB committees
- Former Member, Federal Highway Administration's ITS Peer-to-Peer committee

MULTI-YEAR PROGRAMS FOR AS-NEEDED GEOTECHNICAL SERVICES

- Wastewater Treatment Plant related Ocean Outfall Legislation Program (MDWASD, CDM Smith) ongoing
  North Dist. WWTP ('20, '22), Central Dist. WWTP ('19, '22) South Dist. WWTP ('18 & '19),
- Continuing Services for Traffic, Roadway & Civil Engineering (Broward, Metric Engrg) '15-'19, '20- '24
  53 assignments, from '16- '22 ongoing, *investigations for mast arm drilled shafts, drilled shafts certifications, roadways, bulkheads*
- Environmental Clean-up & Compliance Services (URS/AECom, MD RER) '11- '16, '16- '21.
  39 assignments, 100+ monitoring well installations from 15' to 175' deep, cluster wells, well abandonments, soil sampling
- Misc. Marine & Coastal Engineering Services RFP 15-16-011 (City of Miami Moffat & Nichol)
  6 assignments for waterfront structures, bulkheads, offshore drilling for marinas, offshore pile driving inspections
- Alexander Orr Water Treatment Plant (WTP) Program (MDWASD, HDR) Ongoing *Two assignment*
- Alexander Orr Water Treatment Plant (WTP) Program (MDWASD, CDM Smith) '07- '18
  Nine assignments WTP enhancements, about 40 miles of 12/16/20/24/30/36/48-in. watermains, micro tunnels

LICENSES

Florida House Bill 1193, as passed by the Florida Legislature in the 2020 Regular Session, removes the requirement that a Professional Engineer, Geologist, or Architect obtain a separate business license in addition to the occupational license issued to the individual. There is no longer a license to obtain or renew as a company license. Black & Veatch and its subconsultants are listed on the State's current free registry and maintain "active" status. Below are the individual Florida professional licenses for our Key Team members.


Ron DeSantis, Governor

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BURBANO, ARTURO A.

5958 NW 113TH PL
DORAL FL 33178

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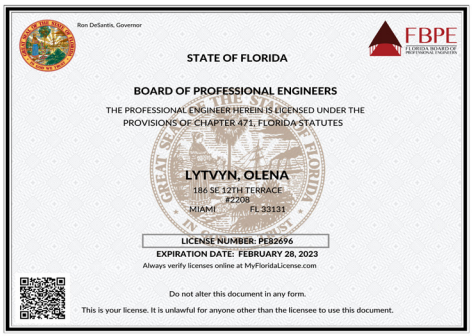
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LYTVYN, OLENA

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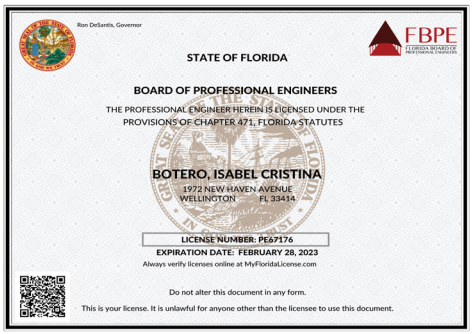
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BOTERO, ISABEL CRISTINA

1972 NEW HAVEN AVENUE
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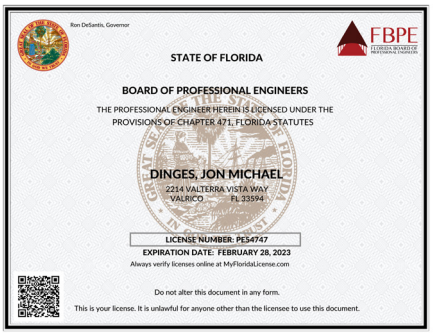
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DINGES, JON MICHAEL

2214 VALTERRA VISTA WAY
VALRICO FL 33594

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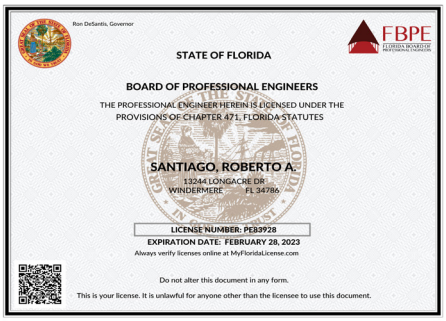
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SANTIAGO, ROBERTO A.

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WINDERMERE FL 34786

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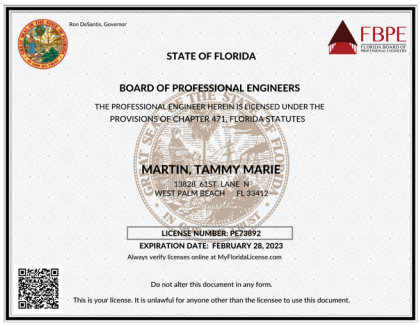
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MARTIN, TAMMY MARIE

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WEST PALM BEACH FL 33412

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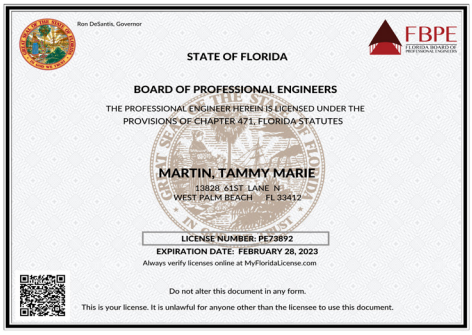
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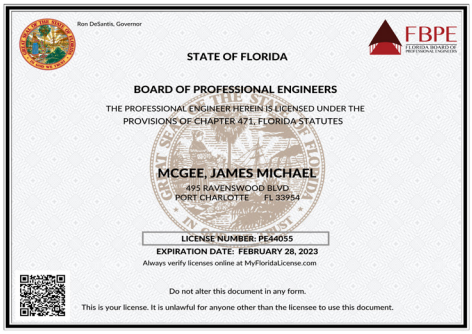
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MCGEE, JAMES MICHAEL

495 RAVENSWOOD BLVD
PORT CHARLOTTE FL 33954

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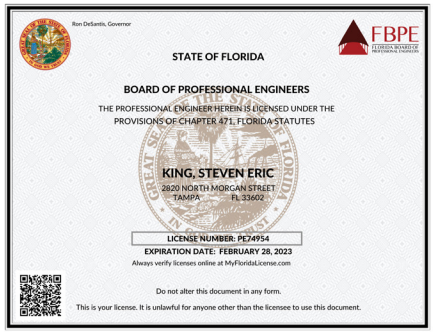
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KING, STEVEN ERIC

2820 NORTH MORGAN STREET
TAMPA FL 33602

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Board of Technical Professions

State of Kansas

Certifies That

Cary R. Hirner

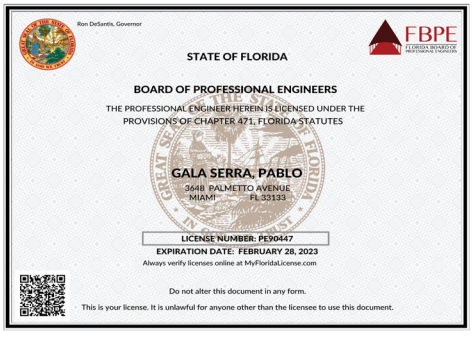
PROFESSIONAL ENGINEER, LICENSE NO. 15599

is licensed to practice in the State of Kansas

Chairperson

Secretary

Date July 19, 1999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GALA SERRA, PABLO

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MIAMI FL 33133

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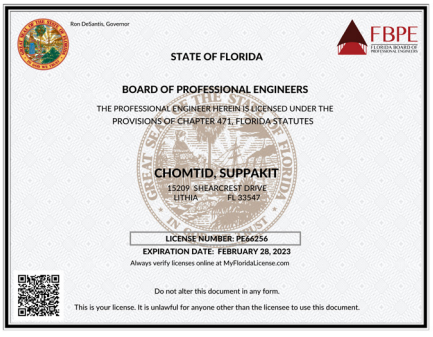
Ron DeSantis, Governor

FBPE

STATE OF FLORIDA

BOARD OF PROFESSIONAL ENGINEERS

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CHOMTID, SUPPAKIT

15209 SHEARCREST DRIVE
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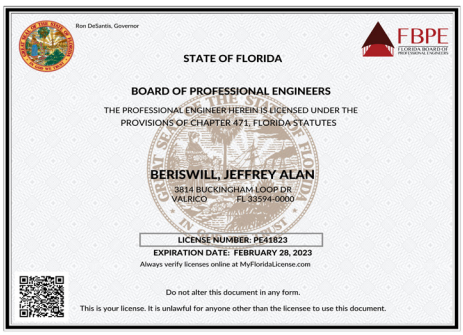
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BERISWILL, JEFFREY ALAN

3814 BUCKINGHAM LOOP DR
VALRICO FL 33594-0000

LICENSE NUMBER: PE41823

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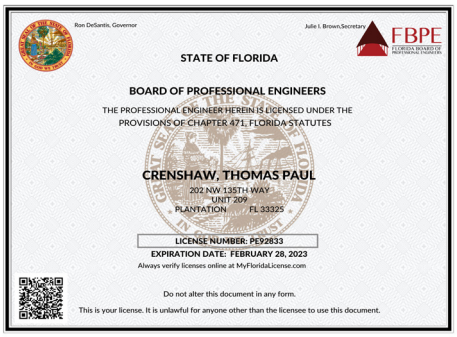
Ron DeSantis, Governor

Juliе I. Brown,Secretary

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CRENSHAW, THOMAS PAUL

202 NW 135TH WAY
UNIT 209
PLANTATION FL 33325

LICENSE NUMBER: PE92833

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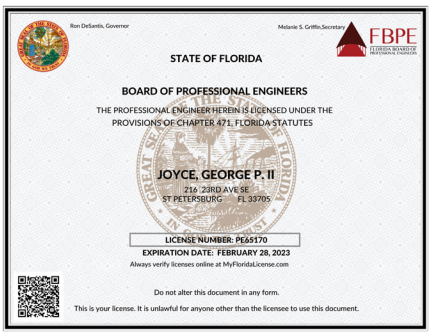
Ron DeSantis, Governor

Melanie S. Griffin,Secretary

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JOYCE, GEORGE P. II

216 23RD AVE SE
ST PETERSBURG FL 33705

LICENSE NUMBER: PE65170

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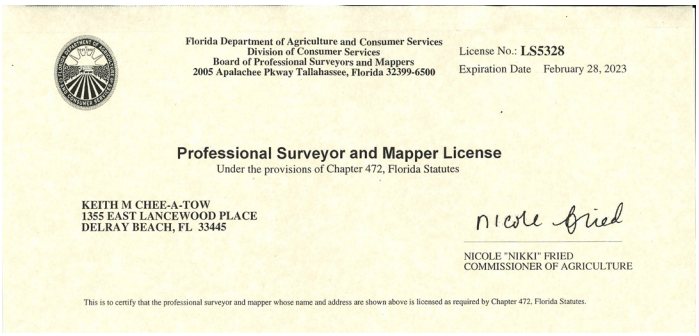

Florida Department of Agriculture and Consumer Services
Division of Consumer Services
Board of Professional Surveyors and Mappers
2005 Apalachee Pkway Tallahassee, Florida 32399-6500

License No.: LS5328

Expiration Date February 28, 2023

Professional Surveyor and Mapper License

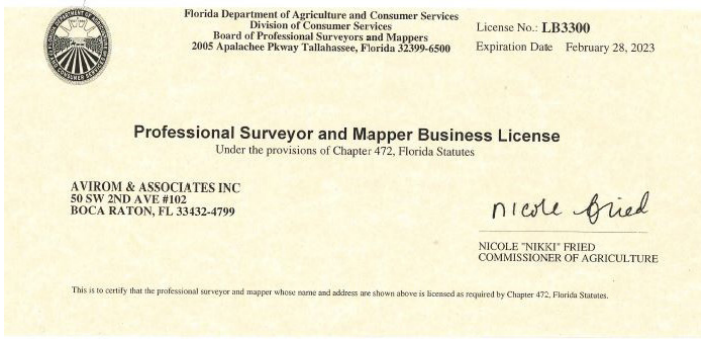
Under the provisions of Chapter 472, Florida Statutes

KEITH M CHEE-A-TOW
1355 EAST LANCEWOOD PLACE
DELRAY BEACH, FL 33445

nicole fried

NICOLE "NIKKI" FRIED
COMMISSIONER OF AGRICULTURE

This is to certify that the professional surveyor and mapper whose name and address are shown above is licensed as required by Chapter 472, Florida Statutes.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Division of Consumer Services
Board of Professional Surveyors and Mappers
2005 Apalachee Pkway Tallahassee, Florida 32399-6500

License No.: LB3300

Expiration Date February 28, 2023

Professional Surveyor and Mapper Business License

Under the provisions of Chapter 472, Florida Statutes

AVIROM & ASSOCIATES INC
50 SW 2ND AVE #102
BOCA RATON, FL 33432-4799

nicole fried

NICOLE "NIKKI" FRIED
COMMISSIONER OF AGRICULTURE

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

Licensee

Name:	**KUMBHOJKAR, ARVIND SADASHIV**	License Number:	**41067**
Rank:	**Professional Engineer**	License Expiration Date:	**02/28/2023**
Primary Status:	**Current**	Original License Date:	**02/09/1989**
Secondary Status:	**Active**		

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
9509	Current	HP CONSULTANTS, INC.	Registry	03/01/2005	Registry	

Page 1 of

Internal Services Department
Small Business Development
111 NW 1 Street, 19th Floor
Miami, Florida 33128
T 305-375-3111
F 305-375-3160

February 2, 2021

Arvind S. Kumbhojkar
HP Consultants Inc.
10220 SW 107 ST
MIAMI, FL 33176

Approval Date: January 12, 2021 - Small Business Enterprise - Architectural & Engineering (SBE-A&E)
Expiration Date: January 31, 2024

Dear Arvind S. Kumbhojkar,

Miami-Dade County Small Business Development (SBD), a division of the Internal Services Department (ISD) has completed the review of your application and attachments submitted for certification. Your firm is officially certified as a Miami-Dade County Small Business Enterprise - Architectural & Engineering (SBE-A&E). The Small Business Enterprise (SBE) programs are governed by sections 2-8.1.1.1.1; 2-8.1.1.1.2; 2-10.4.01; 10-33.02 of Miami-Dade County's Codes.

This Small Business Enterprise - Architectural & Engineering (SBE-A&E) certification is valid for three years provided that you submit a "Continuing Eligibility Affidavit" on or before your anniversary date, January 12, 2022. The affidavit must indicate any changes or no changes in your firm pertinent to your certification eligibility. The submittal of a "Continuing Eligibility Affidavit" annually with specific supporting documents on or before your Anniversary Date is required to maintain the three-year certification. You will be notified of this responsibility in advance of the Anniversary Date. Failure to comply with the said responsibilities may result in immediate action to decertify the firm.

If at any time there is a material change in the firm including, but not limited to, ownership, officers, director, scope of work being performed, daily operations, affiliation(s) with other businesses or the physical location of the firm, you must notify this office in writing within (30) days. Notification should include supporting documentation. You will receive timely instructions from this office as to how you should proceed, if necessary. This letter will be the only approval notification issued for the duration of your firm's three years' certification. If the firm attains graduation or becomes ineligible during the three-year certification period, you will be properly notified following an administrative process that your firm's certification has been removed pursuant to the code.

Your firm's name and tier level will be listed in the directory for all SBE certified firms, which can be accessed through Miami-Dade County's SBD website: http://www.miamidade.gov/smallbusiness/certification-lists.asp. The categories as listed below affords you the opportunity to bid and participate on contracts with Small Business Enterprise measures.

It is strongly recommended that you register your firm as a vendor with Miami-Dade County. To register, you may visit: http://www.miamidade.gov/procurement/vendor-registration.asp. Thank you for your interest in doing business with Miami-Dade County. If you have any questions or concerns, you may contact our office at 305-375-3111 or via email at sbdcert@miamidade.gov.

Sincerely,

Gary Hartfield
Director of Small Business Development

CATEGORIES: (Your firm may bid or participate on contracts only under these categories)

MDC-TCC 01-01: URBAN AREA AND REGIONAL TRANSPORTATION PLANNING
MDC-TCC 03-04: TRAFFIC ENGINEERING STUDIES
MDC-TCC 03-05: TRAFFIC COUNTS
MDC-TCC 03-06: TRAFFIC CALMING
MDC-TCC 03-07: TRAFFIC SIGNAL TIMING
MDC-TCC 03-08: INTELLIGENT TRANSPORTATION SYSTEM ANALYSIS, DESIGN, AND IMPLEMENTATION
MDC-TCC 03-09: SIGNING, PAVEMENT MARKING, AND CHANNELIZATION
MDC-TCC 08: TELECOMMUNICATION SYSTEMS

MDC-TCC 09-01: DRILLING, SUBSURFACE INVESTIGATIONS AND SEISMOGRAPHIC SERVICES
MDC-TCC 09-02: GEOTECHNICAL AND MATERIALS ENGINEERING SERVICES
MDC-TCC 16: GENERAL CIVIL ENGINEERING
MDC-TCC 17: ENGINEERING CONSTRUCTION MANAGEMENT
MDC-TCC 19-01: TRANSPORTATION PLANNING
MDC-TCC 19-03: HIGHWAY SYSTEMS
MDC-TCC 19-09: SOILS, FOUNDATIONS AND MATERIALS TESTING
MDC-TCC 19-16: GENERAL CIVIL ENGINEERING
NAICS 541330: ENGINEERING SERVICES

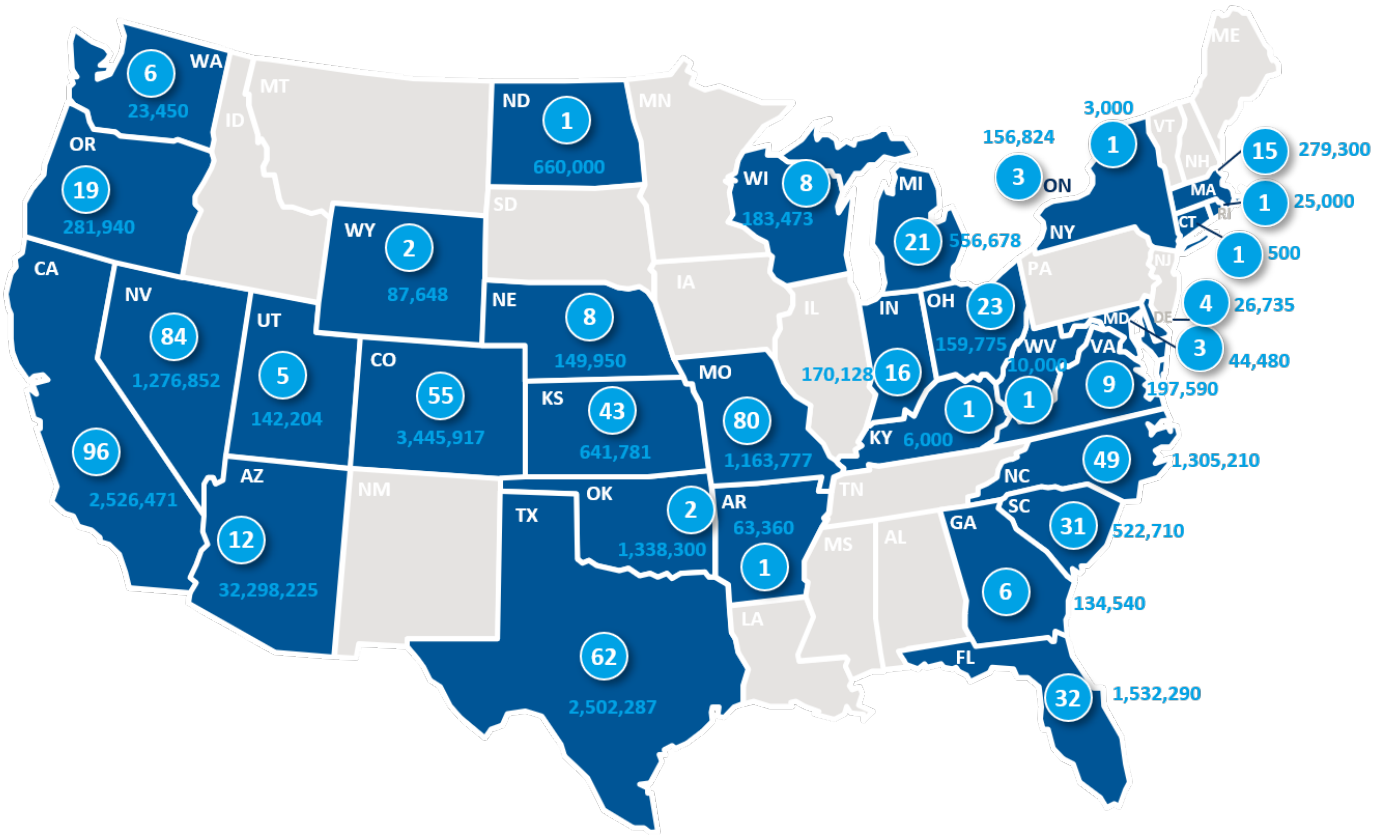
Qualifications

In the last three decades, Black & Veatch has designed more than 50 million linear feet of pipelines across the United States.

Black & Veatch has specialized knowledge to plan, design, and build all types of water and wastewater conveyance infrastructure. Within the last three decades alone, Black & Veatch has designed more than 50 million linear feet of pipelines and 184 thousand linear feet of tunnels across the United States. The graphic below provides representative projects completed, or currently in progress, that demonstrate the depth and breadth of experience that our team brings to the City.

Black & Veatch's comprehensive pipeline capabilities will benefit the City by having access to engineering resources that:

- Understand how water and wastewater systems operate;
- Understand the City's long-term goals for addressing the linear infrastructure needs of the CIP; and
- Know from experience executing multiple projects for the City how decisions made by the City staff today will affect the operations and maintenance of your stormwater and wastewater collection systems into the future.



Black & Veatch has successfully completed major conveyance projects like the City's throughout the United States. We will bring lessons learned to the City that will result in optimized facilities that are cost-effective and easy to operate.

REPRESENTATIVE EXPERIENCE WITH PIPELINES

Successful completion of the Trenchless Installation of Utilities Across Fleming Channel project will require a full service engineering firm experienced in the design, permitting, construction inspection, and management of pipeline conveyance systems. Black & Veatch fully understands the design elements of importance to the City for successful completion of the Trenchless Installation of Utilities Across Fleming Channel project. These key design elements are:

- Trenchless Pipeline Installation Technologies
- Pipeline Design Services
- Design Reports
- Design Drawings and Specifications
- Maintenance of Traffic Plans
- Site Investigations
- Surveying
- Permitting
- Engineering Services during Construction

The Black & Veatch team has vast experience implementing water transmission mains projects encompassing these design elements. Our proven experience will result in the City's successful implementation of the Trenchless Installation of Utilities Across Fleming Channel.

Table 5 on the following page provides a list of all of Black & Veatch's recent pipeline experience in Florida, and Table 6 presents additional experience from around the country.

FLORIDA EXPERIENCE

Royal Lakes Force Main | Jacksonville, FL

To support the phase-out of the JEA Royal Lakes WWTP, a new sanitary force main was required to convey the wastewater flow to the Arlington WWTP. This new force main consisted of approximately 15,000 linear feet of 24-inch pipeline. The forcemain was designed primarily based on open-cut method of installation, but included a significant section of 42-inch microtunnel under a heavily traveled DOT roadway intersection. This was the first utility microtunnel in Jacksonville, and the first allowed by the local FDOT District. The design also included approximately 700 linear feet of 54-inch RCP stormwater pipe and drainage structures. A significant section of the pipeline was routed along Southside Boulevard, a high density heavily trafficked roadway.

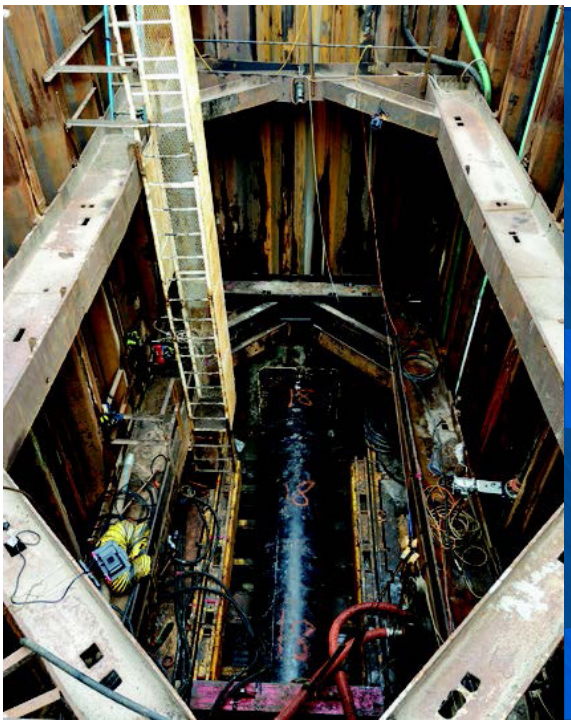
TABLE 5. Black & Veatch's Recent Pipeline Experience in Florida

CLIENT | PROJECT	Length (linear feet)	Pipeline Diameter (inches)	Construction Method	Pipe Material	SERVICES: Study	Design	Permitting	CPS
FKAA | Transmission Main Overseas Highway (U.S. Highway 1)	25,000	36	OC	Steel/DIP	■	■	■	■
Ruskin | South County Water Pump Station Water Transmission Main to 19th Ave	7,000	30	OC	DIP	■	■	■	■
	1,500	16	OC	DIP				
	1,100	30	HDD	HDPE				
	200	48	J&B	Steel				
Miami Dade County Water and Sewer Dept. | Water Infrastructure Improvements to Non-Residential Zoned Properties	County-wide	>12	NA	NA	■			
FKAA | Analysis and Replacement of Existing 30-Inch Water Main	20,000	36	OC/HDD	Steel/ HDPE/ PVC	■			
Miami Dade County Water and Sewer Dept. | Sewer Service to Commercial Properties in Miami-Dade County	County-wide	>8	NA	NA	■			
JEA | Royal Lakes Force Main	15,000	24	OC/M	PVC/Steel	■	■	■	■
Ocean Outfall Large Diameter Pipeline SL-2.1	12,600	60	OC/M	PCCP	■	■		
New Booster Pump Station and Potable Water Transmission Main- City of Venice	TBD	6	OC/HDD	PVC	■	■	■	■
Orlando | Southern Regional Water Supply Facility Pipeline Connections	941	8	OC	SS. PVC/ Steel	■	■	■	■
	4,015	16	OC	DIP				
	1,042	36	OC	DIP				
	1,483	42	OC	DIP				
Hillsborough, Pinellas, and Pasco Counties | Tampa Bay Seawater Desalination	76,560	42	OC	DIP	■	■	■	■
Hillsborough, Pinellas, and Pasco Counties | South-Central Hillsborough Intertie	67,560	72	OC/M	PCCP	■	■	■	■
Hillsborough, Pinellas, and Pasco Counties | North-Central Hillsborough Intertie	64,870	84	OC/M	PCCP	■	■	■	■

KEY: HDD - Horizontal Directional Drill | OC - Open Cut | J&B - Jack & Bore | M - Microtunnel

TABLE 6. Additional Representative Pipeline Experience

CLIENT	PIPELINE NAME OR DESCRIPTION	DIAMETER (INCHES)	LENGTH (FEET)
WASTEWATER / STORMWATER			
Clark Co Water Reclamation District; Las Vegas, NV	Paradise Whitney Interceptor: Final Design, 48-inch Relief Sewers	48	58,080
Johnson County Wastewater; Shawnee, KS	Mill Creek Regional WWTP Effluent: Tunnel	96	9,780
City of Durham; Durham, NC	Sanitary Sewer System Modeling	6 to 24	220,000
City of Grand Island; Grand Island, NE	North Interceptor Phase I: 54-inch Sanitary Sewer	42, 54	7,950
City of Chandler; Chandler, AZ	Ocotillo WRF to Airport WRF Pump Back Force Main	42	23,760
Citizens Energy Group; Indianapolis, IN	Castleton Relief Sewer	42	2,768
Town of Mooresville; Mooresville, NC	Presbyterian Road Pump Station and Pipeline	30, 36	6,500
Clark Co Water Reclamation District; Las Vegas, NV	Paradise Whitney Interceptor: Preliminary Design, Interceptor Sewers	48 to 66	71,000
Clean Water Coalition; Las Vegas, NV	SCOP Lead Design Eng Phase II: Effluent Interceptor Design	54 to 144	44,500
Clean Water Coalition; Las Vegas, NV	SCOP Lead Design Eng Phase II: Reach No. 3 Tunnel Design	144	11,450
Clean Water Coalition; Las Vegas, NV	SCOP Lead Design Eng Phase II: River Mountain No. 3 Tunnel Design	144	39,000
City of Salt Lake City; Salt Lake City, UT	Orange Street Sewer: 48-inch Trunk Line Rehabilitation	48	15,840
JEA; Jacksonville, FL	Division Street Force Main	30	3,500
JEA; Jacksonville, FL	Royal Lakes Force Main	24	13,200
Puerto Rico Aqueduct and Sewer Authority; Puerto Rico	Ponce Trunk Sewers Inspection and Rehabilitation Design	18 to 48	32,800
Citizens Energy Group; Indianapolis, IN	Belmont North Interceptor: Open Cut	72	1,460
		TOTAL	2,579,170



FLORIDA EXPERIENCE

South County Booster PS to 19th Avenue Water Transmission Main | Hillsborough County, FL

Black & Veatch to provided design and construction phase services for a new water transmission main in the South County service area to facilitate future expansion of the distribution system in a growing area of Hillsborough County. The pipeline included 6,850 linear feet of 30-inch DIP, and 2,100 linear feet of 16-inch DIP. The waterline was installed via open cut except for a 1,100-foot section of 16-inch pipe. This section was installed within a 48-inch casing and via a micro- tunnel underneath I-75. The project involved acquiring permits and approvals from Florida Department of Transportation (FDOT), Florida Department of Health (FDOH), Florida Department of Environmental Protection (FDEP) and U.S. Army Corps of Engineers (USACE).

Our team's qualifications allow us to understand all technical aspects of pipeline projects.

Pipe Materials

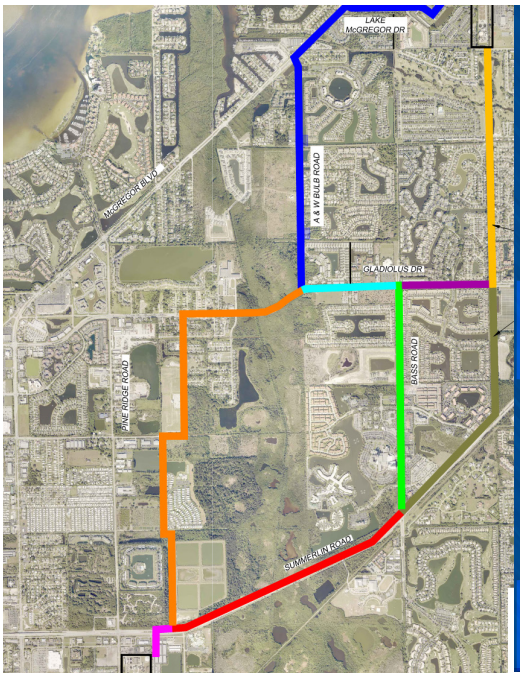
Our linear infrastructure experience includes pipelines that range in diameter from 4 inches to 144 inches using virtually every pipe material, including ductile iron, gray cast iron, pre-stressed concrete cylinder, PVC, steel cement-lined and coated pipe, fiberglass reinforced pipe, and HDPE. Many of our projects have been built in a wide range of soil and groundwater conditions and have required the use of procedures such as dewatering, piling, air pressurizing, and weighting to protect against flotation.

LOCAL EXPERTISE

Olena Lytvyn
Project Manager & Force Mains, Water Mains & Gravity Sewer Systems Lead

Olena's experience includes route analysis, condition assessment, pipeline prioritization, design, rehabilitation, inspection, transient modeling, permitting, and construction phase services.

She has worked with pipelines ranging in size from 4h to 108 inches and various pipe materials, including PCCP, HDPE, PVC, DIP, cast iron, steel, and fiberglass. Olena has conducted manned entry condition assessments on potable and raw water mains of pipelines varying in size of 30 to 96inches. She will support the City as it works to create this channel crossing.



INDUSTRY EXPERTISE

Fiesta Village WWTP Reclaimed Water Transmission Main | Ft. Myers, FL

Lee County Utilities (LCU) retained Black & Veatch to perform a route analysis, detailed design, permitting, bidding support and construction phase services for a 24-inch bi-directional reclaimed water (RCW) transmission main. The selected route was along a congested county road and an FPL easement. Additionally, the pipeline transverse a canal, major roadway crossings and the Myerlee Country Club golf course. The project ultimately consisted of approximately 15,000 linear feet of 24-inch PVC to be installed via open cut, 7,500 linear feet of 30-inch HDPE to be installed via HDD, and 600 linear feet of 20-inch HDPE to be installed via HDD.

Trenchless Pipeline Installation Technologies

The City's partnership with Black & Veatch gives you access to trenchless experience that encompasses planning, design, construction, rehabilitation, and maintenance solutions with a strong focus on life-cycle efficiency and economy.

Our experience includes a variety of trenchless techniques, including **micro-tunneling (MT)**, **pilot tube micro-tunneling (PTMT),** and **HDD**. This track record of demonstrated expertise will provide you confidence that Black & Veatch will complete the project by selecting the most appropriate trenchless technology for site specific project constraints including pipe diameter and pipeline length as well as site specific ground conditions and ground behavior.

Additionally, Black & Veatch understands that trenchless solutions also need to be engineered to meet your reliability, security, schedule, safety, life cycle, and economic goals.

Micro-tunneling, particularly at relatively small diameters, is significantly different from conventional or large diameter tunneling. Each of these types of tunneling has its own special equipment and techniques that typically require different contracting firms and construction management experience. Micro-tunneling tends to be much more intrusive on the surface than conventional tunneling because of the shorter drive lengths and consequent frequent shaft construction.

Black & Veatch has proven trenchless design and construction experience with a track record of successfully executing challenging projects. In the past 25 years, we have performed more than 50 projects over a wide range of diameters and in varying ground conditions and behaviors.

LOCAL EXPERTISE

Cary Hirner

Horizontal Directional Drilling

Cary has over 26 years of experience in heavy civil, tunnel, and geotechnical engineering. His focus has been on management, risk analysis, planning, design, and providing construction phase services on trenchless projects, including intakes and outfalls, quarry to reservoir conversions, and deep foundation grouting projects. He has consulted on over 100 miles of soft ground and rock water, wastewater, stormwater, and CSO tunnels.

Cary brings proficiency to the City in planning and design of TBM, EPBM, MTBM, drill and blast, hand mining, HDD, and pipe jacking tunnels.

INDUSTRY EXPERTISE

Minimal Urban Disruption

Black & Veatch has expertise with all methods of trenchless pipe installation, including horizontal directional drill, micro-tunneling, jack & bore, and tunneling. Our recent experience includes dual 1100-foot directional drill crossings of I-4 and a 48-inch microtunnel crossing of I-75 as shown in this photo.

Parallel Pipelines

In some instances, replacement of a pipeline may not be the best solution. After evaluating alternatives, installation of another pipeline in parallel may provide better value and limit service interruptions. However, installation of a second pipeline adjacent to an existing pipeline presents unique construction challenges including:

- Avoidance of damage to existing pipeline during installation
- Proper placement of pipe bedding to properly support both pipes
- Installation within narrow easement
- Corrosion protection due to close proximity of multiple utilities

Urban Construction Impacts

New construction and rehabilitation in heavily-populated areas presents unique challenges that are often focused on minimizing community impacts. All construction is disruptive, but with excellent stakeholder engagement, public outreach, and project planning and design with the community in mind, many of the risks can be mitigated.

Alignment Challenges

Selection of the best value alignment is critical to project success. Many of the other challenges for pipeline construction can be mitigated through a well-developed alignment selection process.

Black & Veatch has extensive experience evaluating alignments for pipelines. This early discussion of project goals is critical to the delivery of a successful project, on schedule. If this step is not fully developed scope changes often occur during design and sometimes construction that can have significant cost and schedule impacts.

The best value alignment may not be the shortest, or even the lowest cost; it will depend on the specific goals for the project. Black & Veatch is experienced in using Criterium Decision Plus decision making software for quantitative analysis of alignments. We recommend a triple bottom line approach that considers cost and non-cost factors.

INDUSTRY EXPERTISE

West Ashley Tunnel | Charleston, SC

Black & Veatch was contracted by the City of Charleston to design and provide construction management of the deep 12-foot diameter concrete tunnel conveyance system (9,300 linear feet) with 9 associated drop shafts, river outfall and pump station on the City's largest infrastructure project ever undertaken. The system was designed to transport stormwater via drop shafts and underground tunnels to a pump station proposed along the banks of the Ashley River. The tunnel was designed to a depth of 120 to 140 feet below ground.

Maintenance of Traffic (MOT)

Traffic challenges related to linear construction on pipelines is often publicly disruptive. Unlike projects on a contained site, linear projects involve a work area that moves along the alignment, generally beneath busy streets. In addition to the disruption caused by the excavation to install or repair the pipe, transportation of excavated materials, pipe, and concrete by truck increases normal traffic loads on the streets.

Black & Veatch is experienced in developing traffic control and truck routing plans to minimize public impacts. **Our collaborative approach utilizes early stakeholder engagement and puts an extra emphasis on communication so all disruptions are expected and allows residents and business owners to plan accordingly.**

Utility Coordination

Installation and repair of pipelines within developed areas requires careful utility coordination to ensure all utilities are identified, and properly located and protected during construction to avoid service impacts and health and safety risks.

Black & Veatch has strong internal GIS resources for preparing alignment drawings and identifying known utilities. Our engineering team will utilize these alignment sheets to coordinate early communication with a utility to ensure the electronic data available is up to date and matches the utility's records. Areas with dense infrastructure may require different means and methods for construction, including trenchless technology to avoid utility impacts.

Limited Width Easements

Pipeline installation in an open field with an unlimited easement width is much different that urban pipeline construction. In addition to traffic concerns and utility coordination, the width of the easement is often restrictive. This restriction limits the means and methods that the contractor can utilize for construction.

Black & Veatch is experienced in pipeline installation in narrow corridors and has in-house expertise capable of designing more complex ground support systems that may be required in narrow easements including: sheet piling, H-piles and wood lagging, secant piles, slurry walls, and deep excavation support techniques. We also can utilize our expertise in trenchless technology to consider other installation methods in narrow corridors. Our ability to offer multiple alternatives ensures that the best value solution will be selected for the City.

Existing Encroachments

It is not uncommon in urban construction, particularly with limited width easements to identify instances of existing encroachment. It is paramount that encroachments are identified early on in project development as resolving issues, particularly with individual property and business owners, may take time and could delay the project if early action is not taken.

Black & Veatch will support the City in resolving encroachments and provide supporting documentation necessary by utilizing our GIS and engineering resources.

The Black & Veatch team worked with us to explain the assumptions going into the analysis as well as reviewing the results and their impact to the collection system...We gained a more thorough understanding of the planning analysis to develop a good rapport with our staff which allowed us to make confident, well-informed decisions based on their recommendations."

- AARON BROWER
ASSISTANT PUBLIC UTILITIES DIRECTOR CITY OF RALEIGH, NC

Regulatory Requirements, Permitting, and Familiarity with County Regulations

An additional benefit of a focus on early stakeholder engagement and communication is often a smoother permitting process, as the agencies are aware of the project long before a permit application is delivered. Our approach is to communicate with the required regulatory agencies early and often to keep them abreast of the project status, ensure timely approval of permits, and minimize delays. We will develop a permit matrix as one of our technical submittals so that responsibility for permits is clearly identified to avoid a permit falling through the cracks.

Black & Veatch has obtained permits with all the key agencies for pipeline projects nationwide, including the U.S. Corps of Army Engineers (USACE), EPA, Fish & Wildlife, FDOT, among others. We also have experience obtaining permits locally in the City area with the following permitting agencies/departments applicable to this project:

- Monroe County
- City of Key West
- Florida Department of Environmental Protection
- FDOT

Our local team will leverage our relationships, experience, and familiarity with local regulations to provide the City with expedited permitting and seamless coordination with local agencies and municipalities. Our team's familiarity with local regulations will result in avoided project delays.

FLORIDA EXPERIENCE

Dennis Street Pump Station | City of Key West, FL

Black & Veatch designed the Dennis Street Pump Station and provided support for bidding, permitting, and construction phase services. The permitting included the maintenance of traffic as the pump station is located in the middle of the street. An environmental Resources Permit (ERP) and a Water Use Permit (WUP) were also required to be obtained from the South Florida Water Management District. The WUP included excavation and trenching design, dewatering calculations, and groundwater modeling to determine the radius of influence.The Black & Veatch team had the necessary coordination meetings with the SFWMD and provided the required information to obtain the permits. Also, one of the Venetia Street gravity drainage well needed to be plugged and abandoned. Black & Veatch prepared the documentation to obtain the permit from FDEP in support of the project.

Representative Projects & Client References

As an industry-leading expert in water and sewer infrastructure, Black & Veatch provides services for various aspects of water and sewer utilities including planning, modeling, design, trenchless design, condition assessment and rehabilitation, and construction services. We have encountered and successfully solved every conceivable type of problem related to the design and construction of wastewater collection lines. We have experience in urban settings, outfall sewers, and regional geologic conditions such as rock and high groundwater tables for effective pipeline and drainage design.

Black & Veatch studies, plans, routes, designs, constructs, inspects, and maintains conveyance pipelines for water, wastewater, stormwater, gas, and other liquids. For nearly a century, we've built our leading reputation on 10,000 projects and nearly 12,000 miles of water, wastewater and stormwater conveyance worldwide. These pipelines have diameters ranging from 6 to 144 inches, and with virtually every pipe material including ductile iron, gray iron, pre-stressed concrete cylinder, PVC, FRP, steel cement-lined and coated pipe, and HDPE.

INDUSTRY EXPERTISE

Sanitary Sewer Rehabilitation Construction Inspection Services | Hillsborough County, FL

Black & Veatch provided onsite construction inspection and engineering services for the rehabilitation of approximately 80,000 linear feet of sanitary sewers, sized 8-18 inches as part of a program to reduce infiltration and inflow in the sanitary sewer collection system.

- Black & Veatch oversaw the rehabilitation of the existing sanitary sewers primarily by lining using the CIPP process and the Fold and Form technique using PVC.
- Our team oversaw the point repair of broken gravity mains in preparation for lining work.

RELEVANCE TO THE CITY

- Pipelines
- Hydraulic Modeling
- Water Supply Facilities
- Construction Services/Inspection
- CMAR
- Land Acquisition
- Public Engagement

Central AWWTP Trunk Main Replacement and Raw Water Transmission Mains

FORT MYERS, FL

Our Pipelines Specialist, Mike McGee, served as Project Manager and Lead Design Engineer and EOR during construction for the City of Fort Myers' Central AWWTP Trunk Main Replacement project. Responsible for all aspects of detailed design, permitting, and construction phase services for this $21 million sanitary sewer trunk main replacement project which involved construction of:

- Over 9,500 LF of upsized 42-in and 36-in PVC gravity sewer piping and many large manholes;
- One upsized master wastewater lift station with VFD's rated for over 3,300 gpm;
- Over 2,900 LF of 36-in PVC and HDPE wastewater force main piping;
- Over 9,400 LF small diameter potable and sewer pipelines.

The project also included two separate 36-in diameter wastewater force main directional bores under the Seminole Gulf Railroad along Palm Avenue and Market Street as well as over 900 linear feet of 24-in CIPP liner rehabilitation of a portion of the existing 24-in sanitary sewer main. The design and permitting services were led by Mike McGee while with a different firm, then the City hired Black & Veatch to provide CEI services under the final phases of CMAR construction of these pipelines.

Additionally for the City, Black & Veatch was the EOR responsible for all aspects of design through construction phase engineering services and CEI services for three separate raw water transmission main extensions that were constructed under three separate fast-track CMAR projects:

- Raw Water Transmission Main – Phase 5A: 7,250 LF/Diameters From 14-in to 24-in HDPE
- Raw Water Transmission Main - Phase 5B: 5,500 LF/20-in HDPE/ Including FDOT HDD crossing

KEY TEAM MEMBERS
Mike McGee

YEAR COMPLETED
Ongoing

PROJECT COST
$22M

CLIENT REFERENCE
Brian Hickey, PE, PMP
(239) 281-4167
bhickey@leegov.com

RELEVANCE TO THE CITY

- Reclaimed Water Transmission Main
- FDEP, LCDOT, and FPL Permitting

Fiesta Village WWTP Reclaimed Water Transmission Main

FORT MYERS, FL

Black & Veatch provided preliminary design, detailed design, permitting, bid-phase, and construction administration services for a bi-directional reclaimed water (RCW) transmssion main interconnect between the LCU Fiesta Village WWTP and the LCU Fort Myers Beach WWTP. Preliminary design included evaluation of 4 different RCW pipeline route alternatives, and assistance in the selection of the preferred route along the congested Summerlin Boulevard ROW and then through an FPL easement.

The project includes detailed design of approximate 4.3 miles of 24" RCW transmission main, and features several horizontal directional drill crossings of some of the major roadways along the route to preserve traffic. The project also included FPL easement acquisition and permitting support, as well as FDEP and LCDOT permitting. At the request of LCU, the project was split up into two separate RCW pipeline contracts (Phase 1 RCW and Phase 2 RCW), both of which were bid in 2021 and have recently commenced construction.

YEAR COMPLETED

Ongoing

PROJECT COST

Design: $340,000
Construction: $93,000

CLIENT REFERENCE

Brian Hickey, PE, PMP
(239) 281-4167
bhickey@leegov.com

LCU ultimately decided to split this project into two construction contracts. Black & Veatch was able to accommodate this project change while maintaining the initial project schedule and budget.

RELEVANCE TO THE CITY

- Construction method evaluation
- Easement acquisition
- Coordination with residents
- Noise and lighting considerations
- Permitting
- Water and major roadway crossings

New Booster Pump Station and Potable Water Transmission Mains

CITY OF VENICE, FL

The City of Venice, Florida (City) owns and operates a 4.48 mgd brackish groundwater reverse osmosis (RO) water treatment plant and associated water distribution system. Black & Veatch provided professional services including planning, preliminary and final design, permitting, bidding support, construction phase services, and related services in support of a new potable water pumping station to be constructed on an undeveloped site in the northern part of the City's service area. The Venice New Water Booster Pump Station (BPS) (Project) supports implementation of a new booster pump station consisting of a new building, pumps, piping, generator and ground storage tank.

The scope of services for this project includes engineering services to support implementation of the following facilities:

Water Booster Pump Station. Consisting of a water storage tank, pump station building, chemical trim facilities, electrical room, locker room, restrooms, offices, and large conference room. The pump station site will also include an emergency generator and a site wastewater lift station, as well as various site access, storm-water and landscaping improvements.

Off-site" Utility Mains. Consisting of two 16" potable water transmission mains to and from the pump station site to connect to the City distribution system, as well as fiber optic service extension to the site, and a discharge force main from the site.

Emergency Potable Water Interconnect (bi-directional) with Sarasota County 42-inch water main.

KEY TEAM MEMBERS
Olena Lytvyn

YEAR COMPLETED
2019

PROJECT COST
Design $1.8M

CLIENT REFERENCE
Javier Vargas
(941) 486-2788 ext. 7300
jvargas@venicegov.com

RELEVANCE TO THE CITY

- Two canal crossings
- Design and Permitting
- Bidding and Construction Phase Services

UEP North 1

CAPE CORAL, FL

As part of the City's overall North 1 Utility Expansion Program (UEP), Black & Veatch is the Engineer of Record (EOR) for providing design, permitting, and bid-phase support services for three separate large sub-areas within UEP N1. The project area is over one square mile (approximately 654 acres) and includes approximately 1,800 parcels that will be provided new City water, wastewater, reclaimed water, and fiber optic services. Overall, the project includes approximately:

- 17 miles of new potable water mains ranging from 6-inches to 30-inches in diameter
- Four miles of new wastewater force mains ranging from 6-inches to 24-inches in diameter
- 18 miles of new irrigation mains ranging from 4-inches to 30-inches in diameter
- 17 miles of new gravity sanitary sewer main infrastructure, including 218 manholes
- Four miles of new fiber optic system improvements
- Replacement of 18 miles of roadways and associated storm water infrastructure
- 4,000 new water, sanitary, and irrigation service

KEY TEAM MEMBERS

Mike McGee
Olena Lytvyn

YEAR COMPLETED

Ongoing

PROJECT COST

Design: $1.4M

CLIENT REFERENCE

Jody Sorrels
(239) 471-6766
jsorrels@capecoral.net

RELEVANCE TO THE CITY

- 60-inch Sewer pressure pipeline; Relocations of 8-, 12-, and 16-inch Water and Sewer pressure pipeline and Gravity Sewer
- Open Cut and Microtunnel
- Pipeline Material Evaluation
- Easement Acquisition Support
- Local and State Right-of-Ways
- FDOT/FDEP/SFWMD/USACE Permitting

Ocean Outfall Large Diameter Pipelines SL-2.1

MIAMI, FL

Ocean Outfall Legislation (OOL) Project SL-2.1 consisted of design services for approximately 12,600 ft of 60-inch prestressed concrete cylinder transmission pipe and fittings for a force main. The purpose of the project was to increase conveyance of wastewater to the South District Wastewater Treatment Plant to be able to cease use of ocean outfalls to meet requirements of the Ocean Outfall Legislation. A pipe material evaluation was conducted for materials that are available in 60-inch diameter. The design included utility relocations of 8- to 16-inch pressurized force main, water mains, and gravity sewer.

Maintenance of Traffic (MOT) plans for this project were developed in a manner that will minimize construction impacts to local residents, motorists, pedestrians, and bicyclists as well as conform to the latest edition of the Manual of Uniform Traffic Control Devices.

Trenchless Construction Techniques. Special elements of this project include conventional open cut installation within a narrow road right-of-way along SW 137th Avenue, a trenchless crossings to cross Black Creek Canal (C-1W), a trenchless installation along 200th Street (SR 994), a FDOT road right-of-way, and a trenchless installation along SW 134th Avenue. These construction techniques are proposed to avoid and minimize impacts to heavily traveled road ways and waterways.

Outstanding Accomplishments. It was identified by the client in the 30% Design Workshop that the in-line valve and manhole spacing should be re-evaluated. Black & Veatch provided a technical memo to the OOL Project Manager detailing recommendations for spacing requirements for manholes and valves to comply with safety protocol. This led to the Owner's decision to set the valve spacing to 2,500 feet and manhole spacing to 1,200 feet. Coordination with MDWASD's engineering and operations and maintenance personnel throughout design phases was done to ensure design expectations such as alignment and construction methods were realized.

KEY TEAM MEMBERS

- Olena Lytvyn
- Melody Gonzalez

YEAR COMPLETED

2019

PROJECT COST

Design $950, 000

CLIENT REFERENCE

James Ferguson
(786) 552-8756
James.Ferguson@miamidade.gov

RELEVANCE TO THE CITY

- More than 8 miles of a 42" diameters reclaimed water pipeline.
- More than ten different canals crossings through canals, gas pipelines, reclaimed water pipelines, and equipment/vehicle access.
- HDD crossings in wetlands and all associated permit coordination.

Miami-Dade Clean Water Recovery

CONFIDENTIAL | MIAMI-DADE

This project includes a 15 million gallon per day (MGD) advanced wastewater treatment facility located at the south of Miami-Dade County, an approximately 8-mile long, 42" diameter reclaimed water pipeline connecting the Clean Water Recovery Plant (CWRP) to the Miami-Dade South District Wastewater Treatment Plant (SDWWTP) near Cutler Bay, Florida.

The reclaimed nominal 42" diameter pipeline will extend from SDWWTP through public rights-of-way, a closed landfill, some private properties and within an FPL electric transmission corridor, most of which is within wetlands. Several canal crossings utilizing the horizontal directional drill (HDD) or other approved trenchless method will be required.

Complex design adapted to specific site requirements

The design of this project includes the connection of the new 42" reclaimed water pipeline to existing effluent piping, isolation valves, flow control valves, metering, sampling and analysis, if required, surge protection and other necessary appurtenances to convey the effluent at the required pressure. This new pipe will also include a radio telemetry system for communication.

Combination of the most experience trenchless techniques

The pipeline will be constructed via open cut and trenchless methods. Several canal crossings will require horizontal directional drill (HDD) crossings. The reclaimed water pipeline shall be designed for operation and maintenance to include isolation valves, air relief valves (ARVs), access manholes, and any alternating current mitigation (AC mitigation) system and, cathodic protection system (to be determined by Contractor). At the CWRC, a meter station including analyzers and sampling equipment will monitor flow and CWRC influent water quality. Control valves and surge protection will control the flow into the CWRC.

YEAR COMPLETED
Ongoing

PROJECT COST
Confidential

CLIENT REFERENCE
Confidential

RELEVANCE TO THE CITY

- Stormwater Modeling
- Electrical Generator
- Structural
- Surveying
- Geotechnical

Dennis Street Stormwater Improvements Pump Station

KEY WEST, FL

Black & Veatch was asked by the City to provide detailed design services for a new 18.5 cubic feet per second (cfs) stormwater pump station including a diversion structure and vortex separator upstream of the pump station and backup power for the pumping units. It is anticipated that the new pump station will be located near the intersection of Dennis Street and Venetia Street.

The initial design concept included the addition of a new drainage well for subsurface discharge downstream of the pump station. However, during design Black & Veatch was asked to evaluate using an existing outfall by the Key West High School as the discharge location in lieu of the new drainage well. Since the existing outfall is part of a stormwater gravity system discharging to salt ponds located to the south of the Key West High School, hydrologic modeling was added to the project to ensure there would be no negative impacts to the existing system.

Additional hydrologic modeling was added when the City asked Black & Veatch to evaluate smaller design storms with a higher frequency as the basis for potentially reducing the required pump station capacity. Previous computer modeling efforts using ICPR conducted for the City indicated that a pump station capacity of 18.5 cubic feet per second (cfs) would be able to handle the peak flow of the 100-year 72-hour storm with acceptable levels of flooding so Black & Veatch is evaluating the 5-year, 24-hour storm, the 25-year, 24-hour storm and the 25-year, 72-hour storm.

KEY TEAM MEMBERS

Tammy Martin
Olena Lytvyn
Isabel Botero

YEAR COMPLETED

2022

PROJECT COST

$412,510

CLIENT REFERENCE

Steve Gardner
(305) 809-3992
Sgardner@cityofkeywest-fl.gov

RELEVANCE TO THE CITY

- 30" water main installation
- Maintenance of Traffic
- Utilities Crossings

Route Analysis for the Replacement of an Existing 30-inch Water Main

ISLAMORADA, FL

Black & Veatch provided engineering services for a route analysis for the replacement of an existing 30-inch water main in Islamorada. This portion of the transmission main has sustained multiple leaks in the recent past. In an attempt to establish a more resilient system, FKAA decided to install approximately 4 miles of a new 36-inch water main, from approximately Mile Marker 84 to Mile Marker 80, to serve as a replacement to the existing, failing 30-inch ductile iron water main in Islamorada.

KEY TEAM MEMBERS

Olena Lytvyn
Melody Gonzalez
Irene Testa

YEAR COMPLETED

2019

PROJECT COST

Design $64,517

CLIENT REFERENCE

David Hackworth, PE
(305) 295-2152
Email

RELEVANCE TO THE CITY

- The interconnection between the C-51 Reservoir and the L-8 FEB required a trenchless approach. Microtunneling is the selected technology to be able to avoid conflict with existing buried gas line and overhead power lines.
- Design, permitting, and construction phase services

C-51 Reservoir - Twin 96-in Microtunnels

PALM BEACH AGGREGATES | LOXAHATCHEE, FL

Black & Veatch is the engineer of record and is currently performing construction phase services for the construction of the C-51 Reservoir and associated facilities. The Project is located approximately 20 miles west of West Palm Beach, Florida, immediately west of the L-8 Canal and L-8 FEB and one mile north of Southern Boulevard/State Road 80. The project site lies within the boundary of PBA, an active aggregate mine, and the Florida Power & Light, Inc. (FPL) West County Energy Plant. It is bordered to the north by agricultural land and to the east by the L-8 Canal and L-8 FEB.

The purpose of the Project is to connect the existing L-8 FEB to the newly constructed C-51 Reservoir (C-51). This will facilitate water supply deliveries between the C-51 and the L-8 FEB. Operating in concert, the L-8 FEB and C-51 can meet water supply deliveries for participating utilities and provide environmental benefits.

Two 96-inch (in) inside diameter (I.D.) centrifugally cast, fiberglass-reinforced, polymer mortar (CCFRPM) pipes will connect C-51 to the L-8 FEB and enable bi-directional, gravity flow between the L-8 FEB and C-51. The CCFPRM pipes will avoid conflict with FPL and Gulfstream Natural Gas Systems, Inc. (Gulfstream) overhead and buried utilities which are located between the C-51 and the L-8 FEB. The CCFRPM pipes will be installed by Bradshaw using a tunnel boring machine (TBM) at an invert of -20 ft. North American Vertical Datum of 1988 (NAVD88), which is the invert of the C-51 reservoir.

KEY TEAM MEMBERS

- Isabel Botero
- Jeff Beriswill
- Mark Chomtid
- Olena Lytvyn
- Irene Testa

YEAR COMPLETED

Ongoing

PROJECT COST

Fee to date..... $6.3 Million

CLIENT REFERENCE

Albert Moragues
(561) 570-1452
albertm@palmbeachag.com

RELEVANCE TO THE CITY

Black & Veatch has acquired knowledge and understanding of the City's infrastructure systems over many years of providing engineering services for both the stormwater system and the wastewater treatment plant. The new blower technology selected and control strategy developed will reduce energy consumption and operational costs of the aeration system.

General Engineering Services

KEY WEST, FL

Black & Veatch has been providing continuing engineering services for the City of Key West since 2012. Projects executed include wastewater treatment, wastewater collection system and the stormwater system. Under the current agreement (2017-2022), Black & Veatch has executed design, bid phase services, and construction phase services for the following components of the wastewater treatment plant.

Blower and Switchgear Design, Bid Phase and Construction Phase Services. These upgrades to the aeration system and supporting electrical system included the addition of four new blowers to increase redundancy for the aeration basins. The electrical switchgear for the Richard Heyman Environmental Protection Facility (RAHEPF) was at the end of its useful life and it is also being replaced due a planned transformer upgrade by Keys Energy Services.

Deep Injection Well Pump Design, Bid Phase and Construction Phase Services. These improvements included the addition of a new 500-hp deep injection well at the (RAHEPF) to provide additional reduncancy to the disposal system. Also, HVAC improvements to the existing electrical room were included to ensure proper operation of the new VFD included with the additional pump. Bid and construction observation services were also provided.

RAS/WAS Pumps Replacement. Replacement of four RAS and two WAS pumps, motors and VFDs including above grade piping, pipe support, valves and another appurtenance. This task will include the replacement in kind of the existing RAS and WAS pumps as well as the replacement in kind of the existing glass lined Ductile Iron pipe.

KEY TEAM MEMBERS

- Isabel Botero
- Tammy Martin
- David Garcia
- Pablo Gala-Serra
- Irene Testa
- Melody Gonzalez
- Olena Lytvyn

YEAR COMPLETED

Ongoing

PROJECT COST

Dennis Street PS ..... $2.3 M
Blower and Switchgear $3.7M
Deep Injection Well $744K

CLIENT REFERENCE

Steve Gardner
(305) 809-3992
Sgardner@cityofkeywest-fl.gov

Ian McDowerll
(305) 809-3753
cimcdowell@cityofkeywest-fl.gov

Sworn Statements & Affidavits

1. Anti Kickback Affidavit
2. Non Collusion Affidavit
3. Public Entity Crimes
4. Equal Benefits for Domestic Partners
5. Cone of Silence
6. Suspension and Debarment Certification
7. Attachment H: Subcontractor Covered Transactions
8. Disclosure of Lobbying Activities
9. Prohibited Interests Form and Notice
10. Vendor Certification Regarding Scrutinized Companies

ANTI-KICKBACK AFFIDAVIT

STATE OF Florida)
: SS
COUNTY OF Broward)

I, the undersigned hereby duly sworn, depose and say that no portion of the sum herein bid will be paid to any employees of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By: _____
Rafael Frias, III, Associate Vice President

Sworn and subscribed before me this 7th day of September 2022

NOTARY PUBLIC, State of Florida, at Large

My Commission Expires: May 2, 2023

JACLYN HINES
Notary Public-State of Florida
Commission # GG 330150
My Commission Expires
May 02, 2023

NON-COLLUSION AFFIDAVIT

STATE OF Florida)

: SS

COUNTY OF Broward)

I, the undersigned hereby declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

By: _____
Rafael Frias, III, Associate Vice President

Sworn and subscribed before me this

7th day of September 2022.

_____

NOTARY PUBLIC, State of Florida at Large

JACLYN HINES
Notary Public-State of Florida
Commission # GG 330150
My Commission Expires
May 02, 2023

My Commission Expires: May 2, 2023

SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid or Proposal for _____

Trenchless Installation of Utilities Across Fleming Channel RFQ #22-008

2. This sworn statement is submitted by Black & Veatch Corporation
(Name of entity submitting sworn statement)

whose business address is 2121 Ponce De Leon Boulevard, Suite 305 | Coral Gables, FL 33134

_____ and (if applicable) its Federal Employer

Identification Number (FEIN) is 43-1833073

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn

statement _____

3. My name is Rafael Frias, III
(Please print name of individual signing)

and my relationship to the entity named above is Associate Vice President

4. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, any bid or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.

5. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means

    1. A predecessor or successor of a person convicted of a public entity crime; or

    2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

✓ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

_____ There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

_____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

_____ The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

_____
(Signature)

9/7/2022
(Date)

STATE OF Florida

COUNTY OF Broward

PERSONALLY, APPEARED BEFORE ME, the undersigned authority,

Rafael L. Frias III who, after first being sworn by me, affixed his/her
(Name of individual signing)

Signature in the space provided above on this 7th day of September, 20 22.

My commission expires: May 2, 2023

_____
NOTARY PUBLIC

JACLYN HINES
Notary Public-State of Florida
Commission # GG 330150
My Commission Expires
May 02, 2023

EQUAL BENEFITS FOR DOMESTIC PARTNERS AFFIDAVIT

STATE OF FLORIDA)
: SS
COUNTY OF ~~MONROE~~ Broward)

I, the undersigned hereby duly sworn, depose and say that the firm of _____

Black & Veatch Corporation

provides benefits to domestic partners of its employees on the same basis as it provides benefits to employees' spouses, per City of Key West Code of Ordinances Sec. 2-799.

By: _____
Rafael Frias, ~~III~~, Associate Vice President

Sworn and subscribed before me this 7th day of September 2022

NOTARY PUBLIC, State of Florida, at Large

My Commission Expires: May 2, 2023

JACLYN HINES
Notary Public-State of Florida
Commission # GG 330160
My Commission Expires
May 02, 2023

CONE OF SILENCE AFFIDAVIT

STATE OF Florida)

: SS

COUNTY OF Broward)

I, the undersigned hereby duly sworn, depose and say that all owner(s), partners, officers, directors, employees and agents representing the firm of Black & Veatch Corporation have read and understand the limitations and procedures regarding communications concerning City of Key West Code of Ordinances Sec. 2-773 Cone of Silence.

By: _____
Rafael Frias, III, Associate Vice President

Sworn and subscribed before me this 7th day of September 2022

NOTARY PUBLIC, State of Florida, at Large

My Commission Expires: May 2, 2023

JACLYN HINES
Notary Public-State of Florida
Commission # GG 330150
My Commission Expires
May 02, 2023

CITY OF KEY WEST INDEMNIFICATION FORM

PROPOSER agrees to protect, defend, indemnify, save and hold harmless The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, City's Consultant, agents, servants and employees, including volunteers, from and against any and all claims, debts, demands, expense and liability arising out of injury or death to any person or the damage, loss of destruction of any property which may occur or in any way grow out of any act or omission of the PROPOSER, its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by the City as a result of any claim, demands, and/or causes of action except of those claims, demands, and/or causes of action arising out of the negligence of The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, agents, servants and employees. The PROPOSER agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent. The City of Key West does not waive any of its sovereign immunity rights, including but not limited to, those expressed in Section 768.28, Florida Statutes. PROPOSER understands and agrees that any and all liabilities regarding the use of any subcontractor for services related to this agreement shall be borne solely by the PROPOSER. Ten dollars of the consideration paid by the City is acknowledged by PROPOSER as separate, good and sufficient consideration for this indemnification.

This indemnification shall be interpreted to comply with Section 725.06 and 725.08, Florida Statutes.

These indemnifications shall survive the term of this agreement. In the event that any action or proceeding is brought against the City of Key West by reason of such claim or demand, PROPOSER shall, upon written notice from the City of Key West, resist and defend such action or proceeding by counsel satisfactory to the City of Key West.

The indemnification provided above shall obligate PROPOSER to defend at its own expense to and through appellate, supplemental or bankruptcy proceeding, or to provide for such defense, at the City of Key West's option, any and all claims of liability and all suits and actions of every name and description covered above which may be brought against the City of Key West whether performed by PROPOSER, or persons employed or utilized by PROPOSER.

The PROPOSER's obligation under this provision shall not be limited in any way by the agreed upon Contract Price as shown in this agreement, or the PROPOSER's limit of or lack of sufficient insurance protection.

[REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

PROPOSER: Black & Veatch Corporation

Address: 2121 Ponce de Leon Blvd
Suite 305
Coral Gables, FL 33134

Signature

Rafael Frias, III
Print Name

9/7/2022
Date

Associate Vice President
Title

NOTARY FOR THE PROPOSER

STATE OF Florida

COUNTY OF Broward

The foregoing instrument was acknowledged before me this 7th day of September, 2022

By Rafael E. Frias III, of Black & Veatch Corporation
(Name of officer or agent, title of officer or agent) (Name of corporation acknowledging)

or has produced N/A as identification. personally known

Signature of Notary

Jaclyn Hines
Print, Type or Stamp Name of Notary

JACLYN HINES
Notary Public-State of Florida
Commission # GG 330150
My Commission Expires
May 02, 2023

SUSPENSION AND DEBARMENT CERTIFICATION

CERTIFICATION REGARDING DEBARMENTS, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER FEDERALLY FUNDED TRANSACTIONS

1. The undersigned hereby certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. The undersigned also certifies that it and its principals:
   a. Have not within a three-year period preceding this certification been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
   b. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 2.(a.) of this Certification; and
   c. Have not within a three-year period preceding this certification had one or more public transactions (Federal, State or local) terminated for cause or default.

3. Where the undersigned is unable to certify to any of the statements in this certification, an explanation shall be attached to this certification.

Dated this 14th day of September, 2022.

By: _____
Authorized Signature/Contractor

Rafael Frias, III, Associate Vice President
Name/Title

Black & Veatch Corporation
Contractor's Firm Name

2121 Ponce De Leon Boulevard, Suite 305
Address

Coral Gables, FL 33134

Attachment H

Certification Regarding
Debarment, Suspension, Ineligibility
And Voluntary Exclusion

Subcontractor Covered Transactions

(1) The prospective subcontractor, Avirom & Associates, Inc., of the Sub-Recipient certifies, by submission of this document, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the Sub-Recipient's subcontractor is unable to certify to the above statement, the prospective subcontractor shall attach an explanation to this form.

SUBCONTRACTOR

Avirom & Associates, Inc.

By: Michael D. Avirom
Signature

Michael D. Avirom / President
Name and Title

50 SW 2nd Ave., Suite 102
Street Address

Boca Raton, FL 33432
City, State, Zip

August 30, 2022
Date

City of Key West
Sub-Recipient's Name

H0559
DEM Contract Number

4337-501-R
FEMA Project Number

Attachment H

Certification Regarding
Debarment, Suspension, Ineligibility
And Voluntary Exclusion

Subcontractor Covered Transactions

(1) The prospective subcontractor, HP Consultants Inc., of the Sub-Recipient certifies, by submission of this document, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the Sub-Recipient's subcontractor is unable to certify to the above statement, the prospective subcontractor shall attach an explanation to this form.

SUBCONTRACTOR

HP Consultants Inc.

By: A. S. Kumbhojkar
Signature

A. S. Kumbhojkar, President
Name and Title

10220 SW 107 St.
Street Address

Miami, FL 33176
City, State, Zip

9/2/2022
Date

City of Key West
Sub-Recipient's Name

H0559
DEM Contract Number

4337-501-R
FEMA Project Number

Not Applicable - No lobbying activities to disclose.

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

1. Type of Federal Action:	2. Status of Federal Action:	3. Report Type:
☐ a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	☐ a. bid/offer/application b. initial award c. post-award	☐ a. initial filing b. material change **For Material Change Only:** year_____ quarter_____ date of last report_____

4. Name and Address of Reporting Entity:	5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:
☐ Prime ☐ Subawardee Tier _____, *if known:* **Congressional District,** *if known:*	**Congressional District,** *if known:*
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable:* _____
8. Federal Action Number, *if known:*	**9. Award Amount,** *if known:* **$**
10. a. Name and Address of Lobbying Entity *(if individual, last name, first name, MI):*	**b. Individuals Performing Services** *(including address if different from No. 10a)* *(last name, first name, MI):*
(attach Continuation Sheet(s) SF-LLLA, if necessary)	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:** _____ **Print Name:** _____ **Title:** _____ **Telephone No.:** _____ **Date:** _____
Federal Use Only:	Authorized for Local Reproduction Standard Form – LLL (Rev 7 – 97)

PROHIBITED INTERESTS FORM AND NOTICE

I, Rafael Frias, III, Associate Vice President, certify that neither
(Printed Name) (Title)

Black & Veatch Corporation, 2121 Ponce De Leon Boulevard, Suite 305 Coral Gables, FL 33134
(Company Name) (Company Address)

nor any of its subcontractors shall enter into any contract, subcontract or arrangement in connection with the project or any property included or planned to be included in the project in which any member, officer or employee of the agency or the locality during tenure or for 2 years thereafter has any interest, direct or indirect. If any such present or former member, officer or employee involuntarily acquires or had acquired prior to the beginning of tenure any such interest, and if such interests is immediately disclosed to the City of Key West, the City of Key West with prior approval of the Division of Emergency Management and the Department of Economic Opportunity, may waive the prohibition contained in this paragraph provided that any such present member, officer or employee shall not participate in any action by the City of Key West or the locality relating to such contract, subcontract or arrangement

NOTICE: The state requires the City of Key West to insert in all contracts entered into in connection with the project or any property included or planned to be included in any project, and shall require its contractors to insert in each of their subcontracts, the following provision:

> "No member, officer or employee of the Agency or of the locality during this tenure or for 2 years thereafter shall have any interest, direct or indirect, in this contract or the proceeds thereof."

The provisions of this paragraph shall not be applicable to any agreement between the Agency and its fiscal depositories or to any agreement for utility services the rates for which are fixed or controlled by a government agency.

Signature

VENDOR CERTIFICATION REGARDING SCRUTINIZED COMPANIES LISTS

Respondent Vendor Name: Black & Veatch Corporation

Vendor FEIN: 43-1833073

Vendor's Authorized Representative Name and Title: Rafael Frias, PE | Associate Vice President

Address: 2121 Ponce De Leon Boulevard, Suite 305

City: Coral Gables State: Florida Zip: 33134

Phone Number: (754) 229-3049

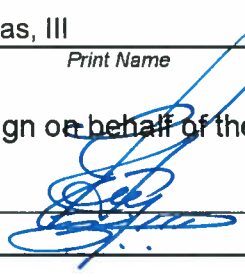
Email Address: FriasRE@bv.com

Section 287.135(2)(a), Florida Statutes, prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of any amount if, at the time of contracting or renewal, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes, or is engaged in a boycott of Israel. Section 287.135(2)(b), Florida Statutes, further prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services over one million dollars ($1,000,000) if, at the time of contracting or renewal, the company is on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, both created pursuant to section 215.473, Florida Statutes, or the company is engaged in business operations in Cuba or Syria.

As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above in the section entitled "Respondent Vendor Name" is not listed on either the Scrutinized Companies that Boycott Israel List, Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject such company to civil penalties, attorney's fees, and/or costs and termination of the contract at the option of the awarding governmental entity.

Certified By: Rafael Frias, III (*Print Name*) Associate Vice President (*Print Title*),

who is authorized to sign on behalf of the above referenced company.

Authorized Signature:  .

CERTIFICATE OF LIABILITY INSURANCE

11/1/2022

DATE (MM/DD/YYYY)
10/20/2021

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

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

PRODUCER Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED 1482177 BLACK & VEATCH CORPORATION 11401 LAMAR OVERLAND PARK KS 66211	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Zurich American Insurance Company — 16535 INSURER B : Lexington Insurance Company — 19437 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 17033388 **REVISION NUMBER:** XXXXXXX

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	N	N	GLO 4641358	11/1/2021	11/1/2022	EACH OCCURRENCE	$ 2,000,000
A	CLAIMS-MADE X OCCUR			GLO 1365630	11/1/2021	11/1/2022	DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
							MED EXP (Any one person)	$ 10,000
							PERSONAL & ADV INJURY	$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 4,000,000
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 4,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY	N	N	BAP 4641355 (AOS)	11/1/2021	11/1/2022	COMBINED SINGLE LIMIT (Ea accident)	$ 2,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$ XXXXXXX
	X OWNED AUTOS ONLY; SCHEDULED AUTOS						BODILY INJURY (Per accident)	$ XXXXXXX
	X HIRED AUTOS ONLY; X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$ XXXXXXX
								$ XXXXXXX
	UMBRELLA LIAB OCCUR			NOT APPLICABLE			EACH OCCURRENCE	$ XXXXXXX
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ XXXXXXX
	DED RETENTION $							$ XXXXXXX
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY		N	WC 4641353 (AOS)	11/1/2021	11/1/2022	X PER STATUTE OTH-ER	
A	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N	N/A		WC 4641354 (ID, MA, WI)	11/1/2021	11/1/2022	E.L. EACH ACCIDENT	$ 1,000,000
A	(Mandatory in NH)			WC 1365632	11/1/2021	11/1/2022	E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
A	If yes, describe under DESCRIPTION OF OPERATIONS below			WC 1365631 (NE)	11/1/2021	11/1/2022	E.L. DISEASE - POLICY LIMIT	$ 1,000,000
B	PROFESSIONAL LIABILITY	N	N	026030198	11/1/2021	11/1/2022	$10,000,000 PER CLAIM $10,000,000 ANNUAL AGGREGATE	

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

CERTIFICATE HOLDER

17033388
SAMPLE

CANCELLATION See Attachments

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

AUTHORIZED REPRESENTATIVE

CITY OF KEY WEST, FLORIDA

Business Tax Receipt

This Document is a business tax receipt
Holder must meet all City zoning and use provisions.
P.O. Box 1409, Key West, Florida 33040 (305) 809-3955

Business Name	AVIROM & ASSOCIATES INC		
Location Addr	402 APPELROUTH LN		
Lic NBR/Class	24310	STATE LICENSED PROFESSIONAL	
Issued Date	7/11/2020	**Expiration Date:**	**September 30, 2023**

ATTORNEY, PHYSICIAN OR OTHER STATE LICENSED PROFESSIONAL

Comments: SURVEYOR BUSINESS

Restrictions: AG #LB3300 (2/28/23)

AVIROM & ASSOCIATES INC
50 SW 2ND AVE

BOCA RATON, FL 33432

This document must be prominently displayed.

AVIROM, MICHAEL