

City of Pompano Beach

RLI 26-004

Continuing Contract for Professional
Environmental Testing

December 22, 2025

3347 NW 55th Street
Fort Lauderdale, FL 33309
P (954) 741 8282



Nationwide
[Terracon.com](https://www.terracon.com)

- Environmental
- Facilities
- Geotechnical
- Materials



1 Title Page

1 Title Page



Request for Letter of Interest (RLI) No. and Title	RLI 26-004 - Continuing Contract for Professional Environmental Testing
RLI Due Date:	December 22, 2025 by 2:00 PM
Name of Firm:	Terracon Consultants, Inc.
Firm Address:	3347 NW 55 Street Fort Lauderdale, FL 33309
Office Telephone No.:	(954) 741-8282
Contract/Project Manager:	Steven Harrison, P.G., Principal Environmental Department Manager
Contract/Project Manager Telephone Nos.:	Direct: (954) 703-1866 Mobile: (954) 547-7734
E-mail:	Steven.Harrison@terracon.com



2 Table of Contents

2 Table of Contents



1 Title Page 1

2 Table of Contents..... 2

3 Letter of Transmittal 3

4 Technical Approach 5

5 References 18

6 Project Team Form..... 30

7 Organizational Chart 32

8 Statement of Skills and Experience of Project Team 36

9 Resumes of Key Personnel 65

10 Office Locations 83

City Forms Uploaded to IonWave



3 Letter of Transmittal



3347 NW 55th Street
Fort Lauderdale, FL 33309
(954) 741 8282
Terracon.com

December 22, 2025

City of Pompano Beach
1190 NE 3rd Avenue, Building C
Pompano Beach, Florida 33060

RE: Letter of Transmittal for Request for Letters of Interest (RLI) No. 26-004
Continuing Contract for Professional Environmental Testing

Dear Evaluation Committee Members:

Terracon Consultants, Inc. is pleased to respond to the City of Pompano Beach RLI for Continuing Contract for Professional Environmental Testing. We understand the City of Pompano Beach (COPB) and the Pompano Beach Community Redevelopment Association (CRA) are seeking experienced and qualified firms to provide professional environmental testing services on a continuing as-needed basis to support the City and CRA with transactional items, operations, improvements, and growth initiatives. Professional services will involve research, permitting support, environmental investigation/evaluation, presentation of findings, recommendations, and/or general plans in support of environmental aspects of City projects from start to finish. Terracon is also prepared to resolve problems as requested on the City's projects. Other services not covered by Florida Statute (F.S.) 287.055 may also be required.

The Terracon Team has the capabilities, resources, and experience to successfully provide these services to the COPB, as we have since 2010 (as Terracon and previously through our subsidiary Sphere Environmental Services, LLC).

QUALIFICATIONS: Terracon is a recognized leader, both locally and nationally, in providing environmental testing and engineering services for local governments and private clients. With the support of our team members, we are prepared to support the City with the assessment, due diligence, evaluation and design services needed to support water and sewer, roadway/streetscape, drainage, seawall/dock, parks/recreational and stormwater projects that require design, repairs or upgrades to existing infrastructure, structures or roadways, as well as new City projects.

Terracon has more than 8,000 employees in over 200 offices, including a 13-office network in Florida. With the strength of our firm and our existing operations, we have a tremendous presence and broad scope of knowledge within the City and statewide. We offer four offices with a staff of 88 strong in South Florida (9 registered professional engineers, 4 registered professional geologists, wetland inspectors and scientists, 5 materials project managers, 1 project industrial hygienist/mold assessor, various levels of staff engineers, geologists, and scientists with multiple certifications (i.e. mold, asbestos, stormwater, radon, water well, etc.), 5 environmental technicians, 40 certified laboratory/engineering technicians, and 1 full-time drilling crew.

Terracon's staff understands the COPB's needs and the types of projects that will arise from the referenced contract. We have performed these services for local municipalities for over three decades. We frequently work within the City's limits and nearby areas for both public and private sector clients. As an incumbent of this contract, we are committed to performing the work within the required period (s) and have a strong track record of providing on-time and on-budget deliverables. By anticipating project requirements and adapting to challenges, we will make it easy for the City to work with us. For projects large and small, single- or multi-site, you can rely on consistent, accurate, and prompt results.

Why Terracon?

Providing Services to the
Local Area for over 30 Years

Incumbent of this Contract

Similar Continuing Contracts
with Numerous City and
County Agencies

State of Florida Licensed
Engineering, Geology, and
Asbestos Business

Radon and Lead-Safe Certified
Firm

Accredited/Certified Soils and
Materials Testing Laboratories

Key Professionals with
Multiple Licenses and
Certifications

Court-Qualified Engineering
Experts

Certified, Trained, and
Experienced Field and
Laboratory Staff

Uncompromising Commitment
to Ensure Everyone Goes

DEDICATED TEAM AND ASSIGNED LEADERSHIP STAFF: Terracon will service this contract from our Fort Lauderdale office (3347 NW 55th Street), which is located about 15 minutes door-to-door from your office to ours. Our local office is presently staffed with 27 employees.

Steven Harrison, P.G., will serve as the Contract/Project Manager and direct point of contact during the term of this contract. Available 24/7 to all COPB staff and their consultants, he will lead and direct the work full-time from our Fort Lauderdale office. Steven and Chris McIntyre, P.E., Senior Vice President of Operations - Florida Division, are authorized to make representations and agreements on behalf of Terracon. Steven, Principal and Environmental Department Manager of the Fort Lauderdale and Miami offices, brings 36 years of successful experience, continuously exceeding expectations by resolving clients' environmental situations.

Steven will be supported by Javier Jimenez, P.E., who brings 28 years of experience in engineering consultancy administration, management, and development. As the Operations Manager for the Fort Lauderdale and Miami offices, he is able to allocate the firm's resources to this contract. Javier oversees the region's multidisciplinary practice, focusing on environmental, facilities, geotechnical, materials testing, and laboratory services for both public and private sector clients.

KEY OBJECTIVES: Our primary objective for this continuing services contract is to provide cost-effective (value-added) and prompt engineering services for City projects within prescribed budgets or on a fee basis, as requested by the COPB. Based on our experience, meeting this objective will require superior performance within the following key categories: 1) technical expertise and 2) personalized, attentive service. Terracon's team has a proven record of accomplishment and is excited to continue these practices for the COPB.

Responsive, personalized service is a significant part of Terracon's mission. We know it is essential to have strong local leadership and a large local staff ("bench depth") to meet the City's expectations. Terracon's staff and resources will allow us to deliver the responsive and cost-effective (value-added) services you require. We are willing to meet any location, budget, task orders, or procurement goals.

ABILITY TO MEET STANDARDS: The Terracon Team is best qualified to perform environmental testing for this contract. As a Florida-licensed professional engineering, geological, asbestos, and mold assessor business organization, a Florida Department of Health (FDOH) certified radon measurement business, an American Industrial Hygiene (AIHA) certified industrial hygienist, and a Florida Department of Environmental Protection (FDEP) qualified petroleum cleanup contractor, Terracon can expeditiously and professionally respond to all the City's environmental needs.

A priority for Terracon is to service local governments through continuing service contracts, and the COPB is no exception. Statewide, we hold over 110 continuing service contracts (environmental, facility, geotechnical, construction testing, and inspections) with approximately 70 governmental agencies, including state, county, and local governments. Terracon has an outstanding record of contract extensions and reselections under these contracts and has never been terminated. More importantly, we have provided on-call services for more than 60 years, including 30+ years on local projects.

With virtually no learning curve, we are confident that the Terracon Team will deliver high-quality professional engineering and testing services to this contract, with a genuine understanding of the City's time and budget constraints. We look forward to demonstrating our continued commitment to the City of Pompano Beach and the CRA on future projects. Please contact us for any additional information.

Sincerely,



Steven A. Harrison, P.G.
Principal, Environmental Department Manager
Contract/Project Manager



Javier E. Jimenez, P.E.
Senior Associate, Operations Manager
Materials QA/QC Review/Senior Project Manager

Direct Point of Contact

Steven A. Harrison, P.G.*
Contract/Project Manager
3347 NW 55th Street
Fort Lauderdale, FL 33309
O: (954) 741 8282
D: (954) 703 1866
Steven.Harrison@terracon.com

AUTHORIZED TO MAKE REPRESENTATION FOR FIRM *

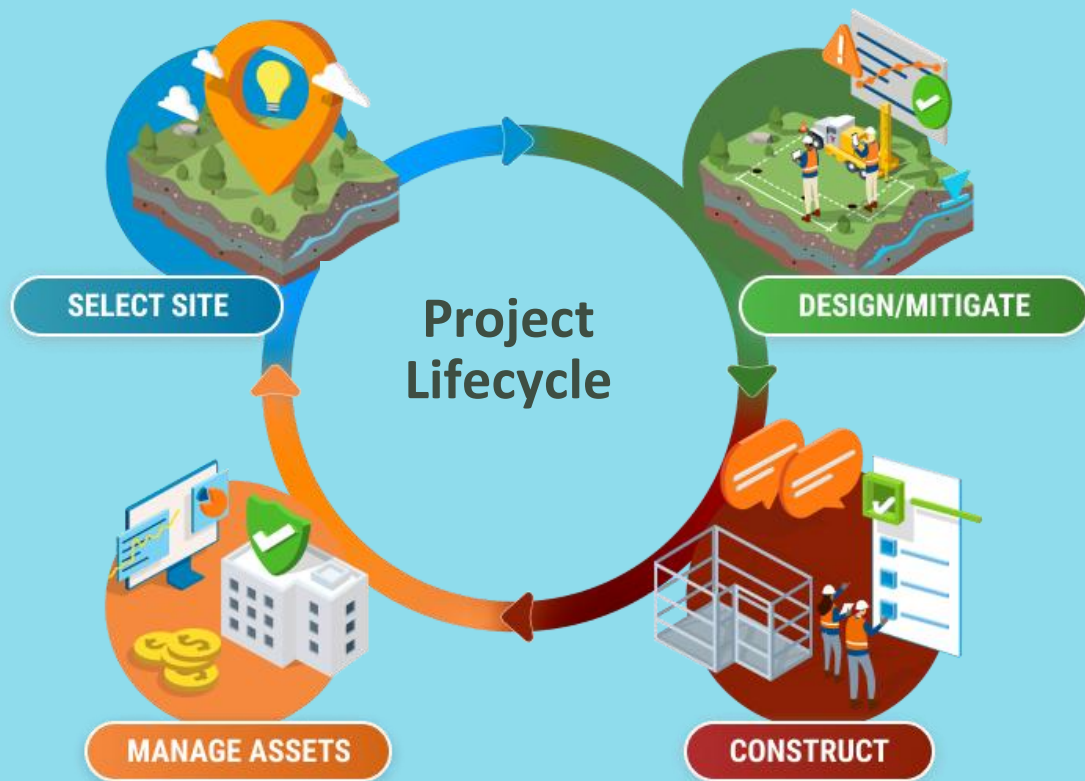
Chris L. McIntyre, P.E.
Senior Vice President of
Operations - Florida Division
Senior Principal
8001 Baymeadows Way, Suite 1
Jacksonville, FL 32256
O: (904) 900 6494
D: (904) 703 1866
Chris.Mcintyre@terracon.com

Explore with us



4 Technical Approach

4 Technical Approach



A Trusted Partner for Every Phase of the Project Journey

From start to finish, Terracon's engineers, scientists, and consultants can help you navigate the complexity of the City of Pompano Beach's projects. Every project has a lifecycle that runs from concept through inception, construction, management, and back to redevelopment. Terracon's professional services provide exceptional benefits during each of these stages; regardless of which stage of the project's lifecycle the site is in, we are ready to assist.

Terracon is built to support your project needs through exploration and discovery of the details that affect your site. We are a courageous, collaborative, multidisciplinary team dedicated to supporting your project with care at every stage – from site selection and design and mitigation to construction and asset management. Wherever you are in your project, we're ready to meet the City there.

On-time and real-time data-driven insights, provided by our talented employee-owners, create an unmatched client experience that spans the lifecycle of any project from earth to sky.

4 Technical Approach

SELECT SITE

We'll help you identify and select the best site – to minimize potential problems that can be expensive to deal with during site development and construction.

Assessment of Land

- Specialized data consulting and analytics for siting and suitability studies
- **Preliminary Environmental and Geotechnical Desktop Studies Based on Existing Proprietary and Public Data**
- **Environmental Contamination Concerns (Phase I, Phase II)**
- Soil/Site Conditions (Geotechnical/Geophysical)
- **Natural/Cultural Resource Studies**
- Geological Hazards
- Feasibility
- **Air Emissions and Water Permit Planning**

Existing Structures

- Property Condition Assessments
- **Environmental Due Diligence**
- **Hazardous Materials Assessments**
- **Environmental/Regulatory Compliance**
- **Repurposing Feasibility**
- **Regulatory Compliance Planning**

* **Boldface font** is utilized in the list above to highlight the services that are likely to be utilized during the terms of this contract.

DESIGN/MITIGATE

We provide solutions to help you quickly advance to construction.

Building Design Assistance

- Geotechnical Engineering and Foundation Design
- Building Enclosure, Design Reviews, Plans and Details
- MEP and Building Enclosure Commissioning Consultation
- Materials Selection Consulting
- **LEED Consulting and Gap Analysis**
- **Code Compliance and Specifications Review**
- **Environmental Compliance and Permitting**

Mitigation of Site Issues Prior to Site Development or Demolition

- **Environmental Site Investigations**
- **Regulatory/Risk Management Assistance**
- **Remedial Design and Action Plans**
- **Natural and Cultural Resource Compliance**
- **Construction Stormwater Planning and Compliance**
- **Groundwater/Dewatering**
- **Hazardous Materials Abatement Design and Management**
- **Disposal of Hazardous Materials**
- **Brownfields Assistance**

CONSTRUCT

We help you get it built on time and budget with timely delivery, accurate results, and value-driven service.

Construction QA/QC

- Testing and Inspection of Construction Materials
- Observation of Foundation and Pavement Installation
- Failure/Non-compliance Investigations
- Detection of Changed Conditions
- Construction Administration Support
- Construction Consulting/Owner's Rep Services
- Vibration Monitoring
- **Building Enclosure Testing, Observations, and Consulting**
- MEP and Building Enclosure Commissioning

Environmental Compliance

- **Air Monitoring and Oversight**
- **Remedial Management and Oversight**
- **Construction Monitoring for Environmental Compliance**
- **Underground Storage Tank (UST) Removals and Compliance**
- **Perimeter Ambient Air Monitoring**
- **Construction Stormwater Compliance**

MANAGE ASSETS

By helping you prioritize capital expenditures, we extend the useful life of your facility.

Building and Occupant Health

- Building Enclosure
- **Air/Water Infiltration Investigations**
- **Industrial Hygiene/Indoor Air Quality (IAQ)**
- **Hazardous Materials O&M Plans and Management**
- ADA Compliance
- Energy Management and Usage Studies
- Structural and Materials Assessment/Monitoring

Unanticipated Issues

- **Rapid Response – Spills**
- **Natural and Manmade Disaster Response**
- **Property Transaction Support**
- Repair/Maintenance Design and Construction Management
- Cause and Origin Diagnostic Investigations

Asset Management

- **Facility Asset Management Programs**
- **Pavement and Roof Evaluation/Management**
- MEP Studies
- Immediate and Long-term Capital Expenditures
- **UST Management**
- Re/Retro Commissioning
- System Replacement/Rehabilitation Design and Construction Administration
- **Facility Condition Assessments**
- Repurposing Evaluation
- **On-going Regulatory Compliance**

4 Technical Approach

Experience Providing the Requested Services

Successful completion of engineering projects is a direct function of beginning with a proper approach that establishes lines of communication between the technical team and the City so that all project objectives are understood at the outset of the project. This level of clear and concise communication allows the team to develop an accurate scope of services and fully evaluate project costs, timelines for completion, and requirements of project deliverables. Terracon's approach to projects being conducted City will follow a uniform process developed by Terracon to ensure timely and cost-effective completion of assigned projects. While the overall process is consistent and clear, variations due to the different services are highlighted within the approach to project completion.

The City's forward momentum and growth are unstoppable. The City's commitment to protect and improve environmental quality, community cohesion, and shared prosperity of the City is clear, and the City's understanding that these objectives can be achieved through creative investment in resiliency, resource management, land use and transportation, and education and culture is evident in the manner in which plans are developed. Terracon's team advocates and supports for progressive efforts within itself and our clients, and we welcome the opportunity of this partnership to support the City's vision and ultimate growth.

Committed to Delivering Success....Safely

Safety first! Incident and Injury-Free (IIF)

Safety is one of Terracon's core values, and our commitment to an "Incident and Injury-Free (IIF)" philosophy is one of the pillars of our culture. Successful execution and delivery include the need to work safely and keep our employees and the public safe every day. Terracon and its subsidiaries are very much a safety-oriented company. We strive to build health and safety into all aspects of our business and into the thinking of our employees. This culture is further continued in our everyday work environment, with all meetings beginning with an IIF moment and a safety discussion.



What is Incident and Injury-Free?

IIF is about care and concern for people. It is our personal and organizational commitment at all levels of the company to ensure that everyone goes home safe to their family every day. It is where safety is held as both a core value and an operational priority. Working safely is an inseparable part of working correctly, just as much as other operational priorities, in particular, quality, budget, and schedule. Incident and Injury-Free is our commitment to our people, who we value for who they are and what they do.

Conducting our work safely means conducting our work in the only acceptable way. Incidents, injuries, and accidents will not be viewed as problems to make go away, but as opportunities to strengthen Incident and Injury-Free. Incident and Injury Free is about developing a mindset intolerant of any incidents or injuries, no matter how minor or infrequent.

Our Rules to Live By

Our Rules to Live By are at the foundation of our IIF culture. These give employees clear, specific ways to stay safe on the job, covering essential aspects of safety including personal protective equipment (PPE), equipment and tools, working at heights and depths, motorized vehicle safety, and reporting of injuries. We regularly use and discuss our 'Rules to Live By' and associated practices in our offices and on job sites to ensure that everyone follows these fundamental guidelines. Our focus on pre-task planning also serves to reinforce this message every day.



Terracon can't just tell someone to "be safe"; however, we can ask our employees to follow Our Rules to Live By, conduct pre-task planning for each task every day, and adhere to the safe work practices they have been trained to follow to complete work at a task level. Our Rules to Live By have made a measurable difference in keeping our employees safe and in helping us preserve the trust and business with our clients.

4 Technical Approach

We hope to continue our commitment to safety and welcome the opportunity to further discuss our IIF culture and its evolution as well as how it can tie in to the City's upcoming projects.

Incident and Injury-Free is about care and concern for people. It is our personal and organizational commitment at all levels of the company to everyone going home safe to their family every day.



In addition to the overall concern for the safety of all employees, every project where subsurface intrusive work will occur, begins with the preparation of a Site-Specific Health and Safety Plan (SS-HASP) to identify site specific conditions that could result in injury or chemical exposure to site workers. Underground clearance is conducted by white lining the work area and contacting the Sunshine 811 network to verify if public utilities are within the work area.

Environmental Engineering

Environmental engineering services are involved in many aspects of projects in both the built environment and the open areas where no construction activities have taken place. Terracon's team of highly experienced professionals have completed vast numbers of projects within the built, and yet to be built, environment; we are prepared to support the City as they are involved in all aspects of projects to support the construction, acquisition, and rehabilitation of city facilities, infrastructure, and equipment, inclusive of, but not limited to, demolition and development of new facilities, water, sewer, and storm-drain piping/repair, upgrades of facilities (restrooms included) within parks, waterbody dredging and seawall repair support, contaminant assessment and remediation. Our environmental engineering experience extends to renovation planning (that affects the built environment) and retrofit/improvements that will involve built and unbuilt environments.

Our team of environmental engineering professionals assist municipalities and private entities with services to support their projects within the existing structures, outside of existing structures, and at sites where new structures are planned. Terracon's depth of experience, as provided by our in-house team of environmental professionals, is exemplified by the thousands of projects we have conducted across a wide range of environmental issues and concerns.

The following task list provides a representative listing of our current in-house expertise as it relates to environmental engineering, commonly provided to support the evaluation and development of project facilities:

- Due diligence studies
- Development of hazardous waste assessments
- Preparation and submittal of site (contamination) assessment reports
- Preparation and submittal of Remedial Action Plans
- Asbestos consulting services
- Lead paint consulting services
- Mold/moisture consulting services
- Petroleum facility inspections and testing
- Wetlands
- Threatened and endangered species
- Archaeological investigations
- Design and preparation of construction documents for environmental projects
- Preparation of project schedules and cost estimates
- Project bidding
- Permitting and compliance with Federal, State, and City regulations
- Grant assistance including services during construction

4 Technical Approach

We have performed environmental engineering services in support of infrastructure, roadway, drainage, expansion and maintenance, building renovation planning and retrofit/improvements, and site development for many project sites throughout South Florida and throughout the country for a wide range of clients, including public and private entities as well as A/E firms, program managers, construction managers. Terracon's environmental services include:

- Phase I/II Environmental Site Assessments (ESAs)
- Contamination Assessment Plans (CAPs), Reports, and Monitoring
- Contamination Assessments
- Remedial Action Plans (RAPs), Implementation, and Reports
- Waste Characterization/Dredge Analysis and Disposition
- Remedial Design and Implementation
- Remediation System Operation and Performance Testing
- Risk Management Assessment Studies
- Management of State of Florida Petroleum Cleanup Sites
- Underground Storage Tank (UST) Management, Closure and Assessment
- Brownfield Site Management
- Brownfield Site Redevelopment
- Public Presentation and Meeting
- Asbestos/Lead/Mold/Indoor Air Quality (IAQ)
- Industrial Hygiene, Health and Safety
- Property Condition Assessments (PCAs)
- Protected Wildlife Surveys
- Landfills/Solid Waste Planning and Design
- Regulatory Compliance
- Environmental Management System
- Stormwater and Groundwater Monitoring
- NEPA (National Environmental Policy Act) assessments
- Natural Resources/Wetlands Delineation/Mitigation

Task Order Management and Communication

The key to delivering successful services lies in the quality of communication between the client and the project team. Terracon will assign a highly experienced project manager to provide your team with a direct line of communication. Our project manager will receive task order requests and assign the appropriate project team based on the technical requirements and geographic location.



The project manager will be responsible for overall performance, administration, billing, and project review and will serve as your main point of contact. They will be fully responsible for meeting requirements, expectations, and schedules, project quality, report writing and submittals, managing subcontractors, and communicating resource needs.

There will be frequent communication between our project manager and your staff, as this has proven to provide more responsive and consistent results when managing these types of services. We will also provide your staff with draft meeting notes before finalizing them to minimize the chance of misunderstandings and miscommunications. Our project manager will call or meet periodically with the appropriate task managers to continually check on our progress and performance. We will also conduct a close-out review with your staff for every task order completed to ascertain that the task's objectives have been satisfactorily achieved.

4 Technical Approach

We understand that selected firms will be responsible for providing professional environmental engineering, consulting, and testing services to assist you, comply with federal, state, and local regulations, promote pollution prevention through projects and business practices, and remediate property.

Terracon understands that the City's primary objective is to obtain the services of a qualified environmental engineering consulting firm to provide professional services supporting the City's objectives. Terracon will support this critical mission throughout the duration of the contract, and Terracon's firm goal is to fulfill and exceed the client's objectives on every project. This not only requires Terracon to focus on the technically accurate and efficient completion of each project but also to make certain that every project is completed within the agreed-upon time and budget constraints.

Approach to the Scope of Work

Through the performance of hundreds of projects in similar environments, Terracon and our team members are intimate with the technical details required to complete these types of projects, allowing us to anticipate typical diversions, maintain project direction, and effectively complete the project within the allotted time frames and proposed budget. By knowing that unknown circumstances are an eventuality of environmental engineering projects, Terracon incorporates contingency plans into projects that allow us to aggressively address new findings to minimize impacts on the projected schedule and budget. We understand that any changes will also affect the City schedule and budget, and we must complete projects efficiently.

Every project will begin with a strategy meeting where Terracon joins with the COPB team to discuss the project. As part of the meeting process, Terracon and City personnel will review the project details in question, including an overview of the City's goals. Terracon's staff and its team members will work with you to assess site conditions and provide the necessary environmental services as requested by the City. Terracon's schedules always consider a buffer to address issues that were not directly identified but suspected to have the possibility of being exposed (USTs, hydraulic lifts that may exist where there is no record of their presence, asbestos identified in building materials).

The experience and diversity of Terracon and our team's staff enable us to resolve even the most complex environmental situations that may be encountered. To achieve this, a series of steps has been designed to ensure that our clients receive expedient, accurate, and individualized services tailored to meet their needs, both today and in the future. Terracon's commitment to client satisfaction is demonstrated by our individualized project management approach that begins each project with a "kickoff" meeting where technical, financial, and scheduling goals are outlined to ensure that every project meets the client's goals and required quality assurance (QA) objectives.

Prior to the initial meeting with the COPB, Terracon will conduct a preliminary review/inspection of the site to understand the location and type of property that is to be addressed. With a preliminary understanding of the overall site conditions, Terracon will meet with you to review the City's goals for the site so that a strategy can be developed to meet that objective. The proposed usage of the property is a critical factor in finalizing a remedial course of action because risk-based closure options offer a viable option, but, as there are potential exposure issues to site occupants, they would need to be managed properly.

Terracon has developed a phased approach to projects that begins with an initial site inspection and review to understand current conditions and physical limitations. We will incorporate these observations with the City's plans to develop a timely approach to inspect the site in greater detail. As information regarding the site and its environmental conditions is developed, additional phases of work may be required. These may include assessment of building materials, indoor air quality, impacted sediment, soil, and groundwater, removal of USTs, and remediation of impacted soil and groundwater in advance of obtaining closure from the Florida Department of Environmental Protection (FDEP) and/or Broward County Environmental Protection and Growth Management Department (EPGMD). Approval may be with or without conditions (institutional and/or engineering controls). The exact path is unknown, but it will be developed in a manner that helps to control the financial impact while continuing to move the project forward.

4 Technical Approach

Once the scope of services for each phase of work is understood, Terracon will provide the City with a detailed budget that includes the scope of work along with a timeframe and cost to provide the services. Terracon has developed an estimating tool called the Pricing Tool, which enables our project managers, estimators, and subject matter experts to work together on delivering consistent pricing, improving manpower forecasting, and driving on-time project delivery of our deliverables. The Pricing Tool is pre-loaded with all rates and laboratory costs into our accounting system, allowing our project managers to develop an accurate budget via a simple schedule and quantities.

Terracon will work with the City to adjust any scheduling conflicts to meet specific timeframes that may have been previously unknown to Terracon. Upon receipt of the City's approval to proceed, all personnel assigned to the project under Terracon will immediately begin their portion of the project.

Each task included under the overall authorization has a time frame and budget associated with it, which each department is responsible for managing internally. Project managers will provide internal updates on a weekly basis to keep track of project status and keep the project on schedule. Constant communication between members keeps projects moving smoothly, as we are very aware that maintaining our client's goals is of the utmost importance. In addition to tracking the timing of the project, Terracon utilizes an internal cost-tracking system to track labor efforts and materials used on individual project sites so that budgets can be accurately maintained. Small cost overruns due to internal efforts will not be charged to the City. Completing projects on time and on budget is a critical component and metric to measure the success of a project and is a primary component of every project.



The project manager will be responsible for overall performance, administration, billing, and project review, and will serve as your primary point of contact for your project manager. They will be fully responsible for meeting requirements, expectations, and schedules, as well as project quality, report writing, and submittals, managing subcontractors, and communicating resource needs.

There will be frequent communication between our project manager and your staff, as this has proven to provide more responsive and consistent results when managing these types of services. We will also provide your staff with draft meeting notes prior to finalizing to minimize the chance of misunderstandings and miscommunications.

Although we have developed many methods for you to receive and review your information, none of these technologies and tools are as important as simply conversing about your test result or report. All the information in the world in a written report is of little value if the recipient does not know what it means or how to utilize it, which is why we call first whenever there may be concern about a report's contents. At Terracon, we don't just report it and forget it. We strive to be your partner, working together through the entire process—planning and solutions.

Our project manager will periodically contact or meet with the appropriate task managers to continually monitor our progress and performance. We will also conduct a project close-out review with your staff for every task order completed, to ascertain that the task's objectives have been satisfactorily achieved.

As with all projects, there is the potential to encounter unknown conditions (such as an unknown historical septic tank in the area of excavation) or unanticipated analytical results (groundwater impacts are larger and more widespread than anticipated), which may require additional time and/or funds to complete the project as intended. When this occurs, the City will be notified and provided a written summary of findings so that Terracon can work to minimize the impact to the original budget and schedule.

4 Technical Approach

Quality Control

Terracon is committed to providing quality services with experienced technical and professional staff through our comprehensive Corporate Quality Program. As required by our internal quality review process, every project is assigned a well-experienced, senior professional to provide guidance and technical review for the project team. In this manner, we are able to deliver consistent, high-quality consulting services to our clients nationwide. This program is based on a continuous improvement philosophy that involves our employees and, when applicable, subconsultants, vendors, and users of our services. Quality service for our clients is achieved by following the methods and practices that have been developed at Terracon for the services being provided.

Terracon maintains a living, written internal quality control/quality assurance (QC/QA) program to ensure that all of Terracon's reports and documents are complete, technically accurate, regulatory compliant, and defensible. The QC/QA program is detailed in a Project Quality Review Manual, which is Terracon's primary QC/QA mechanism, relying on the industry best practice of secondary and independent review. Terracon-selected reviewers, termed Authorized Project Reviewers or APRs, provide the foundation for our quality review process.

Technical staff and senior professionals are appointed as APRs through a highly selective process, which maintains quality and consistency of Terracon project deliverables. Our philosophy behind quality review is founded on the premise that our projects and associated deliverables are always provided the direction and oversight of our experienced senior technical professionals.

Contract/Project Manager, Steven Harrison, is accountable for the overall quality of the project. He is also responsible for verifying that the applicable QC criteria, project quality review and company policies have been followed. Our primary mechanism for achieving quality on every project begins with the individual performing the work. Each Terracon employee has responsibilities for professional, technical, or administrative quality, whether for client projects or internal service assignments.

AUTHORIZED PROJECT REVIEWER (APR) RESPONSIBILITIES



To ensure our personnel execute their responsibilities, Steven and the appropriate APRs will be responsible for conducting checks and reviews, as required, from the inception of the project and proposal development to critical junctures throughout the project to verify that the elements of QC are continuously addressed during the project.

It is true that every once in a while, the technical needs of an aspect of a project can exceed the skills of our Project Manager. When this situation arises, Terracon has pre-identified and organized into categories our subject matter experts (SME). These SME's are located throughout the company and are available at a moment's notice to assist in resolving any project issue or challenge.

Terracon's success with this type of contract stems from an experience-based approach, led by senior professional engineers, that reacts responsively to schedule demands, produces complete and reliable technical reports, and proactively implements cost control measures. We commit to the City of Pompano Beach that same level of service for the duration of this contract.

4 Technical Approach

Quality Assurance – Sampling Activities

Data quality objectives of every project are established prior to initiating a project so that data obtained is accurate, appropriate, sufficient, and cost-effectively generated. Terracon staff members assigned to sampling activities receive in-house and on the job training to conduct sampling activities in accordance with FDEP's Standard Operating Procedures (SOPs) DEP-SOP-001/01, and other FDEP program-specific SOPs such as at petroleum sites: PCS-004 – *Soil Assessment and Sampling Methods for Bureau of Petroleum Storage Systems Sites*, PCS-005 – *Groundwater Sampling Procedures Standard Operating Variances and Clarifications for Bureau of Petroleum Storage Systems Sites*, and PCS-006 – *Design, Installation and Placement of Monitoring Wells*. Terracon ensures that well construction, installation, and abandonment are conducted in accordance with the protocols listed in Chapter 40C-3. Field, reporting, documentation, and records retention will conform to Chapter 62-160, Florida Administrative Code (FAC).

Field Sampling Quality Assurance Requirements

All field sampling methods will be performed in accordance with the FDEP SOPs for Field Activities (DEP-SOP/001-01), and Chapter 62-160 FAC, and the methods for compliance are incorporated into Terracon's *Field Sampling Quality Manual* (FSQM). The FSQM details the procedural methods for compliance, sampling capabilities, record keeping and documentation, inventory and calibration of field equipment, and data review and corrective methods.

Samples will be collected of groundwater, surface water, sediment, soil, soil vapor, and indoor environments for analysis of pesticides, metals, nutrients, petroleum, chlorinated solvents, asbestos, fungal spores, and other contaminants, as appropriate. Unless otherwise specified, reports submitted to the City will include laboratory reports containing the information specified in FAC, Chapter 62-160, completed chain-of-custody (Form 62-770.900[2]), field instrument calibration records (Form FD 9000-8), and completed water sampling logs, boring logs, well construction logs and development logs. Presentation of data that involves analytical results which report method detection limits in excess of cleanup target levels (CTLs as specified in Chapter 62-777, FAC) will be in accordance with the FDEP's "Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits" dated October 12, 2004 and the Memorandum *Quality Assurance and Related Issues* dated May 14, 2007 to determine how to evaluate data when the CTL is lower than the Practical Quantitation Limit (PQL).

Groundwater and soil sampling will involve the collection and analysis of QA samples detailed in SOP FQ 1000, Quality Control with FDEP/SOP-001-01. Based on the sensitivity and rigorous nature of the reporting required for the project and use of the data for screening, or regulatory purposes, Terracon is prepared to collect QA samples to comply with rigorous QA sampling frequencies developed for other projects, as shown in the following table:

Quality Assurance Samples	
QA Sample Type	Frequency
Duplicate samples (soil/ groundwater)	10% of each sampling event
Duplicate samples	5% of each sampling event (collected from same container as the original sample)
Split samples	10% of each sampling event
Field generated blanks	5% of the samples collected
Trip blanks (volatile sampling only)	One per cooler
Equipment blanks – Pre-cleaned equipment	Collected prior to equipment use (FDEP SOP/001-01 FQ1211)
Equipment blanks - Field-cleaned equipment	Once per day (minimum) (FDEP SOP/001-01 FQ1212)
Field generated blanks	Each sampling day

4 Technical Approach

Laboratory Quality Assurance Requirements

Terracon contracts exclusively with analytical laboratories that are accredited through the National Environmental Laboratory Accreditation Program (NELAP) and certified by the Florida Department of Health (FDOH) to perform laboratory analyses of the various sample media collected during site investigations and will obtain City approval prior to use.

The laboratories subcontracted by Terracon will, if requested, provide copies of their quality manuals, which verify that they follow the National Environmental Laboratory Accreditation Program (NELAC) guidelines. The laboratories will agree to and accept the standards included in the Laboratory Standardization Guidance Document provided by the City and will identify, in writing, those standards with which they cannot comply. Approval for use of alternate laboratories will be requested in writing to allow for performance of the City's audit process. The approved laboratory(ies) will not subcontract analyses outside of their internal network without prior approval.

Upon receipt of samples in the laboratory, the laboratory will verify that the samples were received at proper temperature and in accordance with the chain of custody and will notify Terracon immediately of any problems. The laboratory will immediately notify Terracon if a sample is received and/or analyzed out of holding time. After verifying proper receipt, the laboratory will set the samples for analysis and, upon completion of the analysis, will email Terracon the Laboratory Receipt Deliverable.

All analytical protocols and QC requirements will adhere to the FDEP's QA Rule (62-160 FAC), FAC Chapter 64E-1, and NELAP. Terracon will advise the laboratory of Data Quality Objectives prior to, or at the time of, a sample kit request.

The ADaPT data validation program is available for use to validate the laboratory data from each set of samples received and included with each laboratory report, along with a Report Narrative for the project. Terracon understands that not all projects require an additional level of data validation (i.e. Phase II ESA due diligence sample screening), but we are experienced in using the ADaPT validation program to review field data and QA/QC laboratory results according to the United States Environmental Protection Agency (EPA) Protocol, Chapter 62-160, FAC, and ADaPT library criteria and have the laboratory rework any QC or sample data to verify results outside the recommended criteria. Final reports will include a letter explaining any discrepancies in sample results.

Technical Training

Having industry-specific training is critical to providing quality services on our projects. Our field personnel includes professional engineers and geologists, engineering technicians, and construction inspectors who hold certifications with national agencies such as the American Concrete Institute (ACI), International Code Council (ICC), National Institute for Certification in Engineering Technologies (NICET), American Welding Society (AWS), Post-Tensioning Institute (PTI), Occupational Safety & Health Administration (OSHA) as well as many state-specific certifications and site-specific training requirements.



In addition to external training, Terracon encourages, supports, and provides training and continuing education for all our employees. Terracon University is an internal training and education resource providing many relevant areas of study and formats for learning, including live virtual sessions to recorded video training. We offer safety, engineering, project delivery, industry applications, client development, marketing, and personal and professional development courses. We can track each employee's learning path and ensure if job-related certificates and licenses are required, they receive information about renewals promptly.

Training is not just limited to technicians and inspectors, though. It is also required for our project managers. Each Terracon project manager must pass a rigorous five-part training course before managing a single project. Training courses focus on budget and projections, schedule management, and proactive communication. A Terracon project manager always knows where they stand within the budget and the percentage completion of the project. We will proactively share this information with you regularly based on your preferences.

4 Technical Approach

Subconsultant Utilization

We prioritize building the best team internally and externally to deliver a successful project. A successful project also incorporates experienced and effective leadership. We aim to create a collaborative team to deliver a successful project while positively impacting our communities and partners.

Occasionally, we may need to partner with outside subconsultants to meet specific project requirements. We hold our subcontractors to the same standards as ourselves, including safety and quality. Additionally, we have an exceptional record of meeting and exceeding diverse business supplier goals across various project sizes. We take great pride in promoting diverse business participation whenever possible. We partner with small, minority, and/or woman-owned business team members we know and trust.



For this project, we have partnered with Keith and Associates, Inc. (KEITH), a civil engineering firm, to provide civil engineering, survey, and landscape architecture support for projects to be conducted during the term of this contract.

Civil Engineering

The KEITH Team has the expertise to provide a wide variety of general and detailed civil engineering services to respond to the diverse needs within a community. KEITH staff have provided comprehensive engineering services involving many government agencies, institutions, and municipalities. The many years of collective experience mean that the concerns of the City regarding project development will be taken into consideration throughout the entire design and construction processes. When planning, programming, and/or assessing new construction or renovations to existing facilities, the KEITH Team is cognizant of utility operational requirements and the impact they have on the firm's design work and schedule to successfully complete any work authorizations.

- **Stormwater Management** — KEITH has the knowledge and proven abilities to understand the complex nature of stormwater management with low-lying areas and their susceptibility to high tide and regular rain event flooding. KEITH is familiar with this challenge and the many potential stormwater improvement solutions. KEITH is cognizant of the balance that must be achieved between the permitting requirements, restricted positive outfalls, budget limitations, and existing historical drainage patterns. Their team has the professional acumen to fully investigate the existing conditions and propose creative solutions that will resolve and simplify the feasible alternatives. KEITH has successfully implemented Light Detection and Ranging (LiDAR) information for initial topographic investigation and determine key problem low areas and applied either ICPR or the EPA SWMM software models to analyze many projects with similar characteristics found in South Florida. In addition, their team is routinely evaluating the National Pollutant Discharge Elimination System (NPDES) Program, and the requirements to implement it for other municipalities.
- **Water Distribution and Sanitary Sewer Collection System Services** — KEITH has vast experience with studies, design, permitting, and construction administration tasks associated with water distribution and sanitary sewer collection systems. Their team has successfully worked with several South Florida utility providers and has been able to implement their engineering standards into the overall design to achieve permitting. KEITH has designed several sanitary sewer collection systems ranging from gravity collections to pressurized collection and transmissions systems including public and private pump stations, and our team is also familiar with low-pressure systems. These systems have been designed and completed throughout Broward, Miami-Dade, and Palm Beach Counties. KEITH construction administration staff has expertise with all AWWA/Florida HRS testing requirements of water distribution systems and all FDEP testing requirements for gravity/force main sanitary sewer collection systems. At Fort Lauderdale Hollywood International Airport (FLL), for example, KEITH was responsible for many miles of sanitary sewer force main, and water main relocations and upgrades associated with the construction of the South Runway. KEITH also has expert knowledge of all the latest construction methods being used by different municipalities to achieve project completion, such as pipe bursting, directional drill, and other trenchless technologies.

4 Technical Approach

- **Drainage** - KEITH recognizes that for projects adding impervious areas, a comprehensive understanding of the existing drainage system is at the core of every successful project, including drainage improvements. To facilitate this knowledge, a hydrologic and hydraulic (H&H) model will be developed to lay the foundation for the assessment and evaluation of the existing stormwater management infrastructure. It is imperative that this model be holistic and robust, as it will form the basis for evaluating the need for stormwater conveyance improvements to maintain or improve the flood protection level of services within the project and adjacent properties. The appropriate methodology and software must be selected to ensure that site conditions are accurately captured, interpreted, and practical, given the project's time and budget. The firm's experience proves extremely valuable in understanding the limitations and uncertainties of both analytic and numerical modeling results.
- **Plan Development** — KEITH has developed numerous site plans to respond to the needs of the surrounding environment from a civil engineering perspective.

Geospatial Engineering

The KEITH Team believes that one of the key elements of design is discovering unknown physical elements, utilities, easements, potential utility relocations, or any other site encumbrances. It is imperative to have the best information before embarking on any land development effort as this will limit disruption to future development activities from design through construction. Our Geospatial team focuses on survey and subsurface utility engineering (SUE) brings decades of experience combined with best-in-class technology including mobile LiDAR. Our field crews are cross trained to have both survey and utility experienced personnel on each crew allowing KEITH to expand crews, if necessary. This added flexibility allows their teams to provide increased efficiency and client response times.

- **Survey** - The KEITH Team has completed and performed similar assignments for consulting service contracts, which include numerous surveys for horizontal and vertical geodetic control surveys, construction layout and as-builts, topographic, digital terrain models (DTM), boundary determination, ALTA, trees, and other special purposes for the preparation of maps, plats, sketches, and legal descriptions. Data is collected using a wide variety of equipment from traditional levels and total stations, GPS units, static and Terrestrial Mobile LiDAR (TML) scanners and the drone, a remote-controlled boat used for hydrographic surveys, the final surveying and mapping deliverables are provided in AutoCAD or MicroStation files.
- **Subsurface Utility Engineering (SUE)** – The KEITH Team provides the ability to research, locate, and map subsurface elements in an accurate method to provide a thorough understanding of what lies beneath. Primarily, the intent is to coordinate existing utility locations; however, the team might also locate foundations, buried tanks, and other unknown underground elements. Through the use of Ground Penetrating Radar (GPR), test holes, and other exploration techniques, the data collected can be invaluable to coordinate any development project.
- **GIS Mapping** - The KEITH Team provides an unparalleled, multi-disciplinary team of Professional Surveyors and Mappers (PSM), GIS Professionals (GISP), CAD/GIS technicians and programmers, all with hands-on experience. KEITH offers a team of experienced practitioners who understand the full system development lifecycle and the importance of approaching each project systematically in this regard. Their team has been working in association with regional municipalities for more than 10 years to provide information, develop, and improve CAD/GIS functionality for these City partners. KEITH routinely applies CAD/GIS tools and techniques to standardize not only an efficient workflow, but a seamless communication process with each city.

Landscape Architecture

KEITH's Landscape Architecture Studio brings a fusion of creativity, sensibility, and vision to guide and assist with smart, long-term decisions that result in preserved or enhanced value for our projects and our community. Regardless of the project's scope, KEITH brings experience, knowledge, fresh energy, innovation, and palpable enthusiasm to each project engagement, from pre-start to post-completion.

4 Technical Approach

The KEITH Team believes that landscape architecture is the creative fusion of art and science to develop resilient solutions for the community. Their team of experts provides a wide range of services that blend their multi-disciplinary approach to create a solution for each development scenario. These solutions start with creative thinking, and decades of experience, and end with the development of community.

KEITH's team has provided innovative designs for institutional and commercial projects, residential and mixed-use developments, streetscape and roadway beautification, active and passive parks, plazas, and various urban redevelopments.

Keith has extensive experience in providing professional landscape architectural services and has worked with numerous agencies that have similar general services contracts. This includes all phases of development from site due diligence and analysis, visioning and conceptual design, development of technical construction drawings through to construction and project close-out. Plans provided may include site plans, hardscape plans, fine grading, site lighting and photometrics, planting and irrigation design, specialty features, pools and water features, and the supporting details. Their team communicates these solutions in a variety of formats, including hand renderings, CADD, BIM, or 3D Visualization, to ensure ideas are clearly understood by the public, elected officials, and/or the contractors. From the broadest stroke to the finest detail, KEITH's collective team is prepared to deliver.

In addition to landscape architecture, KEITH has licensed experts to provide Certified Arborist services. Combined with their geospatial team, their arborists will locate, identify, and accurately assess all the existing tree and palm canopy species on a site. The team will work with the local agency, contractors, and owners to determine the appropriate mitigation, preservation, or relocation efforts a site might require. From being in the field collecting data to successfully navigating an agency's mitigation/entitlement process, KEITH has the knowledge and experience needed to get the job done.



5 References

5 References



Royal Palm Beach Commons Royal Palm Beach, FL

The project consists of a 160±-acre parcel of land that was developed into a community park known as Royal Palm Beach Commons (former Traditions Golf Course site). The park's master plan includes a community center, a 9-hole executive golf course with a clubhouse, cart barn, and starter hut, a recreational area, a horticultural center, a community arts center, a restaurant/sporting center, an access roadway to all amenities, vehicular parking lots, and an extensive lake system for canoeing and kayaking.



In 2007, a Terracon (formerly Dunkelberger Engineering & Testing, Inc.), conducted a subsurface study, as a subconsultant to RPB Venture Ltd., that included drilling and sampling of exploratory borings, lake bottom probing and sampling, laboratory soil analysis, evaluation of the impact of the subsurface soils upon the proposed construction and development of recommendations for foundation design, floor slabs, pavements, earthwork and other related construction. Additionally, Terracon provided construction materials testing (field and laboratory) for Palm Beach Grading, Inc. from 2009 to 2011. In 2012 and 2013, the firm performed engineering services during construction (verification testing) to the Village and Erdman Anthony.

Because the site was a former golf course, we evaluated soil and groundwater quality to determine impacts from use of turf chemicals and found contaminants of concern in both media whose concentrations exceeded State cleanup levels. We collaborated with the project team to develop strategies for addressing the impacted media and assisted the civil engineer in creating a contaminated soil source removal plan and a construction dewatering plan, both of which were approved by the FDEP and SFWMD. Sampling and analysis were also performed during construction and source removal to assure that the construction contractor followed the project environmental specifications. At the conclusion of construction, Terracon performed a comprehensive post-construction site assessment in accordance with Chapter 62-780, FAC. The site assessment report summarized all environmental assessment and remediation activities from 2007 through 2014. We have been performing long-term groundwater monitoring at the site in support of site closure since 2009.

CLIENT:

Village of Royal Palm Beach
Christopher Marsh, P.E.
Village Engineer
1050 Royal Palm Beach Boulevard
Royal Palm Beach, FL 33411-1605
(561) 790-5161
cmarsh@royalpalmbeach.com

DATE:

08/2007 – Present

FEE:

\$270,000 estimated

TERRACON'S ROLE:

Prime Consultant and Subconsultant

5 References



City of Fort Lauderdale Continuing Services Contract Fort Lauderdale, FL

Terracon has provided the City with professional environmental services since 2014 for the continuing contract we hold as general environmental engineering consultant.

Services include but are not limited to:

- Asbestos, lead-based paint, and radon site testing, assessment, and remediation plans
- Mold contamination testing, assessment, and remediation plans
- Indoor air quality (IAQ) standards studies, assessment, and remediation plans
- Phase I and Phase II environmental site assessments (ESAs)
- Contamination testing, assessment, and remediation plans (i.e. groundwater, soil, sediment, atmospheric, miscellaneous)
- Brownfields
- Above-ground and below-ground petroleum storage tank contamination testing and evaluation
- Inspection services to monitor possible, threatened, or actual contamination and remediation activities
- Wetland delineations

Projects relevant to this contract have included:

- Health and Wellness Center - IAQ and mold assessment
- City Hall, Various Floors - IAQ and mold assessment (pictured above)
- 103 NE 3rd Street - IAQ and mold assessment
- Computer Training Center (E-312) - mold remediation
- Police Department - mold remediation
- Police Station Computer Training Room - IAQ and mold assessment

CLIENT:

City of Fort Lauderdale
Todd Hiteshew
Deputy Director – Public Works
949 NW 38th Street
Fort Lauderdale, FL 33309
(954) 828-7807
THiteshew@fortlauderdale.gov

DATE:

09/2020 – 02/2026

FEE:

On a task-by-task basis
\$410,255 estimated

All tasks have been completed
on time and within budget

TERRACON'S ROLE:

Prime Consultant

5 References

- Police CSI Department - IAQ and mold assessment
- Fire Station 88 - asbestos inspection and mold assessment
- Parks and Recreation - IAQ and mold assessment
- Assistant City Attorney 7th Floor - IAQ and mold assessment
- Public Works Administration Building - IAQ and mold assessment
- Water Plant – Asbestos Survey
- Repetitive Loss Area Analysis – Resiliency Study
- Numerous Phase I and II ESAs – Inclusive of a Multiparcel Phase I/II of the Durrs Neighborhood (pictured at right) located in proximity to a former waste facility and incinerator with concerns for Dioxins, petroleum hydrocarbons, and metals. Project was led by the CRA in support of the development of affordable housing. (Budget \$184,167, invoiced \$181,312)



5 References



Chaves Lake Park Hallandale Beach, FL

The site, known as Chaves Lake Park, encompasses approximately 32.35 acres, comprised of approximately 4.85 acres of exposed land and approximately 30 acres of a surface water lake in the vicinity of NW 8th Avenue and NW 7th Street in Hallandale Beach, Broward County, Florida. The site has been utilized by the City as a waste transfer and container storage facility, and the City is planning to convert the property into a neighborhood park that incorporates the lake.

Prior assessment efforts conducted for the upland and lake portion of the site reported the presence of arsenic and Polynuclear aromatic hydrocarbons in upland samples, along with intermittent exceedances of metals and petroleum hydrocarbon samples in surface water and sediment samples. Terracon's assessment efforts included the advancement of 36 soil borings for the collection of 70 soil samples for laboratory analyses within the upland area, and the collection and analysis of 22 surface water samples and nine sediment samples from the lake bottom and a drainage creek within the uplands. The lake reached depths of greater than 70 feet below the surface of the water, which required water and sediment sampling to be conducted from a sampling boat and/or a barge-supported drill rig for the collection of sediment/ sludge samples. Depth-specific water samplers were employed from the boat/barge to allow profiling of the water chemistry of the water column.

Analytical results of the sample media reported the presence of regulated constituents within samples collected from the central and western portion of upland soils, surface water samples, and a portion of the lake bottom sediments. Cost considerations for remediation of the site were developed in support of the evaluation of a closure strategy. The project also included preparation of Surface Water Permits for approval by Broward County. The Site Assessment Report Addendum was approved by Broward County Resilient Environment Department, Environmental Permitting Division, with a request for submittal of a Remedial Action Plan and supplemental sampling to constrain impacts within the upland areas in support of closure in accordance with Chapter 62-780 FAC. The project was completed on time and on budget with approved changes in fees to reflect new findings and changes in the scope of work.

CLIENT:

City of Hallandale Beach
Public Works Department
Jocelyn Brown
Environmental Compliance and
Asset Manager
630 NW 2nd Street
Hallandale Beach, FL 33009
(954) 457-3016
jbrown@hallandalebeachfl.gov

DATE:

01/2025 – 11/2025

FEE:

\$245,325

Completed on time and on
budget

TERRACON'S ROLE:

Prime Consultant

5 References



Broward County Consolidated Maintenance Facility Port Everglades, Fort Lauderdale, FL

The site, known as the 1826 Port PW Facility/Proposed Port Everglades Public Works Administration Building and associated shops, encompasses a one-block area at Eisenhower Boulevard between SE 21st Street and SE 22nd Street at Port Everglades in Fort Lauderdale, Florida. At the time of our services, the site was developed with the Public Works vehicle maintenance building along with ancillary shops, surrounding a vacant field that was previously occupied by ten 4-million gallon aboveground storage tanks (ASTs). The ASTs were initially utilized for the storage of molasses but were converted for storage of petroleum products, fuels, and oils. The site was proposed for redevelopment as a Consolidated Public Works/Maintenance Facility that would remove the buildings from the east and south sides of the site and incorporate the services provided within the shops, along with shops from other areas within the port, into a common unified facility.

Terracon performed a Phase I environmental site assessment (ESA), consistent with the procedures included in ASTM Practice E 1527-13, to assist the client in developing information to identify recognized environmental conditions (RECs) in connection with the historical storage of vast quantities of petroleum hydrocarbons. Terracon also provided a Tier 1 Vapor Encroachment Screen, in general accordance with the procedures included in ASTM E 2600-15, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions, and presentation of construction considerations.

A Phase II ESA was conducted by Terracon to assess soil, vapor, and groundwater quality at the site for potential impacts from the RECs and Vapor Encroachment Condition (VEC) identified in the Phase I ESA through the advancement of soil borings and the installation of groundwater monitoring wells and vapor points for the collection of soil, vapor, and groundwater samples from within areas of concern.

The project was completed on time and on budget with approved changes in fees to reflect new findings and changes in the scope of work,

CLIENT:

Broward County Seaport
Engineering and Facilities
Maintenance Division
c/o CPZ Architects, Inc.
Joseph Barry, AIA
Principal
4316 W Broward Boulevard
Plantation, FL 33317
(954) 792-8525
joe@cpzarchitects.com

DATE:

08/2019 – 10/2023
(Environmental)
08/2019 – 09/2022
(Geotechnical)

FEE:

\$224,165 (Env.)
\$25,068 (Geo.)

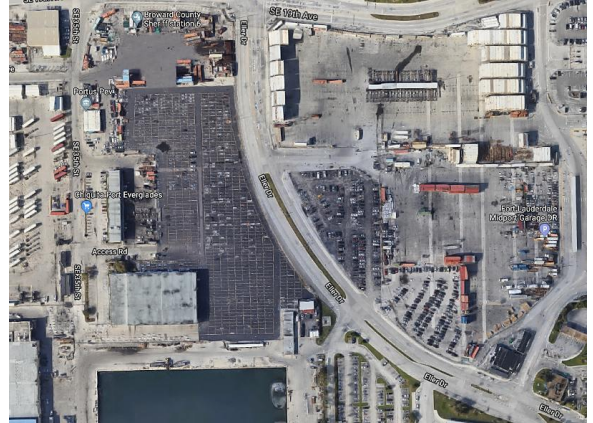
Completed on time and on
budget

TERRACON'S ROLE:

Subconsultant

5 References

Terracon also conducted two limited asbestos and visual hazardous/regulated materials surveys at the maintenance complex, work/ storage shops in other areas of the Port, and out parcel buildings for various structures (office buildings, trailers, warehouses, shops). The purpose of this survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition, and approximate quantities of ACM in interior and exterior building components of the structures. In addition, a visual evaluation for potential disturbance to hazardous/regulated materials including mercury, polychlorinated biphenyl (PCB oil bearing) items, and other miscellaneous hazardous materials within the tenant spaces that may be impacted by the planned demolition of the various buildings was conducted.



Terracon provided geotechnical engineering services including subsurface exploration, laboratory testing services, and geotechnical recommendations for the proposed construction. Geotechnical exploration services were conducted to provide geotechnical engineering recommendations relative to subsurface soil conditions, foundation design and construction, earthwork, and groundwater conditions. Soil borings were performed to a depth of 30 feet below the existing ground surface.

Exfiltration tests were performed to assist in the drainage design. The soil samples were collected, classified in the field, then transported to our laboratory for additional testing and classification. Due to the presence of 4-6 feet of organic silt, Terracon presented foundation alternatives for support of the proposed structures: shallow foundations following ground improvement and auger cast piles. Terracon also performed auger cast pile load testing and production pile monitoring during construction.

To support the proposed redevelopment, Terracon provided an expanded site investigation inclusive of conceptual remedial engineering design, and proposed subsurface investigation/underground storage tank (UST) removal services.

5 References



Kiwanis Park Coral Springs, FL

Terracon provided wetland species evaluation for the proposed development of a new boardwalk within a ± 5.61 -acre wetland on the western portion of the Kiwanis Park site in Coral Springs, Florida. Terracon was working for CPZ on behalf of the site owner, the City of Coral Springs. The work was conducted to provide supporting documentation for the application of an Environmental Resource Permit (ERP) from the South Florida Water Management District (SFWMD), provide supplemental information to support an application for a 404 permit from the Florida Department of Environmental Protection (FDEP), and provide necessary information for the application of an Environmental Resource License (ERL) from Broward County Environmental and Growth Management Department – Environmental Engineering and Permitting Division (EPPD).

Terracon's effort included the assessment of listed species, wetland delineation, and resulted in the identification of wetland impacts, wetland mitigation, and UMAM analysis to support the permit packages. The assessment efforts found that the project would entail direct impacts to ± 0.36 acres of wetlands for the development of the proposed boardwalk within the forested wetland at Kiwanis Park, and that the work would not cause adverse secondary impacts to the wetland and surface water resources.

Listed species assessments identified the Wood Stork (*Mycteria americana*) and Florida Bonneted Bat (*Eumops floridanus*) habitats that required further investigation.

The evaluation concluded that mitigation was warranted and the mitigation credits could be purchased; however, mitigation credits from an off-site mitigation bank may not be available at the time of the project. Alternative mitigation methods that can be utilized to offset the wetland impact include:

- Vegetative enhancement within the wetland system
- Utilize other wetland areas owned by Broward County and offer as a conservation easement to SFWMD

CLIENT:

City of Coral Springs
c/o CPZ Architects, Inc.
Joseph Barry, AIA
Principal
4316 W Broward Boulevard
Plantation, FL 33317
(954) 792-8525
joe@cpzarchitects.com

DATE:

05/2021 – 09/2023

FEE:

\$11,300

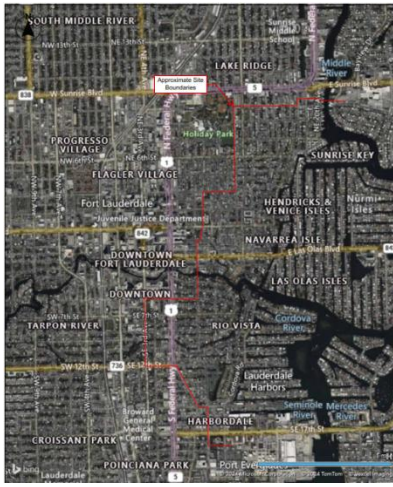
Completed on time and on budget

TERRACON'S ROLE:

Subconsultant

5 References

City of Fort Lauderdale Rehabilitation/Replacement of 48- to 54-Inch Force Main Fort Lauderdale, FL



Terracon provided environmental engineering services to support the improvement of the City of Fort Lauderdale's sewer infrastructure with the rehabilitation and/or replacement of a 48 to 54-inch force main. The path of construction for the installation of the force main winds through neighborhoods of Fort Lauderdale along a 4.1-mile route, which runs beneath the right-of-way (ROW) and extends through street running across Federal Highway, crossing a waterbody, and ending at Middle River Drive.

Terracon provided due diligence efforts through preparation of a Regulatory Database Review and Findings Report, dated December 3, 2024, that was conducted consistent with industry standards

reviewing critical aspects of a Phase I ESA to identify areas of potential environmental impacts from regulated and/or hazardous substances that could be encountered during the rehabilitation and/or replacement of the 48 to 54-inch diameter force main. Regulatory database information was provided by Environmental Data Resources (EDR), an aggregator of local, state, and federal environmental databases, which was researched through the Broward County Environmental Protection and Growth Management Division's (BCEPGMD), and/or the Florida Department of Environmental Protection (FDEP) online document management systems, ENVIROS or OCULUS, respectively. Terracon identified and reviewed files for 12 facilities of concern that were found to be located along the path of construction. Upon completion of the review and interpretation of regulatory information or the lack thereof, facilities of concern along the path of construction, which have the potential to release regulated substances that may have impacted soil or groundwater quality, along the path of construction, were identified. These impacts could potentially present a risk to 1) the direct exposure of the team working inside the trench during installation of the force main, 2) proper handling of soil excavated from the trench, 3) proper handling of dewatering fluids, and 4) structural integrity of the force main pipe over time from constituents that are potentially incompatible with piping materials.

Based on the scope of services, limitations, and findings of this assessment, Terracon recommended additional investigation through soil and/or groundwater assessment (Phase II ESA/Limited Site Investigation (LSI)) at six of the facilities of concern located in close proximity to the path of the construction.

A better understanding of potential impacts allows for the proper handling of materials and implementation of protective protocols as part of the construction effort.

Terracon completed LSI activities in 2025 to assess for potential impacts that may have resulted from environmental concerns reported in Terracon's Regulatory Database Review and Findings Report. Terracon assessed for the presence of chemicals commonly associated with 6 of the 12 identified facilities of concern in soil and groundwater samples collected within the ROW (path of construction) adjacent to the facilities of concern. Samples were collected from multiple depths to assess for variability and different horizons of potential exposure. Analytical results of the soil and groundwater samples collected from four of the sites did not report the presence of tested parameters at concentrations in excess of their Soil Cleanup Target Level (SCTLs) and Groundwater Cleanup Target Level (GCTLs). Analytical results for soil samples collected from one of the sites of concern reported tested parameters above SCTLs, and a second site reported tested parameters in groundwater samples at concentrations above GCTLs. The results were utilized by CES as part of the materials management protocols implemented for the infrastructure repair and replacement project.

CLIENT:

City of Fort Lauderdale
c/o CES Consultants, Inc.
Ernesto Fernandez, P.E.
Project Manager
CES Consultants
14361 Commerce Way
Suite 103
Miami Lakes, FL 33016
(305) 409-4542
efernandez@cesconsult.com

DATE:

09/2024 – 11/2025

FEE:

\$108,275

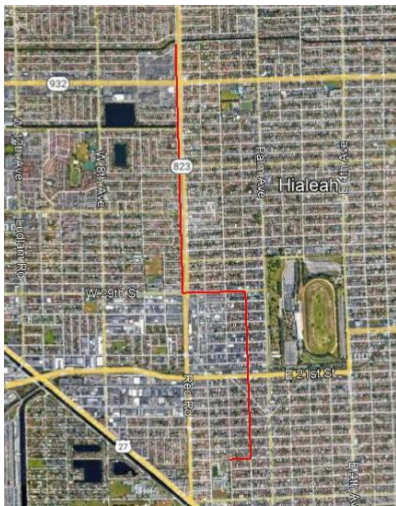
Completed on time and under budget

TERRACON'S ROLE:

Subconsultant

5 References

City of Hialeah 54-Inch Diameter Transmission Line Installation Hialeah, FL



Terracon provided environmental engineering services to support the City of Hialeah's improvement of its drinking water infrastructure through the installation of a new 54-inch Water Main. The path of construction for the installation of the water main is located within the ROW of W. 13th Street, extending from the John E. Preston Water Treatment Plant (WTP) at 1100 W. 2nd Avenue, east to W. 1st Avenue, where the path continues north to W. 29th Street, west to W. 4th Avenue, and north to approximately W. 53rd Street where it ends. The construction path is approximately 3.2 miles in length and is located in Hialeah, Florida.

Terracon provided due diligence efforts through the preparation of a Regulatory Database Review and Findings Report, dated December 12, 2022, that was conducted consistent with industry standards to identify areas of potential impact from regulated and/or hazardous substances that could be encountered during the installation of the 54-inch diameter water main. Regulatory database information was provided by Environmental Data Resources (EDR), an aggregator of local, state, and federal environmental databases, which was researched through the Miami-Dade County Department of Environmental Resources Management's (DERM's) online document management system, and/or the Florida Department of Environmental Protection (FDEP) online document management system. Terracon identified and reviewed files for 11 facilities of concern along the construction path. Based on the scope of services, limitations, and findings of this assessment, Terracon recommended additional investigation along the path of the transmission line in the vicinity of each site identified as a potential concern.

Terracon completed Limited Site Investigation (LSI) activities in 2023 that were designed to assess for potential impacts that may have resulted from recognized environmental conditions (RECs) and/or environmental concerns reported in Terracon's Regulatory Database Review and Findings Report. Upon completion of the review and interpretation of regulatory information or the lack thereof, facilities of concern along the path of construction, which have the potential to release regulated substances that may have impacted soil or groundwater quality, along the path of construction, were identified. These impacts could potentially present a risk to 1) the direct exposure of the team working inside the trench during installation of the water main, 2) proper handling of soil excavated from the trench, 3) proper handling of dewatering fluids, and 4) structural integrity of the water main pipe over time from constituents that are potentially incompatible with piping materials. A better understanding of potential impacts will allow for the proper handling of materials and implementation of protective protocols as part of the construction effort.

Terracon's scope of work assessed for the presence of chemicals commonly associated with the 11 identified facilities of concern at concentrations above laboratory reporting limits in the soil and groundwater samples collected within the right-of-way (path of construction) adjacent to the facilities of concern. Analytical results for the soil and groundwater samples collected from the site did not report the presence of tested parameters at concentrations in excess of their Soil Cleanup Target Level (SCTLs) and Groundwater Cleanup Target Level (GCTLs).

CLIENT:

City of Hialeah
c/o CES Consultants, Inc.
Ernesto Fernandez, P.E.
Project Manager
CES Consultants
14361 Commerce Way
Suite 103
Miami Lakes, FL 33016
(305) 409-4542
efernandez@cesconsult.com

DATE:

09/2022 – 05/2023

FEE:

\$91,428

Completed on time and on budget

TERRACON'S ROLE:

Subconsultant

5 References

Former Sears Auto Center, Citicentre Mall

Pompano Beach, FL



With the closure of the Sears store at the Citi Centre mall, Terracon's due diligence efforts (Phase I ESA) found that the historical operation of a fueling facility (USTs and dispenser) at the former Auto Center may have impacted soil and groundwater at the site. Site assessment efforts conducted to assess soil and groundwater found that the area of the former dispenser island was impacted with residual hydrocarbons in excess of groundwater cleanup target levels (GCTLs). The affected area was found to extend throughout the eastern parking area and extend beneath the east end of the Auto

Center building. Terracon submitted a combined Site Assessment Report/Remedial Action Plan (SAR/RAP) to incorporate assessment findings and engineering details to remediate the site into one document and minimize Broward County Environmental Protection and Growth Management Department's (BCEPGMD's) review period.

As the site was planned for redevelopment with a new building, Terracon developed an aggressive remedial strategy that would address residual soil impacts, along with groundwater exceedances through multiple remedial technologies. The technologies include source removal of saturated soils impacted with petroleum hydrocarbons beneath the groundwater interface, air sparging of groundwater within the open excavation to volatilize petroleum hydrocarbons dissolved in the groundwater, placement of oxidation chemicals (Insitu chemical oxidation – ISCO) into soil during backfilling of the excavation, and injection of oxidation chemicals (ISCO) beneath the excavation and into the surrounding areas of groundwater impacts. Upon receipt of approval from BCEPGMD, Terracon mobilized to the site, and field efforts were completed within 30 days. Monitoring efforts found that additional oxidation chemicals were needed and reinjected within isolated locations to support remediation. Groundwater monitoring confirmed that ISCO remediated dissolved petroleum hydrocarbons to levels to support closure from the FDEP and BCEPGMD with conditions. The data show that the remediation worked as designed.

The remediation included removal of approximately 885 tons of impacted soil from 5 to 10 ft bgs after removing overburden soils for reuse; air sparging of groundwater within excavation; and injection of chemical oxidation compounds. The site was remediated in approximately 12 months plus groundwater monitoring period. No Further Action without Conditions (NFAC) was approved and a Conditional Site Rehabilitation Completion Order (CSRCO) dated January 14, 2025, was received from the FDEP. The project was completed approximately \$50K below initial budget

CLIENT:

The Sterling Organization
Rafael Saldamando
Senior Project Manager
302 Datura Street
Suite 100
West Palm Beach, FL 33401
(561) 812-7541
rsaldamando@sterlingorganization.com

DATE:

12/2018 – 10/2020
Site Assessment/RAP completed
12/2019
NFAC Approval 10/2020

FEE:

\$550,00

Completed on time and under budget

TERRACON'S ROLE:

Prime Consultant



5 References

List of Prior Projects Performed for the City

Over the past decade, Terracon has provided professional engineering services for the City of Pompano Beach for the projects listed in the following table. Terracon is committed to maintaining the same team of in-house professionals that is currently in place for the CRA contract and familiar with the City's staff, standards, and procedures. With virtually no learning curve, the Terracon Team is in place and ready to go. We offer the project management skills, technical expertise, relevant project experience, manpower, and equipment resources necessary to provide the City of Pompano Beach with the most responsive and quality environmental and geotechnical/materials testing services available.

Project Name, Address in Pompano Beach	Total Contract Amount/Fee	Total Billed	Completion Date	Services Provided By Terracon
Ali Cultural Center Phase II 353 Hammondville Road	\$11,334.00	\$5,830.50	2016	Materials Engineering, Testing, and Inspections
N.E. 9th Avenue Bridge At Charles Waterway	\$1,095.00	\$1,095.00	2015	Materials Engineering, Testing, and Inspections
Former BT Oil 201 Hammondville Road	\$9,425.00	\$9,410.00	2015	Environmental - Remediation
Former Laundromax and Warehouse 11 NE 1st Street	\$2,000.00	\$2,050.00	2015	Environmental - Asbestos
Pompano Fishing Pier 101 N Pompano Beach Boulevard	\$15,625.00	\$15,625.00	2015	Geotechnical Engineering
Former Laundromax and Warehouse 11 NE 1 Street	\$3,500.00	\$3,500.00	2015	Environmental - Asbestos
Old Fire Station 11 and Old Beach Library 221 North Pompano Beach Boulevard	\$3,000.00	\$3,000.00	2015	Environmental - Asbestos
Residential Structure 737 Hammondville	\$7,600.00	\$7,600.00	2015	Environmental - Asbestos
790-800 Hammondville Road	\$4,100.00	\$4,350.00	2015	Environmental - Asbestos
790, 800 Hammondville Road Abatement	\$9,800.00	\$9,800.00	2015	Environmental - Asbestos Abatement Monitoring
Downstairs Lighthouse Building 2300 E Atlantic Boulevard	\$950.00	\$950.00	2015	Environmental - Asbestos Survey
PB CRA Innovation Office 37 NE 1 Street	\$2,500.00	\$2,500.00	2017	Environmental - Asbestos

5 References

Project Name, Address in Pompano Beach	Total Contract Amount/Fee	Total Billed	Completion Date	Services Provided By Terracon
741 Hammondville Road	\$3,000.00	\$3,000.00	2018	Environmental - Asbestos
NE 20th Avenue Drainage Improvements 1937 East Atlantic Boulevard	\$1,686.00	\$193.50	2018	Materials Engineering, Testing, and Inspections
Sabal Golf Course Remediation Atlantic Boulevard and FL Turnpike	\$896,724	\$896,686.77	2019	Environmental - Remediation
Grisham Family Trust Properties 321 NW 5th S Street	\$10,700.00	\$10,700.00	2018	Environmental - Asbestos
Grisham Family Trust Properties (Turnkey) 321 NW 5th S Street	\$52,500.00	\$52,500.00	2019	Environmental - Asbestos Abatement Monitoring
Vacant Parcel SEC West Atlantic Boulevard and SW 27 Avenue	\$2,450.00	\$2,450.00	2020	Environmental - Phase I ESA
Cultural Arts Center Sculpture Atlantic Boulevard and SW 1st Avenue	\$1,250.00	\$1,250.00	2020	Geotechnical Engineering
Pompano Beach Amphitheater 1801 NE 6 th Street	\$22,095	\$22,095	2019	Geotechnical Engineering
Pompano Beach Ocean Headquarters 50 N Pompano Beach Boulevard	\$5,940	\$5,940	2021	Geotechnical Engineering
Cultural Arts Center Sculpture Atlantic Boulevard and SW 1st Avenue	\$1,050	\$576	2020	Materials Engineering and Testing
South Dixie Highway and McNab Road Pavement Inspection	\$34,930	\$34,930	2021	Geotechnical Engineering
Dixie Highway Corridor Improvements	\$3,200	\$3,018	2023	Environmental - Dewatering Evaluation

Terracon's subsidiary, Sphere Environmental Services, held this contract from 2010- 2015, including time after Sphere was purchased by Terracon in 2013. Sphere provided the City with environmental engineering services that included Phase I/II ESAs, asbestos surveys, asbestos remediation oversight, performance of site assessment, preparation of remedial actions plans, groundwater monitoring and regulatory support and communication. Notable projects that were completed on time and budget, included asbestos surveys for numerous facilities, a site assessment for the Former BT Oil site on Hammondville Road (approx. \$86,000), groundwater monitoring and closure support for the future Library and Civis Center, a Brownfields site, on Atlantic Avenue (approx. \$27,000), and the preparation of a Phase II ESA for the Former Able Service Station (approx.. \$15,000) which led to the site going back into the State Program for completion of a Site Assessment Report Addendum and Preparation of a Remedial Action Plan.



6 Project Team Form

COMPLETE THE PROJECT TEAM FORM ON THE ATTACHMENTS TAB IN THE EBID SYSTEM. PROPOSERS ARE TO COMPLETE FORM IN ITS ENTIRITY AND INCLUDE THE FORM IN YOUR PROPOSAL THAT MUST BE UPLOADED TO THE RESPONSE ATTACHMENTS TAB FOR THE RLI IN THE EBID SYSTEM.

PROJECT TEAM

RLI NUMBER RLI 26-004

Federal I.D.# 42-1249917

PRIME

Role	Name of Individual Assigned to Project	Number of Years Experience	Education, Degrees
Principal-In-Charge	<u>Javier Jimenez, P.E.</u>	<u>28</u>	<u>MBA, M.S., B.S.</u>
Project Manager	<u>Steven Harrison, P.G.</u>	<u>36</u>	<u>M.S., B.S.</u>
Asst. Project Manager	<u>Mark Kearns</u>	<u>17</u>	<u>B.S.</u>
Other Key Member	<u>Lucas Barroso-Giachetti, P.E., CHMM</u>	<u>21</u>	<u>B.S.</u>
Other Key Member	<u>John Malkowski, P.E., CBC</u>	<u>28</u>	<u>B.S.</u>

SUB-CONSULTANT

Role	Company Name and Address of Office Handling This Project	Name of Individual Assigned to the Project
Surveying	<u>Keith and Associates, Inc. (KEITH)</u>	<u>Bryan Merritt, PSM</u>
	<u>301 E. Atlantic Blvd., Pompano Beach, FL 33060</u>	<u>Chuck Schramm, PSM</u>
Landscaping	<u>Keith and Associates, Inc. (KEITH)</u>	<u>Kelli Schueler, PLA, LEED AP</u>
	<u>301 E. Atlantic Blvd., Pompano Beach, FL 33060</u>	<u>Chris Phillips, PLA, ASLA</u>
Engineering	<u>Keith and Associates, Inc. (KEITH)</u>	<u>Tom Donahue, P.E.</u>
	<u>301 E. Atlantic Blvd., Pompano Beach, FL 33060</u>	<u>Omar Rodriguez, P.E., CFM, ENV SP</u>
Other Key Member	<u></u>	<u></u>
Other Key Member	<u></u>	<u></u>
Other Key Member	<u></u>	<u></u>
Other Key Member	<u></u>	<u></u>

(use attachments if necessary)

COMPLETE THE PROJECT TEAM FORM ON THE ATTACHMENTS TAB IN THE EBID SYSTEM. PROPOSERS ARE TO COMPLETE FORM IN ITS ENTIRITY AND INCLUDE THE FORM IN YOUR PROPOSAL THAT MUST BE UPLOADED TO THE RESPONSE ATTACHMENTS TAB FOR THE RLI IN THE EBID SYSTEM.

PROJECT TEAM

RLI NUMBER RLI 26-004

Federal I.D.# 42-1249917

PRIME

Role	Name of Individual Assigned to Project	Number of Years Experience	Education, Degrees
Other Key Member	<u>Alicia Coley, CIH</u>	<u>19</u>	<u>A.A.S., B.S.</u>
Other Key Member	<u>Brian DuChene, P.E., FLAC, BECxP, CxA+BE</u>	<u>37</u>	<u>B.S.</u>
Other Key Member	<u>Sergio Adasme, MRSA</u>	<u>43</u>	<u>CM Candidate</u>
Other Key Member	<u>Brennan Hagan, PWS</u>	<u>8</u>	<u>M.S., B.S., Grad Cert</u>
Other Key Member	<u>Jeff Moates, MA, RPA</u>	<u>22</u>	<u>M.A.</u>
Other Key Member	<u>Arizona Boyd, CWE</u>	<u>9</u>	<u>B.A.</u>
Other Key Member	<u></u>	<u></u>	<u></u>
Other Key Member	<u></u>	<u></u>	<u></u>



7 Organizational Chart

7 Organizational Chart

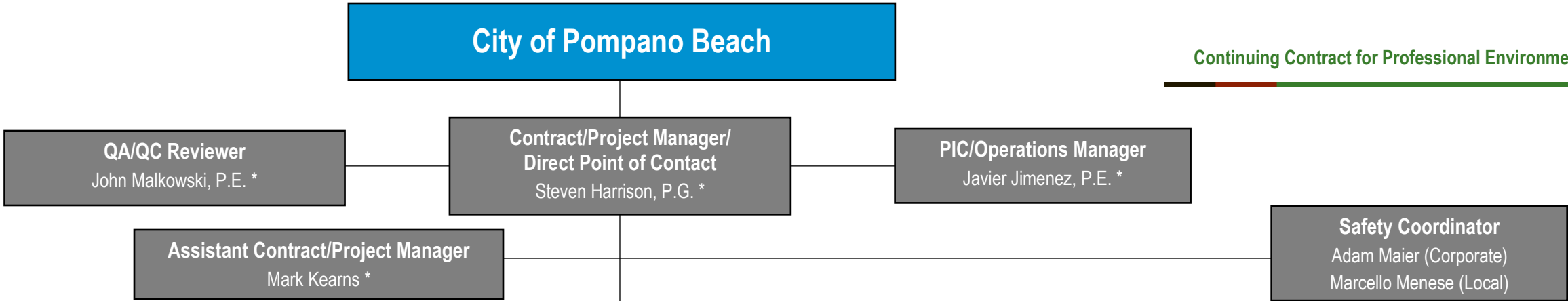


The Terracon Team Experience

The Terracon Team is comprised of highly qualified and experienced professionals, specialty subconsultants, and subcontractors to provide all technical disciplines required by this contract. In these efforts, Terracon and its team members will provide the services necessary to resolve the issues identified in any given project. Our team's experience and focus on exceeding client expectations make Terracon abundantly qualified to undertake this program.

As discussed in Terracon's Technical Approach (Section 4), Terracon will maintain full responsibility for the execution of this contract, whether services are performed by Terracon or our subconsultant/subcontractor team members. Terracon will maintain final and ultimate control over the quality, consistency, and integrity of the work products delivered to the City of Pompano Beach.

Our highly experienced team is led by Contract/Project Manager Steven Harrison, who will serve as the single point of contact. Steven has worked with the City for the past 15 years and will have overall responsibility for this continuing contract. Our team members are highlighted in the following organizational chart.



GENERAL ENVIRONMENTAL

CONTAMINATION ASSESSMENT

INDUSTRIAL HYGIENE

NATURAL/CULTURAL RESOURCES

CIVIL ENGINEERING, SURVEY &
LANDSCAPE ARCHITECTURE

Senior Project Managers
Mark Kearns *
Brian Williamson

Senior Engineers
John Malkowski, P.E. *
Donna Cline, P.E.
Lucas Barroso-Giachetti, P.E., CHMM *

Senior Geologists
Steven Harison, P.G. *
Shawn Ouellette, P.G.

Project Engineer
Gina Panik

Senior Staff Scientists
Jesse Beckles, P.G.
Jessica Endicott, P.G.
Angellica Rodriguez-Baz
Jenna Marten
Gabrielle Skelton

Staff Scientists
Samantha Brown
Hugo Chavez

Field Technicians
Ryan Nanan
Marcello Meneses

Senior Project Managers
Mark Kearns *
Brian Williamson

Senior Engineers
John Malkowski, P.E. *
Donna Cline, P.E.
.Lucas Barroso-Giachetti, P.E., CHMM *

Senior Geologists
Steven Harison, P.G. *
Shawn Ouellette, P.G.
Joe Adelman, P.G.
David Beerbower, P.G.

Project Engineer
Gina Panik

Senior Staff Scientists
Jesse Beckles, P.G.
Jessica Endicott, P.G.
Jenna Marten

Staff Scientists
Samantha Brown
Hugo Chavez

Field Technicians
Ryan Nanan
Marcello Meneses
Hugo Chavez

Certified Industrial Hygienist
Alicia Coley, CIH*

Senior Licensed Asbestos Consultant
Brian DuChene, P.E., FLAC, BECxP, CxA+BE *

Senior Project Industrial Hygienist
Sergio Adasme *

Senior Mold Assessors
Steven Harison, P.G. *
Sergio Adasme *

IH Scientists
Ryan Nanan
Jesse Beckles, P.G.
Marcello Meneses

Asbestos/Water Intrusion
Brian DuChene, P.E., FLAC, BECxP, CxA+BE *
Charlie Sasse, RRO

Senior Project Managers
Brennan Hagan, P.W.S. *
Brian Brandon, P.W.S.
Arizona Boyd, CWE *

Senior Sustainability Project Managers
Toney Pooley
Frank Powell, PMP

Senior NEPA Specialist
Natalie Barfield

Senior Registered Archaeologists
Jeff Moates, RPA *
Blue Nelson, RPA Ryan Sipe, RPA

Archaeologists
Dave Boschi Cara Tercsak
Mikel Travisano Lukas Desjardins

Archaeological Technicians
Spencer Bennett Griffen Bragagnolo
Mitchell Furr Brad Crush

Benthic Surveys
Ryan Taylor Brett Anderson

Authorized Gopher Tortoise Agents
Brennan Hagan, P.W.S. *
Brian Brandon, P.W.S.

Wetland Scientists
Brennan Hagan, P.W.S. Gary Howalt, P.W.S.
Brett Anderson Ryan Taylor

Certified Arborist
James Moody

Historic Preservations
Patricia Davenport-Jacobs
Meghan Browning Drew Johnson
John Klinkose

GIS Analysts
Greg Scott, GISP Cali May Jeri Apel

Field Scientists
Ashley Chattle Chloe Maclaren
Janie Valade Brandi Engelsen
Craig Jacobs

Keith & Associates, Inc.

Civil Engineering
Tom Donahue, P.E. *
Omar Rodriguez, P.E., CFM, ENV SP *
Chris Andreooni, P.E.
Rafa Castro, P.E.
Mike Pinzon, P.E.

Survey
Bryan Merritt, PSM *
Chuck Scramm, PSM *
Don Bittner, PSM
Don Spicer, PSM

Landscape Architecture
Kelli Schueler, PLA, LEED AP *
Chris Phillips, PLA, ASLA *
Sarah Landucci, ISA
Rachel Kinsey, PLA

Subcontractor Support - All Disciplines

ENVIRONMENTAL DRILLING

ANALYTICAL LABORATORIES
(Soil & Groundwater, Asbestos, Mold, Lead Paint, Radon, Industrial Hygiene)

GROUND PENETRATING RADAR

GEOTECHNICAL DRILLING

STORAGE TANK CONTRACTORS

REMEDATION CONTRACTORS

EXPERT WITNESS/LITIGATION
SUPPORT/GOVERNMENTAL ASSISTANCE

Steven Harison, P.G. *
David Beerbower, P.G.

* Please note: * indicates Key Personnel. All Key Personnel Resumes are included.

7 Organizational Chart

The Terracon Team's Capacity

Terracon's staff and resources provide maximum flexibility to meet our clients' scheduling needs. The nature of our work requires us to typically provide services on an expedited basis. Our typical backlog is made up of many short-duration assignments, and therefore, our workload varies on a weekly basis. Furthermore, long-term contracts are of indefinite quantity, making the workload dependent upon individual work orders and difficult to predict.

The Terracon Team has the flexibility, ability, and capacity to handle all the services required and to meet the scheduling requirements for each City project. Our team has the capacity to perform this work based on actual and projected workload. If additional work is procured during this period, we are committed to increasing staff levels to service all assigned projects. We have made the same commitment on similar contracts with other clients and have never failed to cover the projects assigned to us.



The Terracon Team is 100% committed to providing all assignments under this contract in a timely and cost-efficient manner.

All the personnel identified in our organizational chart will be available on a priority basis for tasks assigned under this contract. We are committed to provide you with the highest quality personnel that have the specific experience necessary to complete any tasks you may need. It is our pledge to the City of Pompano Beach that adequate staff, who possess all the required licenses and certifications, will be made immediately available once a task has been identified. The following table further details our team and their availability as of January 2026.

Key Team Members	Role	Percentage of Availability	
		Recent/Current	Projected
Terracon Consultants, Inc.			
Steven Harrison, P.G.	Contract/Project Manager (PM)/Direct Point of Contact	45%	50%
Javier Jimenez, P.E.	PIC/Operations Manager	40%	40%
John Malkowski, P.E.	QA/QC Reviewer/Assessment and Remediation/Senior Environmental Engineer	40%	50%
Mark Kearns	Assistant Contract/PM/Senior PM/Due Diligence and Assessment and Remediation Support	45%	50%
Alicia Coley, CIH, CSP, FLAC	Certified Industrial Hygienist	50%	45%
Brian DuChene, P.E., FLAC, BECxP, CxA+BE	Senior Licensed Asbestos Consultant	40%	45%
Sergio Adasme	Project Industrial Hygienist and Senior Inspector	55%	45%
Brennan Hagan, P.W.S.	Professional Wetland Scientist/Senior PM	40%	50%
Jeff Moates, MA, RPA	Senior Professional Archaeologist/Cultural Resources/Senior PM	40%	50%
Arizona Boyd, CWE	Senior Environmental Scientist/Senior PM	45%	50%

7 Organizational Chart

Key Team Members	Role	Percentage of Availability	
		Recent/Current	Projected
Keith and Associates, Inc.			
Tom Donahue, P.E.	Senior Director of Civil Engineering	70%	65%
Omar Rodriguez, P.E., CFM, ENV SP	Civil Engineer	65%	70%
Bryan Merritt, PSM	Vice President of Geospatial/Survey and SUE	70%	70%
Chuck Schramm, PSM	Director of Survey and Mapping	65%	70%
Kelli Schueler, PLA, LEED AP	Director of Landscape Architect	60%	70%
Chris Phillips, PLA, ASLA	Senior Landscape Architect	65%	70%



8 Statement of Skills and Experience of Project Team

8 Statement of Skills and Experience of Project Team



The Terracon Team Experience

Wherever you are on your project journey, Terracon's employee-owners are ready to meet you where you are and help you reach your goal. Since our founding in 1965, Terracon has grown and evolved to become a thriving, employee-owned, multidiscipline engineering consulting firm. Our more than 8,000 curious minds include engineers, scientists, architects, facilities experts, and field professionals focused on solving engineering and technical challenges from more than 200 locations nationwide including 13 offices in Florida. On-time and real-time data-driven insights, provided by our talented employee-owners, create an unmatched client experience that spans the lifecycle of any project from earth to sky.

Terracon currently ranks as a top 20 design firm by *Engineering News-Record*. Our successful growth has included organic expansion and innovation as well as the acquisition of more than 60 firms with specialized capabilities. A focused and uncompromising dedication to safety has been integral to how we support our employees, clients, and communities.

Throughout the life of your project, we won't just point the way – we'll go with you. From site selection to the design and construction, to maintaining the life of the structure, we'll help you achieve success through engineering and scientific expertise, a passion for problem-solving, and a drive to explore.

We're ready when – and where – you are. **Explore with us!**

ENR Rankings 2025

#3	Asbestos and Lead Abatement
#15	Hazardous Waste
#11	Top 100 Pure Designers
#19	Top 500 Design Firms
#44	Top 150 Global Design Firms
#68	Top 200 Environmental Firms



PROJECTS
IN ALL
50
STATES

85,000+
PROJECTS COMPLETED
IN 2024

8 Statement of Skills and Experience of Project Team

Statement of Skills

The submittal of this RLI response provides Terracon the opportunity to clearly describe our expertise, depth of resources, and tenured experience working within both the public and private sectors so it will be easy for you to decide that we should be part of the team to provide these services to the City of Pompano Beach and the CRA.

The following sections describe the numerous areas of technical expertise our team provides for thousands of projects in the South Florida area, including many in the City. During these projects, our team members have not only conducted testing and gathered field information but also provided the professional services listed below to support these projects. We wanted to highlight these services in a list for clarity and to emphasize that we are very confident in the expertise we offer to support professional services for reporting, costing, permitting, and project planning.

These key items are weaved into the technical service descriptions below and include, but are certainly not limited to, the following:

- Preparation of preliminary, draft, and final reports summarizing findings from modeling and/or field and laboratory analyses, including recommendations for a subsequent course of action
- Preparation of environmental due diligence reports to support property transactions, whether purchasing or divesting
- Preparation of site assessment and monitoring reports for submittal to you and/or regulatory agencies at the state and county levels
- Preparation of remedial action reports that provide engineering design to address contaminated media (soil, sediment, soil gas, groundwater, surface water)
- Evaluation of regulatory requirements during project planning and development of the scope of work
- Development of proposals and cost estimates for follow-up work in support of regulatory compliance associated with current operations, infrastructure upgrades, or contaminated sites
- Evaluation and reporting on endangered fauna, including, but not limited to, gopher tortoises and burrowing owls
- Preparation and submittal of permit applications that include information required by the involved agencies
- Preparation and clearing of detailed project punch lists and certification of the project to permitting agencies for environmental and engineering services
- Project management for all projects we undertake and support for our clients, including routine updates to keep you informed and aware of conditions directly and indirectly related to the project

8000+

employees

– serving our clients with the perfect mix of localized expertise and nationwide resources

200+

locations

– 100% employee-owned company rooted in caring, excellence, and integrity

60+

years

– of environmental engineering experience with 30+ in South Florida

19600+

– environmental planning projects completed since 2020

10000+

– due diligence service projects every year

8 Statement of Skills and Experience of Project Team

The Terracon Team staff and resources will allow us to provide the responsive and cost-effective (value-added) services you require. **Our resources and knowledge make it easy for you.**

A Partner to Guide You through The Process

We're not just here to execute the work. We're here to be your trusted partner.

Experienced and Dedicated Professionals to Support You

You have a powerhouse of expert resources at your disposal who have performed thousands of environmental assessments, including NEPA evaluations, site characterization, and groundwater and soil sampling and testing.

Extensive Resources and Approach to Meet Your Schedule

With more than 1,600 environmental in-house staff across the U.S. and 200+ offices nationwide, we have the resources to quickly mobilize to perform work.

Dynamic Resume of Accomplishments

Our relevant experience and knowledge allow us to hit the ground running, reducing the learning curve and saving you time and money.

Our Commitment to Safety

Terracon employees are dedicated to an *Incident and Injury-Free* culture. It is the goal of all employees in the company that everyone goes home safely every day.

Environmental Services

Terracon provides services on thousands of projects each year. Our culture, systems, and structure enable us to excel at both small and large projects. By combining our national resources with specific local area expertise, we consistently overcome obstacles and deliver the results our clients expect. Terracon serves a diverse portfolio of private and public clients. By being responsive, resourceful, and reliable, we strive to exceed our clients' expectations for service, solutions, quality, and speed of delivery. Based on a deep understanding of our clients' needs, Terracon's commitment is centered around these key objectives. Our breadth of resources, combined with our large geographic footprint, makes Terracon an ideal candidate for these types of contracts.

Terracon staff have performed commercial due diligence services throughout Florida for the public and private sector for over three decades. Terracon staff have conducted commercial due diligence services on multiple projects for clients such as Miami-Dade County, Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida, Broward County, Palm Beach County, City of West Palm Beach, City of Tampa, City of North Miami, Miami Dade College, City of Opa-Locka, Baptist Health South Florida, Allegro Senior Living, AutoNation, City of Fort Lauderdale, Nova Southeastern University, City of Hallandale Beach, City of Pompano Beach CRA, Costco Wholesale, FDEP, Florida Department of Highway Safety and Motor Vehicles, South Motor Company of Dade County, Weingarten Realty, to name a few.

As a successful employee-owned multi-discipline firm, we provide environmental engineering and geology services to property owners and municipalities that are engaged in the usage of regulated substances within their operations, require regulatory compliance, or those that are purchasing and redeveloping properties. Terracon understands that environmental situations can be cumbersome to deal with and we will go the extra mile to assist you with the process. We will focus on making certain that the City is well taken care of and that we manage your environmental concerns with as little of your time as possible.



8 Statement of Skills and Experience of Project Team

Our Due Diligence Consulting Team offers a one-source solution for environmental and geotechnical services at various facilities that are owned, operated, or in the process of being owned by the City.

We have performed environmental consulting services on many project sites in Florida and throughout the country for a wide range of clients, including A&E firms, program managers, construction managers, as well as public and private entities. Terracon's environmental services include:

- Phase I/II ESAs
- Contamination assessment plans (CAPs), reports and monitoring
- Contamination assessment
- Remedial action plans (RAPs), implementation and reports
- Waste characterization
- Remedial design and implementation
- Remediation system operation and performance testing
- Risk management assessment studies
- Management of State of Florida petroleum cleanup sites
- UST management, closure and assessment
- Stormwater and groundwater monitoring
- Brownfield site redevelopment
- Public presentations and meetings
- Asbestos/lead/mold/indoor air quality (IAQ)
- Industrial hygiene, health and safety
- Property condition assessments (PCAs)
- Protected wildlife surveys
- Solid waste planning and design
- Regulatory compliance
- Turbidity monitoring during sampling, dewatering, and of surface water bodies
- Environmental management system
- Natural resources/wetlands delineation/mitigation

Our project experience is extensive and varied, including most project types in Florida, commercial buildings, airports, ports, parks, agricultural land, cattle land, and undeveloped acreage, to highlight a few.

Due Diligence Capabilities

Negotiating the complexities of due diligence concerns can be challenging and time consuming. Terracon relies upon demonstrated experience and knowledge of local conditions and regulations to deliver solutions that are timely, practical, and make good business sense.

We have **completed \$319 million in environmental projects across 50 states** in 2024. Terracon has a thorough understanding of local conditions and regulations and knows how to effectively manage the potential risks presented by hazardous materials and chemical releases that have impacted a site. Our targeted services increase clarity during project development and optimize solutions during design.

Our due diligence services are extensive, varied, and include the following:

- Phase I ESAs
- Phase II ESA/site investigation and closure
- Mitigation/remediation design and implementation
- Regulatory compliance
- Natural/cultural resources
- Brownfields/site development
- Industrial hygiene – asbestos, mold, IAQ

8 Statement of Skills and Experience of Project Team

Environmental Due Diligence Services

Terracon's staff has conducted and reviewed thousands of Phase I ESAs for properties throughout Florida's urban and rural environments and was able to identify impacted materials at properties that were not known to be previously impacted. The potential for properties to be affected is real and should always be understood prior to purchase to protect both your legal and financial liability.

As the City identifies and selects properties for redevelopment, it is necessary to understand the conditions that exist and what the potential complications and financial obligations will be to cure the situation. The value of the due diligence efforts is so significant that the efforts should be performed by seasoned personnel because the knowledge gained through the years of assessing hundreds, if not thousands, of properties is invaluable. Terracon ensures that every project is directed, overseen, and reviewed by an environmental professional.

Phase I ESAs

Numerous local, state, and federal laws have been established to protect people and the environment from contamination caused by industrial and hazardous waste, fugitive emissions, hazardous materials, and other pollutants. The generation and/or release of these and other environmental threats have the potential to contaminate air, soil, and groundwater; affect human health; and create liability for property owners, or those who purchase impacted property.

Terracon specializes in due diligence services to identify and address environmental issues posing risk to the community, our clients, and their investments. Each time the City begins to consider properties for purchase, redevelopment, or financing, the City will need to understand if the property is impacted from regulated substances from current or historical usage. The first step in the environmental due diligence process is to conduct a Phase I ESA to assess whether potential risks, or RECs, exist in association with the property. The Phase I ESA will provide the City with a review of the property's environmental history, which is often the first opportunity to truly understand the potential environmental liabilities associated with a property. Our local knowledge, expertise, and familiarity with local regulations, regulatory agencies, and agency personnel allow us to provide you with the most complete reports, giving you peace of mind regarding your property or facility.

RECs are conditions, potential conditions, or operations associated with the subject property or surrounding properties which result from current or historical uses that could affect the soil and/or groundwater quality. RECs do not signify that a property is impacted but represent the fact that based on the interpretation of the information reviewed, impacted materials may exist. The Phase I ESA can also be utilized to identify business risks associated with asbestos, lead based paint, wetlands, endangered species, and mold/ water intrusion which are an optional component of the due diligence process and are often recommended to assist in understanding additional risks with a property. When on site buildings are being demolished, the presence or absence of asbestos and lead-based paint should be evaluated to develop the proper procedures for removing materials in advance of, or during the demolition process.

Terracon's personnel have conducted thousands of Phase I ESA's for public and private sector client clients throughout Florida in a cost and time effective manner to minimize the timeframe required by the City to conduct their due diligence. The following is a list of the types of properties at which Terracon personnel have conducted Phase I ESA's:

- Commercial properties
- Industrial properties
- Multifamily housing
- Hospitals
- Gasoline and service stations
- Warehouse/distribution facilities
- Dry cleaners
- Retail shopping centers



Terracon performed environmental due diligence services for a multisite fast-track acquisition that was being undertaken by a national firm. Approximately 25 site assessors and numerous support staff from 17 Terracon offices worked together to provide Phase I ESAs at 495 facilities in 30 states.

8 Statement of Skills and Experience of Project Team

- Retirement facilities
- Automobile/truck dealerships
- Rental car facilities
- Marinas
- Repair facilities – automobile/truck
- Agricultural land – cattle/row crops
- Landfills
- Undeveloped land/wetlands

Terracon's Phase I ESAs are completed in accordance with ASTM E1527-13 and 40 CFR Part 312, entitled, "Innocent Landowners, Standards for Conducting All Appropriate Inquiries (AAI)". These reports are designed to provide "an *environmental site assessment* of a parcel of *commercial real estate* with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) and *petroleum products*". As such, the Phase I ESA is "intended to permit a *user* to satisfy one of the requirements to qualify for one of the three types of limitations on CERCLA liability (hereinafter, the "*landowner liability protections*," or "*LLPs*")":

- innocent landowner
- bona fide prospective purchaser
- contiguous property owner

ASTM Phase I ESA Methodology

The Phase I ESA is a research effort conducted to gather readily available documentation concerning historical and current operation of a site and surrounding properties and to perform a physical inspection of those areas to understand if there is the possible presence of an environmental condition that resulted from current or historic operations. The tasks performed as part of the Phase I ESA process are critical to develop an understanding of conditions that could be of potential concern to the soil and groundwater quality. Terracon personnel review facilities and the surrounding area for conditions that would be considered of potential concern to a property due to the usage and handling of regulated substances. The practices utilized during those handling efforts will be reviewed to the extent possible.

The performance of a Phase I ESA includes the completion of the following four tasks, each broken down into key components that are performed as part of the assessment for potential risks to the property.

- Interview
- Historical site review
- Site reconnaissance
- Regulatory file review

Report Preparation

Upon completion of the research and interpretation of the data obtained, a formal summary report is prepared to present the following:

- Methodologies and sources of information utilized
- Data gaps – any areas of the research that are missing sufficient data to draw a proper conclusion
- Findings, conclusions and presentation of RECs
- Recommendations (if requested by the User)

If RECs are identified in the Phase I ESA, Terracon will discuss the findings of the Phase I ESA with the City personnel to determine if further assessment efforts should be undertaken.

8 Statement of Skills and Experience of Project Team

Phase II ESAs

In the event that a Phase I ESA identifies RECs at the subject property, Terracon will design a Phase II ESA sampling program to assess for the presence of regulated constituents in areas of concern and discuss the planned efforts with the City. The sampling program will address the media most likely to be impacted which could include soil, groundwater, soil vapor, surface water, and lake or canal bottom sediments. If not already completed as a component of the Phase I ESA, building components may be incorporated into the Phase II ESA to assess for the presence of lead-based paint, asbestos, IAQ concerns that could include chemicals as well as mold sampling, and radon. When RECs include the potential for buried structures or buried debris/landfilling, our team will conduct a geophysical assessment using ground penetrating radar (GPR) to assess for the presence of underground anomalies that may be present at the property.



During the planning stage, our staff can perform due diligence to identify and quantify the cost of existing or potential environmental liabilities through site assessments, and natural and cultural resource investigations and studies.

The scope of work for the Phase II ESA is uniquely designed for each specific property to address the concerns identified within the Phase I ESA prepared for that property with the goal of developing a reasonable understanding of the impacted area so that decisions regarding usage of the property can be developed early in the evaluation process. Terracon conducts Phase II ESA's in accordance with the most recent additions to the ASTM "E1903 (2019) Standard Guide for Environmental Site Assessments". The results generated from the Phase II ESA must be accurate, appropriate and defensible as decisions regarding the purchase of a property is likely to result from this process. This allows the buyer to incorporate potential liabilities, including real and perceived costs, associated with an impacted property, into their decision-making process.

Soil and groundwater samples are often collected utilizing direct push technologies because this provides a very efficient screening device for water sampling; however, when ongoing monitoring and rigorous QC standards are required for groundwater sample collection, monitoring wells will be installed to facilitate sample collection. Prior to working at any project site, a site-specific Health and Safety Plan (SS-HASP) is prepared to detail potential contaminants and physical hazards that site workers may be exposed to during site work. Notice to all public utility companies and requests for private utility information is conducted prior to beginning subsurface work.

Data generated from the analysis of the samples collected during the Phase II ESA are interpreted to assess if impacts are present from the RECs. The identification of impacted materials will be presented to the City to discuss how the impacts could affect proposed usage and remedial requirements. Current or future residential property usage requires that more stringent regulatory requirements be adhered to than if the facility was designated for commercial or industrial use.

The scope of the Phase II ESA will not be designed to fully assess the estimated aerial extent of an impact but to identify its presence and obtain an understanding of its significance. All sampling efforts are conducted in accordance with the Standard Operating Procedures (SOPs) detailed by the FDEP in Chapter 62-160 of the FAC.

Based on the proposed use, ownership requirements and regulatory exceedances, Terracon will recommend if further assessment should be conducted to assist the parties in their decision making process regarding the transaction.

All subcontractors are licensed and insured in their field of specialization and the environmental laboratories utilized by Terracon are State of Florida FDEP, DOH approved, and NELAC compliant.

8 Statement of Skills and Experience of Project Team

Natural/Cultural Resources

Whether a project site is undeveloped or involves redevelopment of an existing site or right-of-way, compliance with a variety of natural and cultural resource regulations may be required, including the NEPA, Federal Energy Regulatory Commission (FERC) documents and filings, Endangered Species Act, Waters of US / 4 Clean Water Act, Section 106 of the National Historic Preservation Act, and a myriad of state and local regulations.

Terracon's network of experienced professionals helps our clients with:

- Determining what federal, state, and local regulations apply to the site
- Evaluating what regulations are likely to apply depending on how much is known about the project design
- Developing a phased approach with a customized checklist that identifies "critical path items" leading to successful regulatory compliance and project completion.



Terracon's natural resources professionals offer experience with wildlife and habitat surveys.

Terracon's biologists, geologists, archaeologists, historians, NEPA and FERC specialists, and professional engineers apply their skills to a wide range of project settings to conduct natural and cultural resource studies that facilitate environmental planning and compliance with regulations.

Our natural and cultural resource services include the following:

- NEPA EIS, EA, CE (environmental impact statements, environmental assessments, categorical exclusions) studies and checklists
- Environmental impact assessments
- Wetlands/waters of the U.S. delineation
- Wetland/stream mitigation and restoration
- U.S. Army Corps of Engineers (USACE) Section 10/404 Permitting/Mitigation
- Threatened and endangered species habitat assessments inclusive of gopher tortoises and burrowing owls
- Species-specific studies
- Tree and vegetation surveys
- Cultural resource management under Section 106
- Archaeological investigations and monitoring
- Historic structure assessments (Historic American Building Surveys - HABS/Historic American Engineering Record - HAER/Historic American Landscapes Survey - HALS)
- Noise studies and modeling
- GIS and GPS mapping services
- Wetland monitoring
- FERC Process: Section 7; Section 2.55; Section 157, Subpart F

8 Statement of Skills and Experience of Project Team

Wetland Surveys and Mitigation

Wetlands are determined by assessing the type of vegetation that is present, along with the characteristics of the soil and the hydrologic conditions. Jurisdictional wetlands do not necessarily require standing water to be present. Careful site inspections need to be conducted to determine if wetlands characteristics are present pursuant to Sections 62-340.100 through 62-340.500, FAC, as ratified by Section 373.4211 Florida Statutes (F.S.), as well in accordance with the 1987 USACE Wetland Delineation Manual. The vegetative index, as found in Section 62-340.450 FAC, is also used to assist in the identification and delineation of wetlands. Plants on the vegetative index are listed as Obligate (OBL), Facultative Wetland (FACW), or Facultative Upland (FACU). The presence of obligate wetland plant species indicates wetland habitat.



Terracon combines local knowledge and regional experts to deliver a tailored approach to specific projects and schedules.

Wetland resources are regulated by the Federal government through the USACE, by the State through the Water Management Districts (SFWMD) or the FDEP and in Broward County by the EPGMD. The goal of wetland resource regulations is a no net loss in function or value of wetland resources. This is accomplished through the avoidance of impacts as the first priority, minimization of impacts as the second, and mitigation as the third.

Consultation with the jurisdictional agencies should be conducted early in the planning stages to confirm if the agencies may or may not consider any portion of a site as wetlands. Should the agencies claim a portion of the site as jurisdictional wetlands, permits from these agencies will be required if the identified wetland area will be directly or indirectly impacted by the proposed development. A formal or informal jurisdictional delineation may be requested, prior to the submittal of an application to an agency, to establish and agree upon the jurisdictional line and specific wetland area to facilitate permit processing.

A wetland mitigation assessment methodology known as the Uniform Mitigation Assessment Method (UMAM), codified in Chapter 62-345 of the FAC, has been adopted in the state of Florida to be utilized by all State and local agencies. The USACE also adopted this methodology for use in the State of Florida. The UMAM provides a quantitative methodology for assessing the Functional Loss (FL) of an impacted wetland resource and the methodology to determine the Relative Function Gain (RFG) of an enhanced or created mitigation area to determine the adequacy of the proposed mitigation. If on-site or off-site mitigation is proposed to offset wetland impacts, the adequacy of the mitigation will need to be evaluated by conducting a UMAM assessment of both the impact and mitigation sites.

If wetland impacts are to be mitigated through the purchase of credits from a licensed mitigation bank, the exact number of credits to be purchased will be determined by the specific methodology the Bank was originally permitted under. Credits can only be purchased from a bank whose service area covers the impact site. Pompano Beach falls within the service area of the Florida Everglades Mitigation Bank (EMB) located in Dade County, and the Loxahatchee Mitigation Bank located in Palm Beach County. The EMB utilizes the WATER assessment technique to determine credit needs and Loxahatchee utilizes the WRAP assessment methodology.

As a part of the project planning process we will investigate the existing site and surrounding conditions, and the applicable databases to determine if the project area falls within suitable or identified habitat of any State of Federally listed wildlife species. Should there be any potentially suitable or known habitat present, or imperiled species observed, full coordination will be conducted with the Florida Fish and Wildlife Conservation Commission (FWC), the U.S. Fish and Wildlife Service (USFWS), or National Marine Fisheries if aquatic environments are involved. All required permits will be obtained and the Standard Operating Procedures established for the species that may be present, and any other jurisdictional agency requirements will be followed with the implementation of the project. If wildlife relocation is required all permit conditions will be implemented as well as any seasonal criteria, such as not relocating burrowing owl nests when active.

8 Statement of Skills and Experience of Project Team

Threatened and Endangered Species

Terracon routinely reviews publicly available data during the initial assessment and develops a list of listed species (i.e., threatened and endangered species or species of special concern) or their habitat that may occur on-site or adjacent to the project site. Terracon conducts field assessments and surveys to identify listed species and their habitat that have the potential to occur within the proposed project limits. Data collected includes the following:

- Species observations (i.e., tracks, scat, physically observed, etc.)
- Habitat and quality of the habitat (i.e., low, medium, high)
- GPS coordinates of burrows or nests marked, habitat, and observation points

If listed species or their habitat are observed or documented, Terracon would obtain GPS readings of the location of the observation, notify the City and be prepared to conduct species-specific surveys. Our Environmental Planning team has extensive experience conducting these surveys, consulting and permitting with the agencies (USFWS, FWC, Broward County, Miami-Dade County Department of Regulatory and Economic Resources [DRER], and other agencies), and relocation or mitigation. Species include, but are not limited to, the following:

- Gopher tortoises
- Sand skinks
- Burrowing owls
- Scrub jays
- Johnson's seagrass
- Corals
- Bald eagles
- Crested caracara
- Florida bonneted bat
- Eastern indigo snake

Site Investigation

The process to redevelop properties within the urban environment often need to address subsurface impacts that were identified through historical records or analysis of samples collected as part of the due diligence process. The presence of impacted groundwater and/or soil samples requires that further assessment be conducted to understand the extent and degree of the affected area. The City will be able to use the assessment data along with projected remedial costs to conduct a cost-benefit analyses in evaluating how to proceed with the property.



Terracon provides site investigation and closure services for underground storage tank removals.

Groundwater and Soil Assessment

The first step in conducting a site assessment is to understand the ultimate goal of a project so that that the assessment can be focused to meet those goals. A proper assessment requires that the consultant combine their knowledge of a site's history, lithology, and hydrogeology with their knowledge of sampling technologies and chemical migration into a well formulated approach. All assessment efforts are designed to fulfill the requirements of Chapter 62-780, FAC. Prior to working at a project site, a SS-HASP is prepared to detail potential contaminants and physical hazards that site workers may be exposed to during site work. Notice to all public utility companies and requests for private utility information is conducted prior to beginning work.

Groundwater and soil samples are collected through the advancement of soil borings and monitoring wells to access the specific location and depth from where samples are to be collected. Samples are collected throughout the area of the suspected impact in accordance with FDEP SOPs as detailed in Chapter 62-160 FAC and supported by our FSQM. Soil samples are screened in the field using an organic vapor analyzer (OVA) to assess for the presence of volatile organic carbon compounds prior to the collection of samples for laboratory analysis. The screening results help to guide the placement of soil borings for the collection of samples that will be submitted for laboratory analysis.

8 Statement of Skills and Experience of Project Team

Soil and groundwater samples are analyzed for the chemicals of concern and the analytical results are interpreted to estimate the magnitude of the problem as well as the horizontal and vertical extent of the affected area. Integral components to the assessment and understanding of the distribution and migration of affected materials at a facility include the following services:

- Development of aquifer characteristics
- Hydrogeological modeling
- Soil gas assessment
- Source identification
- Historical site usage
- Surface water body and tidal influences
- Understanding of background/naturally occurring conditions

Terracon's personnel have extensive experience with the assessment, evaluation and remediation of impacted soil, sediment, and groundwater at facilities located throughout Florida and are prepared to assess sites for whatever potential impacts may be encountered.

Successful projects have addressed the following regulated substances:

- Petroleum hydrocarbons
- Chlorinated solvents
- Polychlorinated biphenyls (PCBs)
- Metals – arsenic, lead, chromium,
- Oil and grease
- Pesticides/herbicides
- Dioxins

The assessment data is then utilized to understand the ramifications that the impacted materials will have upon the site and to select the appropriate remedial approach. It is common that multiple media (soil, groundwater, surface water) are affected at a site and it is essential to understand the interactions between the matrices that will affect the degradation and migration of the regulated substances.

With our experience in managing the assessment and remediation of properties, we will provide the City with cost effective timely solutions that will return the property to its expected functionality.

Regulatory standards may require that remedial efforts be implemented to address impacted materials at a residential property while the same concentrations at a commercial property may only be required to utilize engineering (i.e., concrete cap, barrier wall) and institutional controls (i.e. deed restriction) to manage the affected materials.

Contaminated Sediments

Contaminated sediments potentially exist alongside every roadway of South Florida cities as stormwater runoff carries regulated compounds from roadways into the surface water canals. The regulated compounds will enter the surface water body with sediment particles and migrate through the water where they will tend to become part of the sediment load at the bottom of the canal or lake.

Assessing canal bottom sediments presents a situation that is nothing similar to the methodologies and practices employed at land-based properties. Canal bottom sediments are in constant state of flux and behave as a fluid that makes them difficult to sample and to define boundaries of potential impacts. Bottom sediments are stratified with a nepheloid layer (supersaturated floating layer of mud) in direct contact with the surface water. As sediment depth increases, the weight of the sediments compresses the solid materials and squeeze out the water as a function of the physical and mineralogical composition of the sediments.

8 Statement of Skills and Experience of Project Team

Terracon staff completed the assessment and subsequent remediation of canal bottom sediments where a canal in a residential neighborhood was impacted by liquid asphalt. As regulatory guidelines to provide cleanup target levels (CTLs) for sediments are limited, Terracon staff worked with the FDEP to detail the manner in which the analytical data should be interpreted and utilized criteria from the Dutch government and NOAA (National Oceanic and Atmospheric Administration) to develop cleanup goal for the site.

The assessment efforts ran contiguous to mitigation efforts (Source Removal) and included the collection of surface water samples and sludge bottom samples for analysis. The Interim Source Removal effort involved isolating sections of the canal and dewatering each section so that the sediments could be remediated. Floating oil and sediments were removed from the water before returning the water to the canal. Canal bottom sediments were removed through a combination of vacuum and excavation efforts until confirmation data of remaining sediments met the criteria established for the site.

The FDEP approved the assessment and source removal efforts under Chapter 62-780 FAC and the site obtained closure upon completion of the 12-month monitoring program.

Turbidity Monitoring

Terracon staff have supported construction projects where the disturbance of coastal areas may create sediment, or turbidity plumes, that migrate outside of the controlled area. Increased turbidity can negatively affect biological processes and must be monitored during activities that disturb sediments within the coastal environment. Our team has monitored turbidity for the following noteworthy projects 1) an 8 month (24/7) beach nourishment project off the coast of Miami Beach; monitoring was conducted surrounding the dredge site where silt plumes were commonly created-and 2) monitoring an inland waterway when a marina was being developed as part of a condominium project off Atlantic Blvd in Pompano Beach; as the marina was being dredged there were concerns that breaking the "bridge " between the newly created body of water within the marina and the canal to which it was going to be connected would release a turbid plume into the waterway. Monitoring is conducted to document that turbidity was not increased by more than 29 NTUs (nephelometric turbidity units) above background or work had to stop until additional controls were established to control the turbidity.

Brownfields

Brownfields are defined as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Brownfields programs can work very well to attract developers to the project areas, with available land for appropriate reuse, through financial incentives (tax credits, job creation, grants (where applicable), low interest loans) and liability protections from preexisting conditions to sites for which a Brownfield Site Rehabilitation Agreement (BSRA) has been signed. Redevelopment is enhanced by the use of risk based corrective actions (RBCA) to develop appropriate CTLs without requiring unnecessary remedial efforts.

Terracon will work with the City to provide a realistic evaluation and assessment of the liability and costs associated with the redevelopment of environmentally impaired properties that are otherwise valuable. The successful redevelopment of these properties requires foresight and experience in understanding how the interests of all stakeholders may vary and how they can converge. Sometimes a successful project may include leaving contamination in place after development, where the contamination is controlled to minimize potential exposure to underlying hazards.



Terracon was part of the project team for a landmark environmental cleanup of the former Tronox Pigments/ Kerr-McGee site, resulting in a \$38 million project spanning 754.1 acres, including 84 distinct work elements. This is the largest brownfield cleanup by area in the history of the Georgia Brownfields Program. The former Tronox/Kerr-McGee site is now known as SeaPoint Industrial Terminal Complex, an innovative multi-use, multi-tenant site with a strong focus on sustainable manufacturing and logistics. The project was recognized with a 2023 EPA Phoenix Award.

8 Statement of Skills and Experience of Project Team

Terracon can assist the City with preparing grant applications for potential funding opportunities from the U.S. Environmental Protection Agency (EPA); meet with interested parties to provide assistance in understanding project specifics; assist with negotiation of assessment, remediation requirements as well as timeframe requirements for inclusion in a BSRA; participate in public meetings as requested; prepare technical reports; and conduct assessment and remediation as necessary and appropriate.

Safely restoring a contaminated property and helping to find purpose in its reuse is one of the most rewarding opportunities an environmental consultant can have. It requires a collaborative team with the creative vision to see beyond the condition of an existing site, and instead see the possibilities for redevelopment.

Terracon's knowledge and proven experience offers our Brownfields assessment and redevelopment clients with property-specific solutions at an efficient business pace.

Terracon has **completed projects supported by more than 310 U.S. Environmental Protection Agency (EPA) Cooperative Agreements exceeding \$87 million in Brownfields grants**. Our experienced staff across the nation have **assisted clients in obtaining more than \$71 million in Brownfields grant funds** in support of community revitalization. Brownfields services we provide include:

- Community outreach and engagement
- Property inventory/prioritization/ranking
- Due diligence and site assessment
- Agency plans and reports
- Report preparation
- Grant management
- Environmental assessment and remediation
- Asbestos and LBP surveys
- Mold and IAQ investigations
- Regulatory compliance
- Regulatory permitting and mitigation
- Cost-to-remedy analysis
- Property condition assessments
- Risk management
- Strategic corrective action
- Tax credit assistance

Florida's Brownfields program is more streamlined than the Federal counterpart due to Florida regulations developed to govern these sites. The City can leverage Federal grant money utilized to initiate a project with Florida Tax incentives to maximize the benefits of working within the Brownfields program.

Environmental Mitigation/Remediation

Terracon staff of environmental consultants and engineers have mitigated/remediated hundreds of impacted properties across Florida and the United States through implementation of a variety of technologies selected to best resolve the impacted condition. The selected technology designed and implemented at a specific site is selected through the development of a remedial action plan that considers overall cost, timeframe for completion, ease of implementation, accessibility, and likeliness of regulatory approval. Terracon has remediated sites with a wide variety of technologies, including the majority of those considered by the City in the list provided.

In developing a remedial strategy for a site, Terracon evaluates available technologies to best mitigate impacted materials and select the technology, or group of technologies that best fit the needs of the site.



City of Opa-Locka's Northwest 27th Avenue Assessment and Redevelopment Project pictured above. Terracon provided Brownfields consulting services for the City's \$400,000 EPA community-wide assessment grant.

8 Statement of Skills and Experience of Project Team

Various methods utilized to address the constituents of concern include but are not limited to the methods listed below:

- Air sparging – oxygen diffusion
- Bioremediation/bioventing
- Engineered wetlands – phytoremediation - ex-situ treatment
- Excavation
- Fixation
- Groundwater pump and treat – air stripping towers, carbon vessels, resins or other media
- Groundwater ozonation
- In-situ chemical injection
- Reactive barriers
- Slurry walls and recovery trenches
- Soil vapor/multi-phase extraction
- Vapor mitigation of methane and/or volatile compounds

Environmental remediation can be a significant undertaking for buyers/owners of real estate or responsible parties, so it is critical that our team of engineers and scientists understand the site and proposed future use, to design a cost-effective remedial approach to obtain regulatory approval and, ultimately, closure. Whether the process pursues conditional, using institutional and engineering controls, or unconditional closure, the process will be undertaken in accordance with regulatory requirements where Terracon works closely with regulators from conceptual development of the remedial plan to implementation and closure of a projects to support a strong working relationship. The path selected will be selected to support the responsible party's plans for use/ redevelopment so the client can realize the maximum potential of the property. Remedial design and implementation experience includes conventional remediation technologies (i.e., source removal, contaminated site encapsulation, natural attenuation) and innovative technologies including, *in-situ* bioremediation/ chemical oxidation, soil vapor extraction, enhanced bioremediation, and other *in situ* soil and groundwater treatment technologies.

Throughout the design process, Terracon will seek to select, design, and implement an efficient and cost-effective approach to save the City money and provide a successful site closure.

Interim Source Removals

Interim source removals provide a regulatory approved mechanism that allows property owners to conduct aggressive remediation of properties without laboring through the preparation and approval of a remedial action plan. Interim source removals allow owners/ responsible parties to pursue a remedy that has the potential to remediate impacted materials at a site. Soils or sediments and groundwater or surface water can be addressed through this mechanism; the most significant limitation is that the process cannot spread contamination into areas of the site that was not previously impacted. Vacuum or groundwater removal systems that require engineering should obtain regulatory authorization prior to use.

Terracon's staff has been conducting Interim Source Removal projects to advance redevelopment projects to the construction phase throughout Florida for many years. Interim Source removal projects are an excellent way to address impacted materials, especially soils with limited groundwater contamination, that were identified at redevelopment sites where timing is critical.

Remediation Design

Remediation efforts are very site specific and will be designed to incorporate the timing and type of development proposed for the property because future usage can play a significant role in determining the ultimate course of action. Of course, understanding the technical aspects of the distribution of the impacted area is critical to developing a remedial plan, but understanding when the City is willing to obtain a Conditional Closure for a property versus one where it would be unacceptable is essential to the planning of the remediation efforts. The City may allow the land beneath a future commercial building to be closed with a deed restriction but the site where a children's playground is to be constructed would not be amenable to the same closure conditions. The data obtained from the site assessment will detail the subsurface soil and groundwater quality as a framework for the development of a remedial plan.

8 Statement of Skills and Experience of Project Team

Feasibility Studies

To identify appropriate remediation strategies, Terracon conducts feasibility analyses to evaluate the combination of owner's requirements and site factors which include the following:

- media affected (soil or groundwater)
- source area
- extent of the impacts
- future use of the site
- remedial cost including implementation and operations
- site disruption and loss of revenue
- timeframe for completion
- regulatory requirements

Terracon personnel have extensive engineering experience implementing cost effective methods for properly remediating impacted soil and groundwater in accordance with regulatory requirements. The selected remedial strategy may include conventional remediation technologies (i.e., source removal, contaminated site encapsulation, natural attenuation) and/or innovative technologies including *in-situ* bioremediation, soil vapor extraction, enhanced bioremediation, and other *in-situ* soil and groundwater treatment technologies. The final resolution also considers site conditions, cost, and future site plans.

Terracon's experience in the many varied aspects of remedial operations (Source Removal/Initial Remedial Actions (IRAs), spill recovery, preparation of RAPs, pump and treat systems, insitu methods, vacuum extractions, etc.) enables us to incorporate site findings into an approach that addresses the Client's and regulatory agency's requirements while combining financial and time constraints with technical concerns.

Conditional Closure

While Terracon's remediation experience includes designing and implementing remedial action programs under the oversight of state regulatory agencies, our team will work with the City to develop the best option for securing site closure. Regulations governing assessment and remediation, Ch. 62-770, 780 and 785 FAC, support the use of risk-based criteria to achieve site closure is in line with current and proposed site usage and the evaluation of exposure pathways, so that the closure conditions remain protective of the general public.

The FDEP has established generic closure options that can be requested if the site profile meets the generic conditions. These conditional closures can be achieved with little to no remediation at a property but will require that a restrictive covenant – an institutional control or deed restriction, along with appropriate engineering control, if possible – two feet of clean fill or hardscape, no use of groundwater, relocating stormwater drainage systems, etc. – be obtained. When the property is scheduled to be redeveloped, maintaining contaminated materials on site may result in health and safety concerns that would not ordinarily be an issue at a construction site.

Construction personnel would need to be aware of site conditions and have the appropriate training to work on the site. Other considerations that would need to be evaluated are the management of contaminated soils on site - could the soils be managed and reused beneath paved areas/ foundation or would they need to be transported off site anyway. In making the decision to obtain a conditional closure site development and future operations need to be considered. Terracon's experience in identifying and managing these situations can be very advantageous when redeveloping a property that contains impacted materials.

Conditional closures are also provided when alternative CTLs are developed through the risk assessment process as described earlier. Unless a site meets the most stringent of the CTLs for soil and groundwater, a conditional closure is provided through one of the management options available through the FDEP.

8 Statement of Skills and Experience of Project Team

Soil and Groundwater Remediation

Classical remediation technologies limited disruption to site activities and focused on withdrawing soil vapors and/or groundwater from the ground for aboveground treatment. While these technologies produced positive results and remain as viable alternatives, changes in technology coupled with increases in the knowledge base produced new schools of thought regarding site remediation. Some of the biggest changes are related to a better understanding of risk and natural attenuation of regulated compounds. Remediation technologies that provide in situ treatment of soil and/or groundwater have the potential to leave residuals of the regulated substances that can cause delayed release of regulated substances, only to cause concentrations of regulated substances to rebound at a later date.

The overall components of a complete remedial strategy are segregated into the following areas that allow for sites to be properly evaluated, remediated and closed with regulatory approval. Some closures will have restrictions that due to the inability to access portions of an affected area or as a cost saving technique, sites may be remediated to commercial rather than residential standards. In these cases, the owner agrees to have institutional controls (deed restrictions) put on the property in addition to potential engineering controls (cap, limited water usage, etc.) to manage the impacted site.

The following components of remedial strategies are used independently or in conjunction, depending upon the specific needs of the property.

- **Source Removals**

- Includes the excavation of soils, often coupled with the pumping of affected groundwater from the excavation
- Allows for rapid removal of the source area, which contains the majority of the affected material
- Characterization of the waste streams may allow for reuse of the excavated materials at an alternative facility instead of disposal
- Opening the subsurface promotes natural attenuation, if warranted, to reduce remaining limited concentration to below regulatory thresholds

- **Risk Assessments**

- Evaluation of analytical data to assess if remedial efforts are warranted
- Allows for development of site specific CTLs based on site conditions and receptors
- Terracon will work with regulators to obtain approval for risk-based CTLs resulting in reduced remedial costs

- **Soil Remediation**

- *Incineration/ Landfilling:* Affected soils are excavated and replaced with imported fill, if needed. Soils are disposed at licensed through incineration or landfilling at licensed facilities. This method provides an aggressive method to address sites where access is open and timing is critical.
- *Vacuum Extraction:* Volatile vapors are withdrawn from the vadose zone by applying vacuum pressure to a series of wells. Extracted vapors are often treated with thermal oxidizers, afterburners, or activated carbon prior to release to the atmosphere.
- *Soil Cover/Engineering Controls:* Impacted materials at some facilities are too extensive or inaccessible to remediate realistically. Through proper understanding of site conditions regarding future use and potential impacts to groundwater, a regulatory approved cover (2-feet of clean fill, concrete, asphalt parking lot, etc.) may be installed to restrict access to the area and meet the requirements for restricted closure.
- *Enhanced Bioremediation:* Rather than disposing of affected soils or waiting for natural processes to degrade regulated constituents, Terracon can also enhance biological and redox (reduction/oxidation) conditions through the addition of regulatory approved chemicals. These chemicals alter subsurface redox conditions to produce a more favorable environment for appropriate bacterial growth and enhanced chemical oxidation.

8 Statement of Skills and Experience of Project Team

• Groundwater Remediation

- Terracon's extensive experience includes design, installation, and operations and maintenance of groundwater remediation systems. Groundwater remediation systems must be designed to capture the area of affected groundwater, control future migration, treat the affected water, and document that air emissions are acceptable. Terracon can implement many types of remedial methodologies which include pump and treat systems, in-situ treatment with chemical amendments, natural attenuation and monitoring, or installation of physical barriers (i.e. slurry wall, barrier wall installation).

• Vapor Mitigation

- Vapor mitigation systems have been designed and employed by Terracon at sites to mitigate exposure from methane (landfill gas) and volatile organic compounds). Passive and active systems have been designed and installed using impervious membranes, venting pipes, and explosion proof blowers, individually, or in combination, to mitigate concerns related to vapor intrusion which could result in health impacts or fire/explosion concerns

Terracon is prepared to address whatever type of remedial situation is required. Terracon staff and our team have specifically remediated soil and groundwater at numerous sites through a wide variety of the technologies available the various technologies. Soils have been remediated through excavation at properties throughout south Florida and the west coast of Florida and been remediated through enhanced bioremediation, and vacuum extraction with emission control through afterburners and vapor phase carbon adsorption. Groundwater has been remediated through natural attenuation, pump and treat with air stripping towers, low profile air strippers, injection of chemicals for insitu treatment, and carbon adsorption. Bioremediation/ oxidation of petroleum hydrocarbons through addition of oxygen release compounds have been conducted in association with petroleum hydrocarbon impacts. Terracon's team fully understands alternative technologies available and is prepared to design the appropriate system for the proper application.

Industrial Hygiene – Asbestos, Lead-Based Paint, Mold, and IAQ

Occupational health and safety is a critical part of a productive and safe workplace. Exposures to chemicals, noise, hazardous materials, mold, and other contaminants can result in serious health problems.



Terracon provides clients with a full range of cost-effective services to manage asbestos-related issues which translates to lower abatement fees, fewer contractor change orders, and reduced owner risk.

Terracon offers our clients one of the largest occupational health and safety groups in the U.S. that includes Certified Industrial Hygienists (CIHs), Certified Safety Professionals (CSPs), and industrial hygienists. Our health and safety team has extensive experience identifying hazards, monitoring exposures, evaluating risks, and formulating measures to correct problem areas.

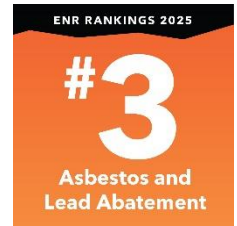
Terracon's expertise is built on decades of experience with a wide variety of projects and settings that range from individual employee exposure evaluations, to community-wide health research projects. Our clients range from Fortune 500 companies to local small businesses, in various markets including power production, oil and gas exploration, manufacturing, petrochemical refining, healthcare, colleges and universities, railroads, mining, aviation, shipping, food production, and retail.

Projects conducted for the City will often have buildings onsite that require rehabilitation and/or demolition. Prior to any work that might disturb building materials; it must be known if the materials are asbestos containing or painted with lead-based paint. Our team of building material specialists will provide the services needed to address the issues that may exist at these project sites.

8 Statement of Skills and Experience of Project Team

Asbestos Surveys

Asbestos-containing materials (ACM) were historically utilized during the construction of every type of building. Many types of asbestos materials can still be legally bought and installed today. Asbestos is found in a wide range of building materials including surfacing treatments, pipe insulation, spray-on fireproofing, floor and ceiling tiles, roofing products, and many others. As these materials age, they deteriorate and may present health risks to building occupants and maintenance workers if not properly managed or removed. Terracon offers a one-source solution for asbestos consulting with a nationwide network of asbestos professionals, including more than 400 Asbestos Hazard Emergency Response Act (AHERA) certified asbestos staff.



Our staff includes asbestos inspectors, planners, and designers who have experience in providing asbestos management solutions for property management companies, developers, general contractors, healthcare facilities, native american tribes, schools, government facilities, private industries, and the A/E community.

Terracon's inspectors perform surveys and collect samples of suspect ACM or potential LBP materials in schools, commercial, and municipal buildings. The asbestos surveys follow the guidelines established under the EPA's AHERA program and as required, by EPA Regulation 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAP).

Asbestos surveys begin with a review of available construction documents to possibly identify suspect asbestos containing building material (ACBM), and a visual survey is then conducted, and suspect material is sampled and analyzed for asbestos content. In accordance with EPA regulations, only those materials containing greater than one percent asbestos would be reported as an ACM.

Asbestos surveys will be performed by appropriately trained staff who are AHERA-certified Building Inspectors. Terracon will begin with a visual survey to determine unique homogeneous areas of suspect ACM and the condition of the materials.

Suspect materials will be physically assessed for friability and evidence of damage or degradation. Bulk sample collection will be conducted in general accordance with the sampling protocols outlined in 40 CFR 763.86 (AHERA). At least three samples of each identified suspect material will be collected. Terracon samplers are aware of the requirements for thorough surveys and excel at locating and sampling suspect materials that can be commonly overlooked such as caulking, vermiculite block insulation, paints, and electrical wiring.

The suspect ACM samples will be submitted to a subcontracted National Voluntary Laboratory Accreditation Program (NVLAP)-accredited lab for analysis by visual estimation using polarized light microscopy (PLM). If friable samples are determined to be $\leq 3\%$ asbestos-containing by PLM, Terracon recommends the laboratory be instructed to perform point counting analysis on the samples. For all non-friable organically bound materials that are determined by PLM to be $\leq 1\%$ asbestos-containing (including non-detect), Terracon recommends that one sample of each material will be analyzed by transmission electron microscopy (TEM). The extra point count and/or TEM analyses at minimal cost can result in substantial overall project savings by reducing the quantity of regulated materials requiring abatement and special disposal.

Upon receipt of laboratory results, Terracon will prepare a written report describing the sampling methodology and the results of the asbestos survey. The report will describe the number, type, and location of suspect ACM samples, the analytical results, the estimated quantity and the condition of materials identified as ACM. Drawings depicting the layout of the site, the location of the collected samples (one drawing per building minimum), and the location and extent of ACM will be included as appendices in the report. Representative color photographs of the site will also be included in the report, if requested. One draft PDF copy of the report will be submitted for City review that presents the results of the asbestos survey, and City comments will be considered prior to submittal of the final report.

Abatement Planning and Monitoring



8 Statement of Skills and Experience of Project Team

If ACM is identified during the survey, Terracon has extensive experience in preparing plans and specifications for remedial actions including enclosure, encapsulation, and partial or complete removal. We can also provide trained and certified technicians for air sampling during the abatement process.

Abatement Design and Specifications

Terracon has licensed personnel with extensive experience providing oversight, project documentation, and air monitoring throughout abatement projects. Our on-site personnel will work with you and the abatement contractor to ensure the project is conducted in accordance with regulations and project specifications. Upon completion, we provide a project closeout report including all required documentation for your records.

Operations & Maintenance Planning (O&M)

Terracon prepares management plans that provide specific procedures for operating and working safely around ACM and lead-containing paint (LCP). Commercial plans include operations and maintenance programs that explain how to protect a building's maintenance and housekeeping personnel, tenants, and occupants from exposure. O&M plans also provide the basis for making informed decisions regarding potential long-term economic liabilities associated with asbestos and LCP.

Lead-Based (LBP) Paint Surveys

Lead paint survey projects will be performed, when necessary, by an EPA licensed LBP Inspector or Risk Assessor per EPA regulation 40 CFR Part 745, Volume 61 No. 169, page 45813, Section 227, subpart L: Requirements for Lead-based Paint Activities Final Rule, following the U.S. Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing, revised 1997. Surveys will be performed by collecting paint chips of painted surfaces or utilize an X-Ray Fluorescence (XRF) portable lead paint spectrum analyzer to determine which building components contain LBP. Use of XRF technology conforms to HUD guidelines and allows for rapid data gathering in the field, which will result in expedited reporting and cost savings to the City by reducing sample time and laboratory costs. Often times, surveys are limited to the collection and analysis of paint chip samples as they provide results for direct comparison with exposure standards as provide by the Occupational Safety and Health Administration (OSHA).

Terracon will conduct a visual assessment of the building areas and facility components to identify testing combinations in each room equivalent. A room equivalent is described as an identifiable part of a building or residence (e.g. room, house exterior, foyer, etc.). Surface coatings will be physically inspected. Coated surfaces will then be sampled by collecting a paint chip or analyzed using the portable XRF lead paint analyzer. At least one individual XRF reading will be taken from each testing combination in each room equivalent, except for walls where four readings (one from each wall) will be taken in each room equivalent. XRF readings will be classified as either positive or negative for each testing combination.

For those XRF readings within the inconclusive range of the instrument, or at the City's request, Terracon will collect paint chip samples for laboratory analysis to confirm the concentrations of lead. The qualified laboratory selected will be accredited to perform the lead analysis by atomic absorption spectrometry (AAS). The results will be reported in mg/cm², parts per million (ppm), or percent by weight.

Terracon also performs LBP Risk Assessments, involving interpretation of previous data, visual assessments, dust sampling, soil sampling, and deteriorated paint sampling. This effort is used to determine the presence or absence of LBP hazards and the most feasible and effective safety options for lead hazard control. Once the lead hazard control work is completed, clearance of the area is established. A report will then be prepared to list the hazards identified and acceptable control measures.



Terracon provided asbestos services on more than 6,270 projects in 2024.

8 Statement of Skills and Experience of Project Team

A table presenting data from all XRF readings and a classification of all surfaces into positive or negative categories will be included in the report, as will a detailed description of the XRF instrument and laboratory methodologies. The analytical results, chains of custody, and personnel/laboratory accreditation certificates will also be appended to the report. The report may also include color photographs to assist in depicting the location and/or condition of identified LBP.

Mold Evaluation

The mold evaluation will consist of a physical inspection and assessment and indoor environmental monitoring. The physical inspection and assessment will include building hygiene and maintenance and heating, ventilation, and air conditioning (HVAC) system hygiene and maintenance. The indoor environmental parameters that will be measured include temperature, relative humidity, culturable and non-culturable mold, settled dust, and/or Polymerase Chain Reaction (PCR) sampling.

Based on the multiple sources of potential indoor and outdoor contaminants that can affect IAQ, the physical inspection and assessment will be conducted to evaluate general indoor hygiene, building maintenance practices, the HVAC system and hygiene, moisture intrusion and uncontrolled condensate formation, and odors. The assessment focuses primarily on collecting observational data (i.e., information obtained by physical inspection of the building and interviews with the building management, owners, and occupants).

The physical assessment can help to formulate plans for a more in-depth investigation. The physical assessment will include:

- an examination of the physical structure and potential point sources of moisture intrusion;
- the identification of any discoloration or odor that could indicate moisture intrusion, water damage and microbial growth;
- the determination of any suspect ACMs that may be impacted by mold;
- using a moisture meter and infrared (IR) imaging camera to detect moisture impacted materials; and
- an examination of the HVAC system(s) and its components.

Indoor Air Quality

IAQ is comprised of air quality and physical characteristics of building environments that can cause health symptoms among workers, tenants, and other building occupants. Air quality is judged by the accumulation of pollutants from indoor processes, or sometimes infiltration from outdoor sources, and the ability of building ventilation and filtration to dilute and remove them. Physical characteristics that can affect building occupants include air temperature, moisture, and to a lesser extent, lighting and noise. Employers, property managers, and building owners are increasingly concerned about IAQ problems because of associated health, absenteeism, and lost productivity costs.

Undesirable conditions, such as odors, discomfort, visible fungal growth, and occupant perceptions of poor IAQ are generally indicators of the loss of control or failure of one or more building systems. Improperly designed, operating, or maintained HVAC systems, and deficiencies in building maintenance or construction, can contribute to poor building and system hygiene, excess moisture infiltration, the build-up of indoor pollutants, and indoor mold growth. These can all contribute to building-associated health and comfort complaints.



Terracon conducts a variety of services related to mold growth and water intrusion incidents. These services include mold and water intrusion investigations, bulk sampling, air monitoring, and surface tape-lift sampling. We also assist our clients during the removal of contaminated materials with remediation planning, removal specifications development, remediation monitoring, and post-remediation testing to verify that mold removal is complete. Terracon's multidisciplinary approach ensures that all IEQ problems are assessed, giving the client peace of mind and cost-effective solutions.

8 Statement of Skills and Experience of Project Team

Terracon uses a multidisciplinary approach to assess and address the root causes of IEQ problems. Our industrial hygiene staff focuses on recognizing and evaluating potential problems that can affect the health, well-being, and productivity of employees or other building occupants. We can also team with our facilities engineering group to identify building deficiencies and building envelope issues. Working together, these specialists can pursue the causes of complaints, and provide practical recommendations to correct IEQ problems. IEQ and buidln related services include:

- IEQ Management Plans
- Building Ventilation Comfort
 - Carbon Dioxide
 - Temperature
 - Relative Humidity
- HVAC System Hygiene Assessment
- Building Envelope Investigations
- Building Moisture Measurement
- Forensic Investigations
- Mold Remediation Design, Oversight, and Air Monitoring
- Clearance Sampling
- Building Pollutant Measurement
 - Formaldehyde
 - Particulate Contaminants
 - Volatile Organic Chemicals
- Biological Agent Measurement
 - Fungi
 - Bacteria
 - Other Allergens
- LEED Certification Testing
- Property Condition Assessments

Vendors/Subcontractors

In addition to professional subconsultant, Keith and Associates, Inc., the Terracon Team has assembled vendors/subcontractors to support the services that will be required as part of this contract. Licensed and/or certified to perform the requisite services listed below, these contractors, which include firms that are local vendors, include an analytical laboratory and drilling companies, and are incorporated into our Organizational Chart as integral team members.

- **Analytical Laboratory Services**
 - Pace Analytical Services, LLC
- **Drilling Services**
 - Earth Tech Drilling, Inc.
 - Earth Nurse Environmental, LLC

Experience of the Terracon team

Experience with Government Agencies

Terracon has a tremendous presence and broad scope of knowledge in South Florida gained through more than 30 years of conducting professional environmental engineering, facilities consulting, geotechnical engineering, and material testing services.

As previously mentioned, one of Terracon's core businesses is to service local governments through continuing services contracts. We have serviced the public sector for over two decades throughout the South Florida region. Statewide we hold over 110 continuing service contracts (environmental, facility, geotechnical, construction testing and inspections) with approximately 70 different governmental agencies including state, county, and local governments. Terracon has an outstanding history of contract extensions and re-selection under these contracts, which is indicative of our commitment and performance providing timely and cost-effective engineering services to our clients.

8 Statement of Skills and Experience of Project Team

Clients we have serviced on an as-needed basis include, but are not limited to, the following:

- Broward County
- Broward County Public Schools
- City of Dania Beach
- City of Fort Lauderdale
- City of Fort Pierce
- City of Hallandale Beach
- City of Homestead
- City of Lake Worth Beach
- City of Lauderdale Lakes
- City of Lauderhill
- City of Miami Beach
- City of North Lauderdale
- City of North Miami Beach
- City of Pompano Beach
- City of Stuart
- City of West Palm Beach
- Florida Atlantic University
- Florida Department of Agriculture and Consumer Services
- FDEP
- Florida Department of Management Services
- Florida Fish and Wildlife Conservation Commission
- FDOT
- Florida Keys Aqueduct Authority
- Florida's Turnpike Enterprise
- Greater Miami Expressway Authority
- Indian River County
- Martin County
- Martin County School District
- Miami Dade College
- Miami-Dade County
- Nova Southeastern University
- Palm Beach County
- School District of Collier County
- School District of Palm Beach County
- Seminole Tribe of Florida
- South Florida Water Management District
- St. Lucie Public Schools
- St. Lucie County
- Treasure Coast Research Planning Council
- Town of Jupiter
- Town of Miami Lakes
- Village of Royal Palm Beach



8 Statement of Skills and Experience of Project Team

Similar Experience of the Project Team in the Past 5 Years



School Board of Broward County, Plantation Site Assessment Remediation (IV), Agencies (VIII) Project: Brownfields and CERCLA Site Screening Plantation, Florida

The School Board of Broward County Plantation site is an approximate 13.06-acre parcel of land located at the SE corner of South Hiatus Road and W Broward Boulevard in Plantation, Broward County, Florida. The site is currently vacant land and a cleared maintained grassed field owned by the School Board of Broward County.

TERRACON'S CLIENT:

Florida Department of Environmental Protection

DATE:

04/2023 -Ongoing

FIRM'S FEE:

\$205,000 (fee to date)

Historically, the site was part of a larger agricultural area that was utilized to cultivate row crops from approximately 1968 to 1999. The site also contained a maintenance/equipment storage/staging area in its northwestern portion.

Drainage canals also previously transected the entire northern parcel along its frontage with W Broward Blvd and a smaller drainage feature was also present along the western site boundary parallel with the current alignment of Hiatus Road. Agricultural activities were discontinued sometime on or before 1999 and a large portion of the major drainage canals were filled with material of unknown quality. The southern portion of the site was also used as a debris management staging area during a historical disaster declaration in relation to several storm events.

Using funds obtained by the Florida Department of Environmental Protection (FDEP) from the U.S. Environmental Protection Agency (EPA) Brownfields Initiative for Targeted Brownfields Assessment, Terracon has conducted several rounds of soil and groundwater assessment between 2023 and 2024. Initially using direct push technology and hollow stem auger, initial Terracon soil and groundwater testing was performed in 2023 to both confirm and fill in data gaps of prior documented impacts to soil and groundwater and to better define the plumes with new surficial intermediate and deeper aquifer monitoring wells.

Soil assessment was conducted using direct push technology and hand augers to define and confirm prior soil impacts identified by past consultants and to also close data gaps. Soil and groundwater testing was proposed and has been conducted offsite on adjacent properties owned by the Old Plantation Water Control District.

Results of these assessment activities have defined the horizontal extent of groundwater contamination for the site with a future 50-foot below-ground surface (bgs) deep well installation planned for 2025 employing rotary sonic drilling techniques. In addition, several areas of soil exceedances are going to be retested and refined to bind in the vertical and horizontal limits of the soil and groundwater plume and aid in remedial decisions. Upon completion of the soil and groundwater assessment anticipated in early summer 2025. Terracon will work with FDEP to propose and implement a remedial strategy (using the continued allocated Brownfields funding up to 500k) with regard to the remediation of the documented soil and groundwater impacts. This strategy will be designed to achieve a site closure that will facilitate redevelopment of the now vacant undeveloped property.

8 Statement of Skills and Experience of Project Team



Saddlebunch Key Site Monroe County, FL

This site is composed of a tidally influenced area of land totaling ± 39.88 acres opening into the Atlantic Ocean, located on the south side of US-1 in Saddlebunch Key, Florida. The purpose of the project was to take inventory of the natural resources onsite and determine what environmental restoration projects would be feasible and incentivized for the site.

TERRACON'S CLIENT:
The Redington Group, LLC

DATE:
01/2023 – 03/2023

A feasibility assessment was conducted for this site on February 2, 2023, which included a natural resources inventory, a review of local, state, and federal land use restrictions and regulations specifically relating to the site, and to assess the site for potential habitat for listed threatened or endangered species. A comprehensive inventory of the natural resources on site was recorded and provided within the report. Additionally, Terracon investigated potential site enhancements that would have the potential for capital gain while improving the natural resources on the site, such as mangrove or seagrass cultivation or coral propagation.

FEE:
\$3,800

8 Statement of Skills and Experience of Project Team



Fire Station No. 54 Fort Lauderdale, FL

At the time of Terracon's initial services in 2012, a two to three-story fire station building was planned to encompass approximately 9,382 square feet (SF) at 3211 NE 32nd Street in Fort Lauderdale, Florida. The facility would contain an apparatus bay at the west and a generator pad on the east. Terracon provided geotechnical engineering services for the planned fire station under a continuing contract the firm held with the City of Fort Lauderdale. The firm performed geotechnical engineering services that included field exploration comprised of the drilling of borings, laboratory testing, and geotechnical engineering services. Terracon also provided observation of the installation of the auger cast piles during construction as part of the design team in 2017. Terracon completed the auger cast pile installation monitoring for the 14-inch auger cast piles (ACPs) for the proposed facility. The firm provided engineering oversight and related testing services during the ACP installation to ensure that the work was completed in a manner that met the intent of the project plans and specifications. Terracon's personnel furnished full-time observation of the pile installation work and recorded such information as total length, rock socket length, grout volume, grout factor, and reinforcement type and placement procedures. The firm also provided geotechnical consultation services such as reviewing shop drawings and submittals and responding to requests for information (RFIs) during construction.

TERRACON'S CLIENT:
City of Fort Lauderdale

DATE:
12/2012 – 10/2021

FIRM'S FEE:
\$24,062 estimated

In 2019 Terracon conducted a limited indoor air quality (IAQ)/mold assessment of the station to address employee concerns regarding the potential presence of mold within the facility. The scope of work included visual evaluations, material moisture content measurements, collection of air samples for analysis of fungal spores, collection of direct-reading environmental measurements for carbon dioxide, direct-reading measurements of temperature and relative humidity, and collection of surface swab samples of suspect fungal/biological growth from representative surfaces based on visible observation. Samples were submitted under secure chain of custody to a laboratory accredited by the American Industrial Hygiene Association (AIHA) Environmental Microbiology Laboratory Accreditation Program (EMLAP). Terracon performed another limited IAQ/mold assessment of the station to address employee concerns regarding the potential presence of mold within the facility in 2021. The results, findings, conclusions, and recommendations, based on conditions observed during our investigation, were presented to the City.

8 Statement of Skills and Experience of Project Team



Fire Science Training Area/Fire Academy Miami-Dade County, FL

Miami Dade College (MDC, College) retained Terracon, a long-time environmental consultant to MDC, to assist in the initial assessment of the active Academy of Fire Science Training Area/Fire Academy located within the College's North Campus located in northern Miami-Dade County. The location of the College's North Campus was also historically utilized by the United States Air Force as a base for military operations during World War II.

TERRACON'S CLIENT:
Miami Dade College

DATE:
12/2012 – 10/2021

FIRM'S FEE:
\$47,102

Terracon conducted soil and groundwater sampling of the area located with the Fire Academy historically used for fire training exercises involving the use of fire-retardant materials such as Aqueous Film Forming Foam (AFFF), containing per- and polyfluoralkyl substances (PFAS), to extinguish flames during training exercises in the past.

In addition to adhering to the required State of Florida Standard Operating Procedures (SOPs) for soil and groundwater sampling, additional measures and procedures were required for this project due to the sensitivity of PFAS analysis and the increased risk for cross-contamination. To address typical concerns when sampling for PFAS, Terracon prepared a PFAS Soil and Groundwater Sampling Plan (Sampling Plan) for review by Terracon and subcontractors working on the project. The Sampling Plan addressed the following topics such as (1) Contamination Prevention/Decontamination, (2) Clothing and Personal Protected Equipment (PPE); (3) Field Conditions/Sampling Equipment, (4) Decontamination and (5) Sample Collection.

Terracon conducted soil and groundwater assessment activities, including installation of temporary monitoring wells, during August 2019 and September 2019 and February 2020. Soil samples collected from soil borings within the former AFFF area reported either PFOS and/or PFOA above their Leachability Based on Groundwater Alternate Soil Cleanup Target Level (ASCTL). However, these PFOS and PFOA concentrations were below the Direct Exposure Residential ASCTL of 1.3 mg/kg. Shallow groundwater quality results from sampling events during August 2019, December 2019 and February 2020 showed PFAS impacts to groundwater in the former AFFF training area at levels multiple orders of magnitude above the Alternate Groundwater Cleanup Target Level (AGCTL). However, these shallow groundwater impacts appear to generally be limited to this former AFFF use area. Deep groundwater quality appears impacted with similar levels of PFOS/PFOA reported in the shallow groundwater intervals.

From the beginning stages of the project, Terracon collaborated with FDEP's Site Investigation Section (SIS) as the soil and groundwater assessment progressed. Working side-by-side with FDEP, Terracon spearheaded the investigation for the College in preparation for the site to be transitioned into the State-Owned Lands Cleanup Program (SOLCP).

8 Statement of Skills and Experience of Project Team



Pompano Beach Continuing Services

Pompano Beach, FL

KEITH has served as a prime consultant for the City of Pompano Beach on an as-needed basis for over 20 years. KEITH provided surveying, subsurface utility engineering, planning, utility coordination, civil, traffic, and transportation engineering, landscape architecture, and program construction management.

KEITH'S CLIENT:

City of Pompano Beach

DATE:

2002 - 2026

FIRM'S FEE:

\$500,000 annually – CCNA Limits

Some projects provided under these contracts include:

- Drainage Improvements at US 1 And NE 14th St
- The Plaza at Oceanside - Conceptual Design
- Final Certification for SW 36th Avenue Pedestrian Path
- SR A1R Streetscape Improvements at Oceanside Development
- Mount Calvary Plat Note Amendment
- St Martins Church - Temp Parking Lot
- NE 2nd Street from A1A to Riverside St. Roadway Improvements
- Youth Sports Complex Additional Services
- LHP Phase III Project
- Leisureville Sketch and Legals
- Pompano Public Access Dock
- 2410 NE 2nd Ave Sketch and Legal
- McNab Road Parking Area
- 1221 NE 8th Court Sketch and Legal
- Lake Santa Barbara and Wahoo Bay
- New Office Trailers - Specific Purpose Survey
- Sketch and Legal Description – FPL Easement
- Palm Aire Legal Description
- Pompano Beach Airpark - Survey & Platting
- Pompano Beach Elementary School
- New Metal Warehouse Storage Facility



8 Statement of Skills and Experience of Project Team



Go Bond Parks Redevelopment Pompano Beach, FL

KEITH was ranked number one in City of Pompano Beach Parks GO Bond RFP and has been awarded three memorable and different projects. Centennial Park, Youth Sports Complex, and North Pompano Park. Each project is unique in its own way, ranging from programming that includes sports fields, restroom facility and high-end banquet facilities. The parks also include signage, wayfinding, lighting site furniture as well as the associated parking and required infrastructure. KEITH was the lead consultant on these projects that are now under construction providing full services including civil engineering, survey, SUE, planning, and landscape architecture. Prior to the construction phase, KEITH was responsible for leading public meetings and building consensus among the neighborhood and community. KEITH developed photo realistic renderings and presentations to assist in this communication.

KEITH'S CLIENT:
City of Pompano Beach

DATE:
2019 - 2023

FIRM'S FEE:
\$673,519



8 Statement of Skills and Experience of Project Team

Stormwater Infrastructure Assessment

Fort Lauderdale, FL

KEITH is delivering this KEITH Water Project for the City of Fort Lauderdale as part of a city-wide initiative to assess and improve critical stormwater infrastructure. This program focuses on evaluating the condition of large-diameter stormwater gravity mains (ranging from 30 to 96 inches) and their associated structures, including manholes, basins, tidal valves, drainage wells, and more. Covering approximately 23,000 acres across ten watershed areas, the City's stormwater network is situated in low-lying, flood-prone coastal zones, making this assessment essential for long-term resilience and environmental compliance.

KEITH'S CLIENT:

City of Fort Lauderdale

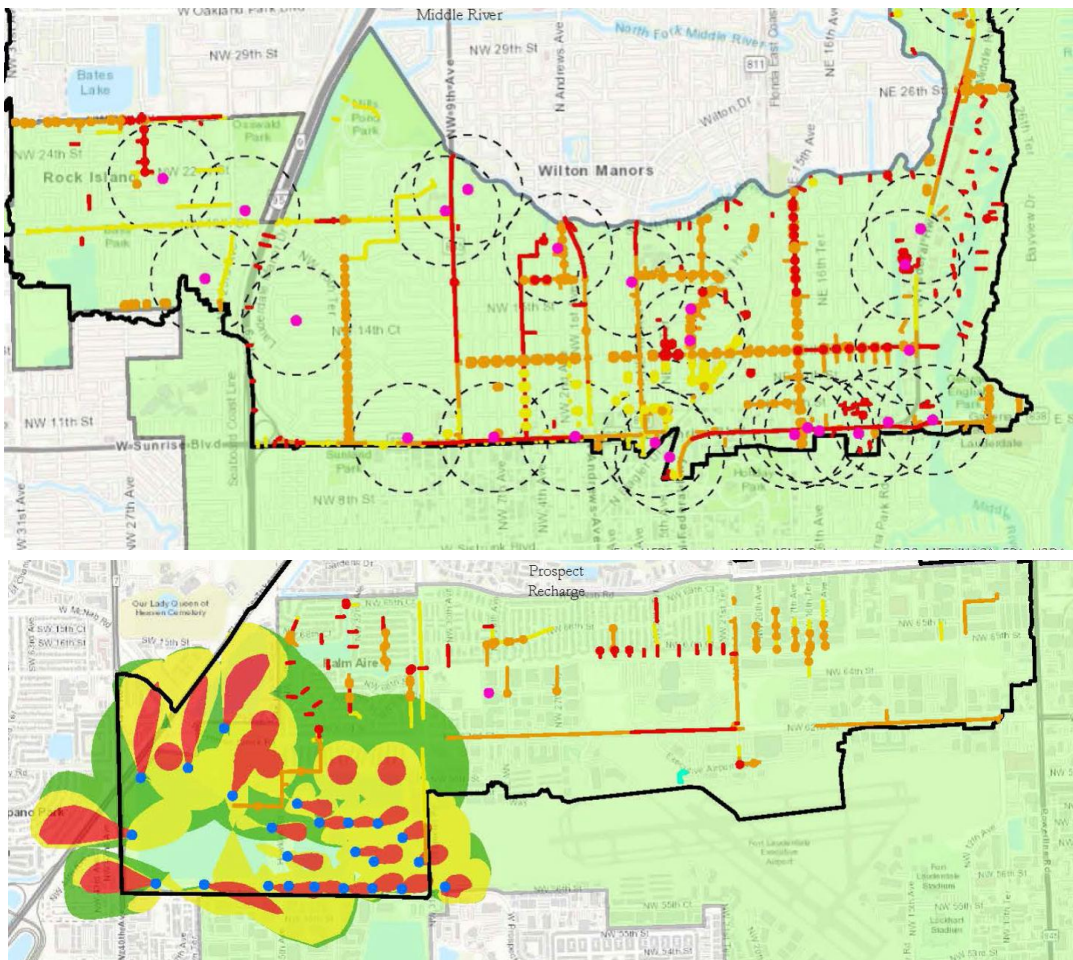
DATE:

2024 - Ongoing

FIRM'S FEE:

\$562,359

KEITH is providing full in-house services for this project, ensuring seamless coordination across engineering, inspection, surveying, GIS, and program management disciplines. KEITH will ensure that all work meets regulatory requirements, including those set by the Clean Water Act, NPDES, FDEP, and SFWMD.





9 Resumes of Key Personnel

9 Resumes

Steven A. Harrison, P.G.

Contract/Project Manager, Direct Point of Contact, Environmental Project Manager, QA/QC Review, Principal Geologist, Senior Mold Assessor

PROFESSIONAL EXPERIENCE

Steven is a principal and a professional environmental consultant for Terracon and its Florida Division. He also serves as the Department Manager for the Fort Lauderdale and Miami offices. A licensed professional geologist and mold assessor, he specializes in providing responsive, cost-effective, technically accurate, and regulatory-focused solutions to meet clients' project and operational requirements.

Steven has 37 years of successful experience continuously exceeding expectations by resolving environmental situations that clients face. Steven's diverse environmental experience includes the assessment and remediation of impacted groundwater and soil, real estate transactional due diligence assessment (Phase I/II environmental site assessments (ESAs)), storage tank system management, industrial and Resource Conservation and Recovery Act (RCRA) waste disposal, wildlife surveys and compliance help with federal and State environmental regulations (SPCC Plans).

He has worked with a diverse array of clients, ranging from the independent property owner to local, regional, and state municipalities and Fortune 500 companies, to address and resolve their business and regulatory environmental concerns. Steven's knowledge of local, state, and federal regulatory requirements is critical to supporting clients' objectives to maintain compliance with all applicable regulatory requirements. Furthermore, he has performed and/or supervised thousands of environmental due diligence projects throughout a large portion of the eastern United States.

PROJECT EXPERIENCE

Former BT Oil, 201 Hammondville Road - Pompano Beach, FL

Project Manager/Project Geologist. Site assessment activities conducted for the former BT Oil facility, including the installation and sampling of soil borings and monitoring wells, identified petroleum impacted soils and groundwater that extended beyond the southern boundary of the site into the right-of-way. The petroleum impacted soils were reported to be present at depths approaching, and extending beneath, the groundwater interface at approximately 6 to 8 feet below ground surface (bgs). The impacted groundwater was estimated to extend to a depth of approximately 30 feet bgs. Infrastructure improvements/enhancements within the ROW along the north side of Hammondville Road, which included the installation of new utility lines (stormwater pipes and associated structures, as well as potable water lines), encountered petroleum impacted soils from the BT Oil site that required proper management and disposal. Terracon limited the scope of work to the excavation of petroleum impacted soils encountered and City of Pompano Beach was able to manage the balance of impacted soils in place. The impacted soils were properly disposed at a licensed disposal facility in accordance with under proper manifesting protocols.

Hammondville Road Right-of-way (ROW) - Pompano Beach, FL

Project Manager. Responsible for oversight and direction of environmental work conducted in association with replacement of municipal sanitary sewer, stormwater and drinking piping within public ROW. Work required oversight of excavation efforts, screening, segregation, and staging of contaminated soil, and proper disposal of contaminated soil at a licensed facility to accept contaminated soil.



EDUCATION

M.S., Marine Geology and Geophysics, Emphasis: Geo-Chemistry, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, 1988

B.S., Geology
State University of New York
Binghamton, 1980 – 1984

REGISTRATIONS

Professional Geologist
Florida, No. 0001390

Florida Licensed Mold
Assessor, No. MRSA508

CERTIFICATIONS

8- Hr Hazmat Health and Safety
Training Updates (Current)

40- Hr Hazmat Health and
Safety Training (1989)

Short Course: Assessing
Environmental Risk in Property
Transactions (1990)

Short Course: How to Comply
with Florida's Haz Waste
Regulations for Generators

AFFILIATIONS

Commercial Real Estate Women
(CREW) Fort Lauderdale/Boca
Raton

YEARS OF EXPERIENCE

With Terracon: 12
Total in Industry: 36

OFFICE LOCATION

Fort Lauderdale, FL

9 Resumes

Steven A. Harrison, P.G. (continued)

Ali Cultural Center – Pompano Beach, FL

Project Manager. The historic two-story Ali Cultural Arts building was built in the 1930s and was purchased in 2012 by the City of Pompano Beach Community Redevelopment Agency (CRA). The world-class cultural arts venue was expanded with an additional 2,400-SF building and an outdoor courtyard for concerts. Sphere Environmental Services, LLC, the company Steven owned, was the environmental prime consultant that enlisted the services of Terracon to provide professional engineering services for the project including a subsurface study and developed recommendations for site preparation, foundation design, and ancillary construction for the renovation project that includes gallery space, multi-purpose space, outdoor event/performance space with seating, administrative space, storage/archive space, and a conference room. The firm also provided construction materials testing and inspection services during the construction of the elevator addition at the center. Subsequently, in 2013 Sphere was acquired by Terracon. The firm performed construction materials testing services in 2014 and 2015 for the CRA during construction of the building footings, slab on grade, columns, and walls of CMU, fill cells with grout, and construction of beams and metal roof deck with insulation. The scope of services included earthwork observation and testing, concrete testing, masonry grout testing, structural inspections, laboratory services, and reporting.

Former Sears, Pompano Citicentre Mall – Pompano Beach, FL

Project Director/QA/QC Review/Senior Geologist. Site assessment efforts identified impacted groundwater that resulted from historical operations in the area of the former dispenser island that extended across the eastern parking area and beneath the east end of the building. A combined site assessment report (SAR)/remedial action plan (RAP) was critical to expedite the regulatory process. The aggressive remedial strategy addressed residual soil impacts, along with groundwater exceedances through source removal of saturated soils impacted with petroleum hydrocarbons, air sparging of groundwater within the open excavation to volatilize petroleum hydrocarbons, placement of oxidation chemicals (ISCO) into soil during backfilling, and injection of ISCO beneath the excavation and into the surrounding areas of groundwater impacts. Terracon completed field efforts within 30 days from receipt of approval from Broward County Environmental Protection and Growth Management Department (BCEPGMD). Final monitoring will verify progress of the remedial effort and upon completion of one year of post active remediation monitoring, the site will obtain regulatory closure with conditions.

City of Pompano Beach, Former Able's Service Station – Pompano Beach, FL

Project Manager. Assessment of a former service station as part of a site assessment consistent with the requirements of Chapter 62-770, FAC. Analytical results of soil and groundwater samples collected to assess conditions reported that soil and groundwater impacts resulted from the former underground storage tank (UST) area and the previous remedial efforts did not fully remediate the petroleum hydrocarbon affected area. A previous Site Rehabilitation Completion Order (SRCO) was rescinded following Terracon's submittal and a Remedial Action Plan (RAP) prepared to address the impacted conditions was approved for implementation.

Former Sabal Golf Remediation - Pompano Beach, FL

Project Director/QA/QC Review. The Former Sabal Golf Course is an 11-acre remnant of the golf course that is planned for redevelopment into a recreational use property (Sports Park). Terracon conducted a 9,600-ton (non-hazardous) soil source removal project. We managed all subcontractors, coordinated all field activities, documented daily activities, conducted air monitoring, and coordinated logistics associated with the field project. Timely completion of fieldwork required daily project and safety meetings, with daily field reports. QA/QC procedures were implemented throughout all aspects of the project.

Old Fire Station 11 – Pompano Beach, FL

QA/QC Review. The City of Pompano Beach CRA planned to demolish the building. The purpose of Terracon's asbestos survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition, and approximate quantities of ACM in interior building components.

9 Resumes

Javier E. Jiménez, P.E.

Principal-in-Charge, Senior Associate, Operations Manager

PROFESSIONAL EXPERIENCE

Javier is a registered (Florida) professional engineer with more than 25 years of expertise in construction materials engineering, testing, and inspection services. He brings extensive experience in project management, structural engineering design, construction defect investigations, construction defect mitigation inspections, non-destructive testing of building envelope and structural components, forensic investigations, construction materials testing, and facilities engineering experience.

Javier is a senior associate and the Operations Manager for the Fort Lauderdale and Miami offices and laboratories. Javier serves as the senior materials engineer with direct technical responsibility for field inspection and construction materials testing, including laboratory testing services. He is responsible for evaluating and overseeing the construction of earthworks (embankments, levees, slopes), roadways and bridges; soil improvement/ replacement.

On a day-to-day basis, he provides technical oversight and direction to engineering and technical staff, prepares study scope and fee proposal documents; report preparation; and is responsible for contract conformance (QA/QC). Javier oversees and directs the construction services group, prepares proposals, conducts evaluations, provides field troubleshooting, and prepares project reports and invoices. His duties also include overseeing and maintaining QC programs.

PROJECT EXPERIENCE

Florida Department of Transportation (FDOT) Districts 4 and 6 (D4/6) Districtwide Materials Lab Material Testing and Construction Support - Various Locations Districtwide

Construction Services Manager/Senior Materials Engineer. Provide technical support as needed by the FDOT. Our services include but are not limited to asphalt plant inspections for Verification and Independent Verification (IV); performing laboratory testing services in accordance with all applicable standards; delivering samples to resolution laboratories upon Project Administrator (PA) request; notifying PAs and the Department Project Manager (PM) in case of failing materials; provide sampling, testing and reporting on concrete materials ensuring compliance with Standard Operating Procedures (SOP) and applicable contract documents; inspecting and reporting on Pre-Stress/Pre-Cast Production Facilities to guarantee that all materials used on FDOT projects meet the requirements of governing documents and approved QC Program; perform structural concrete evaluation as requested and report any noted deficiencies to the District Structural Materials Engineer; and inspect, sample, test and report on field earthwork activities and other assignments requested by the FDOT.

Greater Miami Expressway Agency (GMX) General Engineering Consulting (GEC) Services – Miami-Dade County, FL

Construction Services Manager/Senior Materials Engineer. Terracon is a member of the EAC Consulting team that provides inspection and testing of construction materials and products in support of ongoing projects that expand the current expressway network and introduce state-of-the-art technology to improve the efficiency of the existing GMX system.



EDUCATION

Master of Business Administration, Nova Southeastern University, Davie, FL

Master of Science in Civil Engineering, University of Michigan, Ann Arbor, MI

Bachelor of Civil Engineering, Georgia Institute of Technology, Atlanta, GA

REGISTRATIONS

Registered Professional Engineer: Florida No. 62162

Registered Professional Engineer
Puerto Rico No. 16347

CERTIFICATIONS

LEED AP

AFFILIATIONS

American Society of Civil Engineers
American Welding Society
Latin Builders Association

YEARS OF EXPERIENCE

With Terracon: 3
Total in Industry: 28

OFFICE LOCATION

Miami Lakes, FL and
Fort Lauderdale, FL

9 Resumes

John Malkowski, P.E.

Environmental QA/QC Review/Senior Engineer/Assessment and Remediation

PROFESSIONAL EXPERIENCE

John is a multi-disciplined engineer for Terracon's Florida Division. He is responsible for project management, engineering designs, technical review (subject matter expert), and quality assurance. John has more than 25 years of experience in assessment and remediation, regulatory compliance, and environmental consulting.

He has extensive knowledge of federal, State of Florida, and local regulations governing hazardous and solid wastes, storage tanks, hazardous materials, and petroleum contamination, including but not limited to, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), Resource and Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Act (HSWA), Toxic Substances Control Act (TSCA), Clean Water Act, and all appropriate Florida Statutes and Florida Administrative Code (FAC) Sections dealing with hazardous materials and petroleum products (62-761, 62-780, etc.).

PROJECT EXPERIENCE

Florida Department of Environmental Protection (FDEP) – Various Locations, FL

Project manager for turnkey environmental services for petroleum and hazardous waste contaminated sites throughout Florida. Managed Initial Remedial Actions, Contamination Assessment Reports, and Remedial Action Plans (RAPs). Work was performed under the FDEP Division of Waste Management. Work governed by Chapters 62-770 and 62-780 FAC.

NPDES Stormwater Program, Construction, and Industrial Activities – Various Locations, FL

Project Engineer responsible for the preparation of proposals, project management including Initial site walkthrough, filing of Notice of Intent (NOI), Preparation of Construction or Industrial Stormwater Pollution Plans (SWPPP), oversight of weekly and rain event inspections by Florida Stormwater, Erosion, and Sedimentation Control Inspectors (FSESCI) at Construction sites and Notice of Termination (NOT). Additional industrial activities include setting up quarterly monitoring and Discharge Monitoring Reports (DMR) using the FDEP EzDMR System.

Northwood Anchor Site - West Palm Beach, FL

Senior Engineer. In early 2016, Terracon and its consulting team were retained by the West Palm Beach Community Redevelopment Agency (CRA) to perform cleanup through a loan obtained through Palm Beach County's Brownfields Revolving Loan Fund (RLF) Program including programmatic tasks and active remediation. The programmatic tasks completed included preparation of a site-specific quality assurance project plan (SS-QAPP), Davis-Bacon Act reporting assistance, community outreach and preparation of an Analysis of Brownfield Cleanup Alternatives (ABCA). The remedial alternative selected for groundwater remediation was air sparge and soil vapor extraction (AS/SVE). Prior to installation of the AS/SVE system, a RAP was prepared and submitted to the FDEP for approval. Upon approval of the RAP, remedial system construction was implemented. Post-remediation monitoring at the Northwood Anchor site was also conducted.



EDUCATION

Bachelor of Science,
Engineering,
University of Central Florida,
Orlando, FL, 1996

United States Marine Corps
M.O.S. 5923: H.A.W.K. Fire
Systems Electronics Control
Technician,
U.S. Army Air Defense Artillery
School,
Fort Bliss, TX

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Engineer: Florida No. 59404

Registered Professional
Engineer: Arkansas No. 13805

Certified Building Contractor:
Florida No. CBC1254803

OSHA 40-hour HAZWOPER

OSHA 10-hour Construction
First Aid/CPR

Defensive Driving Training

AFFILIATIONS

Metropolitan Orlando Training
Alliance (METRA)

Central Florida Association of
Environmental Professionals

YEARS OF EXPERIENCE

With Terracon: 13
Total in Industry: 28

OFFICE LOCATION

Winter Park, FL

9 Resumes

Mark M. Kearns

Assistant Contract/Project Manager/Senior Project Manager/Due Diligence and Assessment and Remediation

PROFESSIONAL EXPERIENCE

Mark is the Environmental Group Manager for Terracon's Fort Lauderdale and Miami offices. He is qualified as a senior professional with extensive experience managing environmental assessment and remediation projects. He has extensive field experience in Florida and overseas implementing and overseeing safety programs for coworkers, clients and contractors. With 17 years of experience in the environmental field, Mark has demonstrated the ability to manage large, complex projects for local, state and federal agencies. He also has the technical experience, leadership skills, and specialized training to effectively analyze, measure, and resolve site-specific environmental issues.

PROJECT EXPERIENCE

Florida Department of Environmental Protection (FDEP) Petroleum Restoration Program – Miami, FL *

Senior Environmental Project Manager. Supervised and managed various work orders for sites determined eligible for state-funded cleanup at service stations, airports, and commercial properties. Project types consisted of site assessments, low-score site assessments, monitoring-only plans, remedial action plans, remedial system operation and maintenance, and low-score site initiative work orders. Program management activities included the development of work scopes, adhering to project budgets, site safety plans, and quality assurance (QA) project plans.

Undeveloped Property on SW 8th Street - Coral Gables, FL

Senior Environmental Project Manager. Terracon managed the investigation of source and delineation of petroleum hydrocarbon plume. The scope of work includes supervision of the development of a contamination assessment plan consisting of site safety plan, quality assurance project plan (QAPP), field sampling plan; implementation and direction of initial remedial actions to remove contaminated soils, performance of field assessment activities for soil and groundwater contaminant plume definition; preparation of contamination assessment report; completion of groundwater and soil pilot tests for determining remedial alternatives; supervision of installation and operation of remedial system. Responsible for groundwater monitoring program, quarterly reporting, and obtaining site closure regulatory agency upon successful site remediation.

Esther Mae Armbrister Park - Miami, FL

Senior Environmental Project Manager. The project included the design, permit and construction phase services for the 4.4-acre City of Miami Park. The existing community center building was planned to be demolished and new construction would include an approximately 10,000-square foot (SF) two-story facility and an outdoor pavilion. Terracon was responsible for the implementation of a Soil Management Plan (SMP) and Dust Control Plan (DCP) during site redevelopment activities that involved the onsite management of impacted soils that were above the Direct Exposure Residential Soil Cleanup Target Levels (SCTLs) per Chapter 24 of the Miami-Dade County Code (MDCC). Terracon prepared and submitted an SMP/DCP and Air Monitoring Summary Report to Division of Environmental Resources Management (DERM) providing an overview of the site activities, including air monitoring results.



EDUCATION

Bachelor of Science in Anthropology/Archaeology, Millsaps College, Jackson, MS, 2008

CERTIFICATIONS

Water Well Contractor - South Florida Water Management District No. 11364

Qualified Stormwater Management Inspector No. 21269

PROFESSIONAL TRAINING

OSHA 8-Hour HAZMAT/Health and Safety

YEARS OF EXPERIENCE

With Terracon: 3
Total in Industry: 17

OFFICE LOCATION:

Fort Lauderdale, FL

** Work performed prior to joining Terracon.*

9 Resumes

Lucas Barroso-Giachetti, P.E., CHMM

Senior Environmental Engineer/Senior Project Manager

PROFESSIONAL EXPERIENCE

Lucas is a Senior Environmental Engineer in Terracon's Charlotte office and has over 20 years of environmental engineering and consulting experience in multiple U.S. states, Puerto Rico and Central America involving project management and business strategy, client management, risk management, regulatory negotiations and team development.

Lucas' project experience includes environmental assessment and remediation of petroleum and non-petroleum impacts in soil and groundwater, Brownfields redevelopment, assessment and remediation of agricultural lands for reuse as water resource areas/watersheds, petroleum storage tank regulations, health and safety, facility compliance and environmental permitting, air permitting and emissions, solid waste management, landfill redevelopment, hazardous waste management, asbestos/lead investigations and industrial hygiene, stormwater management and impacted site redevelopment consulting for a variety of private and public clients.

PROJECT EXPERIENCE

Former Agricultural Property - Pompano Beach, FL *

Completed environmental assessment of former agricultural property slated for multi-family development with arsenic concentrations in soil above both residential and commercial/industrial soil cleanup target levels (SCTLs) in shallow and deeper intervals. Successfully obtained a NFA without conditions closure from Broward County via 95% UCL statistical methods and detailed review/comparison by strata of site-specific lithology to establish pre-existing depositional conditions. Significantly reduced costs to client by limiting source removal to selected areas.

Pompano Beach Airpark Plane Crash Fuel Spill – Pompano Beach, FL

Lucas led this project, as the Professional Engineer (P.E.) and Project Manager, which involved emergency soil screening, soil sampling, groundwater sampling and source removal oversight related to a discharge of fuel resulting from an emergency aircraft crash landing within the Pompano Beach Airpark. Lucas provided P.E. oversight of the field activities and conducted regulatory interface on behalf of the client with Broward County. The impacted area was successfully excavated and remediated, receiving a No Further Action status from Broward County.

Miami Dade College Academy of Fire Science, - Miami, FL

Technical lead and Project Manager for the assessment of a firefighter training area that historically utilized Aqueous Fire Fighting Foam (AFFF) during training exercises that contained per- and polyfluoroalkyl substances (PFAS). Terracon was retained by Miami Dade College to assess potential impacts to soil and groundwater from PFAS, including development of a PFAS-focused sampling plan including special and rigorous practices and procedures to prevent cross-contamination during sampling from common everyday items such as water-resistant clothing, sunscreen and others.

Opa-Locka EPA Brownfields Assessment - Opa-Locka, FL

Senior Environmental Engineer. Project Manager and technical lead for Phase II ESA conducted in accordance with the Generic and Site-Specific Quality Assurance Project Plan (QAPP and SSQAPP).



EDUCATION

Bachelor of Science,
Environmental Engineering,
University of Florida, 2002

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Engineer: FL No. 68283;
NC No. 054857;
SC No. 40681

Certified Hazardous Materials
Manager, No. 13849

PROFESSIONAL TRAINING

OSHA 8-Hour HAZMAT/Health
and Safety

YEARS OF EXPERIENCE

With Terracon: 4
Total in Industry: 21

OFFICE LOCATION:

Charlotte, NC

** Work performed prior to
joining Terracon.*

9 Resumes

Alicia Coley, CIH

Certified Industrial Hygienist/QA/QC Review

PROFESSIONAL EXPERIENCE

Alicia is a Regional Services Specialist in Terracon's Eastern Operating Group with over 19 years of experience. She routinely collects, organizes, and interprets data by comparing it to applicable standards for inclusion in written reports for a variety of environmental services. Services conducted by Alicia include inspections, development of specifications, and providing oversight for industrial hygiene (IH), asbestos, lead, mold, and indoor air quality projects.

Work environments visited by Alicia include healthcare facilities, municipal buildings, K-12 schools, power plants, animal processing facilities, and universities. She interacts with clients by preparing proposals after thoroughly discussing the scopes of work and providing follow-up with clients regarding the findings.

PROJECT EXPERIENCE

Department of Administration Demolition Asbestos Services, Raleigh, NC

Alicia conducted an asbestos inspection as part of the planned demolition of the seven-story North Carolina Department of Administration building. Alicia assisted in developing the asbestos abatement specifications for the building to facilitate the planned demolition, which included the abatement of asbestos-containing fireproofing, floor tile, and floor tile mastic. The asbestos abatement specifications were prepared to ensure compliance with applicable State and Federal regulations when disturbing asbestos-containing materials impacted by the demolition. Alicia assisted with clarifying the specifications to contractors and acted as the Supervising Air Monitor during abatement air monitoring.

Naval Station Guantanamo Bay, Cuba

Alicia conducted hazardous materials assessments of various buildings, including a warehouse, bachelor officer's quarters building, and galley, prior to HVAC upgrades or renovation of the areas. The services included limited asbestos inspections, metals in paint testing, and a visual assessment for mold and animal droppings.

General Services Administration Drinking Water Sampling, Multiple Addresses, NC

As part of the U.S. General Services Administration (GSA) order for testing drinking water in their facilities across the country, Alicia assisted in collecting the samples, preparing reports, and performing the final senior review of reports. The constituents sampled for included Legionella, Total Coliform, Escherichia coli, lead, and copper. Due to the volume of sampling conducted by multiple consultants working with the laboratories was critical in ensuring proper handling of the samples for analysis.

Archer Daniels Midland Asbestos Inspections, Southport, NC

Alicia assisted in conducting asbestos inspections of thirty-nine industrial buildings, ancillary structures, and exterior piping during operation. The inspection included the collection of over 1,000 samples of suspect asbestos-containing materials, analyzing and reviewing sample data, and report preparation.



EDUCATION

A.A.S., Environmental Engineering Technology, 2006, Wake Technical Community College

B.S., Environmental Health and Safety, 2018, North Carolina Agricultural & Technical State University

REGISTRATIONS/ CERTIFICATIONS

Certified Industrial Hygienist (CIH) #11707

North Carolina Asbestos Designer No. 40502

North Carolina Asbestos Inspector No. 12548

North Carolina Asbestos Supervising Air Monitor No. 90159

North Carolina Lead Risk Assessor No. 120232

North Carolina Lead Project Designer No. 140063

Virginia Asbestos Designer No. 3305 001368

Virginia Asbestos Inspector No. 3303 00348

Virginia Asbestos Project Monitor No. 3309 001557

Maryland Asbestos Inspector No. 250001621

Maryland Asbestos Designer No. 250001618

Florida Licensed Asbestos Consultant No. AX138

Alabama Lead Project Designer No. LPD0422403B28D8

EPA Lead Project Designer No. LBP-P-I246750-1

YEARS OF EXPERIENCE

With Terracon: 19

Total in Industry: 19

OFFICE LOCATION:

Raleigh, NC



9 Resumes

Brian J. DuChene, P.E., BECxP, CxA+BE, LAC Principal Engineer/Licensed Asbestos Consultant/QA/QC Review

PROFESSIONAL EXPERIENCE

Brian has over 37 years of experience with site development, environmental, materials engineering, forensic failure analysis, indoor environmental and facilities consulting projects in Florida, throughout the U.S., and overseas. He has been responsible for performing and managing a full range of consulting services that have included: Site Selection and Redevelopment; Environmental Assessment and Remediation; Civil Design and Geotechnical Engineering; Incidental Architectural Design; Special Inspections and Materials Testing; Engineering Diagnostics, Forensic Engineering and Testing; and Indoor Environmental Assessment, Remediation and Demolition.

During construction, renovation, and remediation, he has performed project management, contract administration, project monitoring for compliance with the established plans and industry standards, and post-remediation assessments for completeness. Since 1988, these services have been provided to public and commercial clients on over 10,000 projects with budgets ranging from several hundred to over \$8 million. Brian has also served as a consulting expert witness in support of litigation in civil and criminal court.

PROJECT EXPERIENCE

Coconut Grove Library – Miami, FL

Principal/Design Engineer/Licensed Asbestos Consultant (LAC)/QA/QC Review. Terracon completed a roof assessment and design services for the Coconut Grove Library. The site consists of a two-story building containing approximately 4,364 SF of building area. The original historical building was constructed in 1901 along the northwest side of a 0.23-acre parcel of land. A two-story addition was constructed along the southeast side of the original building in 1963. The subject building was experiencing moisture intrusion and has several active leaks. Our scope of services included the following: investigation phase (roof condition evaluation, roof testing, asbestos survey and opinion of cost); design phase; analysis of all aspects of roof replacement design; preparation of drawings and specifications; and opinion of probable cost; bidding phase; construction administration phase; review of contractor submittals; participation in pre-construction conference; periodical site visits documenting progress installation of the roof; and 40-Year Building Recertification.

Midway Road Widening Project, 3171 – 3283 West Midway Road - Fort Pierce, FL

EPA Certified Lead Paint Risk Assessor and FLAC. The subject site supports seven existing vacant buildings which are to be demolished. The land and buildings are owned by St. Lucie County. Terracon provided a lead paint survey and an asbestos survey due to the planned demolition of the structures at the site.

Confidential Tennant Space - Boca Raton, FL

Principal/Consultant for plans and specifications prepared for the cleaning, sanitizing, and coating of the HVAC. Performed monitoring of the work for compliance with the design documents as well as microbial and NADCA testing to confirm completeness of the cleaning operations.



EDUCATION

Bachelor of Science, Materials Science and Engineering, University of Florida, 1987

REGISTRATIONS/ CERTIFICATIONS

Registered Professional Engineer: Florida No. PE45856, 1992

Licensed Asbestos Consultant - Engineer: Florida No. EA0000075, 1993

Building Enclosure Commissioning Process Provider (BECxP)*

University of Wisconsin-Madison Commissioning Authority + Building Enclosure (CxA+BE)*

University of Wisconsin-Madison

AHERA Asbestos Project Designer, Supervisor, Inspector, & Management Planner

Lead-Based Paint Risk Assessor Lead-Based Paint

PROFESSIONAL TRAINING

NIOSH 582 Airborne Asbestos Sampling / Evaluation

Radiation Safety and Use of Nuclear Gauges

AFFILIATIONS

Environmental Information Association

Indoor Air Quality Association

YEARS OF EXPERIENCE

With Terracon: 12
Total in Industry: 37

OFFICE LOCATION

Winter Park, FL

9 Resumes

Sergio Adasme, MRSA

Senior Project Industrial Hygienist/Senior Inspector

PROFESSIONAL EXPERIENCE

Sergio is a Project Industrial Hygienist and Senior Inspector with more than three decades of experience. His duties include asbestos abatement project supervision, technical specifications writing, phase contrast microscopy (PCM) analysis, asbestos surveys, mold assessments, and industrial hygiene (IH) assessments. Sergio has supervised well over 3,000 asbestos surveys and abatement projects. He is experienced in emergency response for buildings sustaining heavy physical damage from fire, ambient particulate matter, vibration and other causes, conducting surveys to determine levels of asbestos, lead, heavy metals contamination and air quality sampling for clearances prior to restoring occupancy and operations. His indoor air quality (IAQ) assessment experience has included full-service consulting from initial assessments through closeout of remediation projects.

PROJECT EXPERIENCE

Pompano Beach Community Redevelopment Agency (CRA) Vacant Unit on NE 1st Street – Pompano Beach, FL

Senior Project Industrial Hygienist/Project Manager. The vacant space contains approximately 300 square feet (SF) and abuts adjoining retail space within a mall. An asbestos survey was requested due to the planned interior renovations prior to tenant occupancy. The survey was conducted by an Asbestos Hazard Emergency Response Act (AHERA)-accredited building inspector. Interior building components were surveyed and interior homogeneous areas of suspect ACM were visually identified and documented. Suspect asbestos-containing material (ACM) samples were collected in general accordance with the sampling protocols outlined in EPA regulation 40 CFR 763.86 (AHERA). Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

Lighthouse Building First Floor Suite on East Atlantic Boulevard – Pompano Beach, FL

Project Manager. The building is approximately 9,705 SF and was constructed in 1977. An asbestos renovation survey was requested due to the on-going renovations of the Lighthouse Building-first floor suite. The survey was conducted by an AHERA-accredited building inspector. Interior building components were surveyed and interior homogeneous areas of suspect ACM were visually identified and documented. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in EPA regulation 40 CFR 763 (AHERA). Samples were delivered to an accredited laboratory for analysis by PLM.

Trust Properties on NW 5th and NW 4th Courts – Pompano Beach, FL

Project Manager. The structures are unoccupied and consists five one-story apartments, a single-family home, a two-story building and a three-story hotel. An asbestos survey was requested due to the planned demolition of the structures. Terracon conducted a pre-demolition asbestos survey on the interior and exterior of the structures. The survey was conducted by an AHERA-accredited asbestos inspector. The interior and exterior building components were surveyed and homogeneous areas of suspect ACM were visually identified and documented. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in the EPA regulation 40 CFR 763 (AHERA). Samples were delivered to an accredited laboratory for analysis by PLM.



EDUCATION

Construction Management
(Candidate), Florida
International University, Miami,
FL

REGISTRATIONS

Florida Mold Assessor
No. MRSA1154

CERTIFICATIONS

NIOSH 582
Facility Survey and Hazard
Assessment
AHERA Accredited Asbestos
Inspector
AHERA Accredited Management
Planner
AHERA Accredited Project
Supervisor
Certified Operator XRF
Spectrum Analyzer
Microscopically Identification of
Asbestos
OSHA 40 Hour HazMat
Emergency Response
Radiation Safety and Use of
Nuclear Gauges
PEC Premier SafeGulf
SafeLandUSA
West Texas Safety Training
Center -H2S
EPA: Lead Renovator,
Cert No.: R-I-18499-10-13622

AFFILIATIONS

American Industrial Hygiene
Association

YEARS OF EXPERIENCE

With Terracon: 8
Total in Industry: 43

OFFICE LOCATION

Fort Lauderdale, FL

9 Resumes

Brennan Hagan, M.S., P.W.S.

Senior Project Manager/Environmental Planning/Professional Wetland Scientist

PROFESSIONAL EXPERIENCE

Brennan, a senior project manager for Terracon's Environmental Planning Group, has more than 8 years of experience as an environmental professional, specializing in environmental permitting, wetland delineation, environmental planning, arboricultural services, and listed species services in Florida. His expertise includes wetland delineation, wetland permitting and compliance, design, implementation, and design of wetland mitigation plans, sovereign submerged land authorizations, hydrologic surveys, sand skink surveys, tree inventories, tree health/risk assessments, reviewing/interpreting municipal code, southeastern American kestrel survey, Audubon's crested caracara surveys, Florida burrowing owl survey/relocations, and gopher tortoise surveys/relocations.

In addition, Brennan has experience conducting Phase 1 site visits and writing Phase 1 reports per the ASTM standards. Experience also includes coordination with the Florida Fish and Wildlife Conservation Commission (FWC), the Florida Department of Environmental Protection (FDEP), several local municipalities, the US Fish and Wildlife Service, and all Water Management Districts (WMD) across the state.

PROJECT EXPERIENCE

South Fork High School – Martin County, FL

Project Manager for this multi-phase project in coordination with the Martin County School District. The first phase of this project included listed species assessment and wetland delineation. The second phase involved amending the existing conservation easement onsite. Efforts included initial wetland evaluation based on a Uniform Mitigation Assessment Methodology (UMAM) analysis, creating a mitigation plan and monitoring plan, facilitating agency field visits, and preparing project documents for submittal to the South Florida Water Management District (SFWMD).

Saddlebunch Key Site - Monroe County, FL

Environmental Planning Group Manager/Quality Assurance/Quality Control (QA/QC) Review. This site is composed of a tidally influenced area of land totaling ±39.88 acres opening into the Atlantic Ocean. The purpose of the project was to take inventory of the natural resources onsite and determine what environmental restoration projects would be feasible and incentivized for the site. A feasibility assessment was conducted for this site that included a natural resources inventory, a review of local, state, and federal land use restrictions and regulations specifically relating to the site, and an assessment of the site for potential habitat for listed threatened or endangered species. A comprehensive inventory of the natural resources on site was recorded and provided within the report. Additionally, Terracon investigated potential site enhancements that would have the potential for capital gain while improving the natural resources on the site, such as mangrove or seagrass cultivation or coral propagation.

Land Management Reviews (LMRs)

Participated in land management reviews of Florida State Parks including Tiger Bay State Park, Blue Springs State Park, and Hontoon Island State Park. FDEP participated in reviewing how the State Park was being ecologically managed and offered input on practices that we are working on or not.



EDUCATION

Bachelor of Science, Interdisciplinary Studies – Environmental Science
University of Central Florida, 2018

Masters of Science, Urban & Regional Planning, University of Central Florida, 2021

Graduate Certificate, Emergency Management & Homeland Security, University of Central Florida, 2021

CERTIFICATIONS

Professional Wetland Scientist (PWS)

Authorized Gopher Tortoise Agent

Registered Florida Burrowing Owl Agent

Florida Stormwater, Erosion, and Sediment Control Inspector, Tier II

40-hour Hazardous Waste Operations and Emergency Response Certification

Wildland Firefighter

ADDITIONAL TRAINING

40 hours of Advanced Wetland Delineation Training by FDEP

Acoustic Bat Survey Training - BCM

AFFILIATIONS

Society of Wetland Scientists

Central Florida Engineering Society – Conservation and Environmental Quality

Central Florida Association of Environmental Professionals

YEARS OF EXPERIENCE

With Terracon: 4

Total in Industry: 8

OFFICE LOCATION

Winter Park, FL

9 Resumes

Jeffrey Moates, MA, RPA

Senior Project Manager/Senior Registered Professional Archaeologist

PROFESSIONAL EXPERIENCE

Jeffrey is a professional archaeologist with more than two decades of experience in terrestrial and underwater archaeology in Florida. As a Director/Project Manager, Jeff has conducted business development and marketing, developed project budgets and staffing plans in response to task orders and scopes of work for projects conducted under Federal, State, and Local regulations. He successfully maintained stakeholder and client correspondence, oversaw project schedules and quality control of deliverables.

Jeffrey has conducted Phase I and II archaeological surveys on land and in underwater settings and has overseen archaeological mitigations, serving as Principal Investigator and Field Lead on multiple cultural resource projects. This work included shovel test surveys, archaeological testing and monitoring, site assessment surveys, and remote sensing surveys of historic cemeteries involving use of Ground Penetrating Radar and other geophysical equipment. Jeff has worked throughout the US with a focus in Florida and, more recently, in Georgia.

PROJECT EXPERIENCE

Cultural Resource Support, Ft. Moore, GA *

Five-year contract as primary cultural resources consultant for the installation. Work included multiple Phase I and II archaeological survey and testing projects. Client: Department of Defense, MICC-Ft. Benning (renamed Ft. Moore).

Archaeological Support for the Environmental Services Division, Tyndall Air Force Base, Bay County, FL *

Managed two staff archaeologists to provide support to base operation through the Environmental Services Division.

Cemetery GPR and Burial Investigation, Clearwater, Pinellas County, FL *

North Greenwood African American Cemetery – Community partners: Clearwater Heights Reunion Committee, Upper Pinellas Branch NAACP, City of Clearwater, Homeless Empowerment Program (HEP), and Pinellas County School Board.

Archaeological Assessment and Testing, Manasota Key Offshore Site (8MASO7030), Sarasota County, FL *

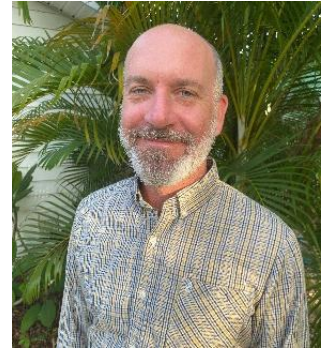
Archaeological Diver/Boat and Topside Operator. Provided oversight of dive platform, a 21' research vessel, and diving support services during assessment and testing project performed by Florida Bureau of Archaeological Research.

Archaeological and Biological Examination of the Brick Wreck (8MO1881) off Vaca Key, Monroe County, FL *

Agency partner: Florida Keys National Marine Sanctuary in fulfillment of a NOAA Maritime Heritage Program Mini-grant.

Heritage Monitoring Scouts of Florida, Manatee and Levy Counties, FL *

Waccasassa Preserve State Park (Levy) and Terra Ceia Preserve State Park (Manatee). Grant Sponsor: State of Florida, Division of Historical Resources.



EDUCATION

MA, History/Historical Archaeology University of West Florida, 2005

CERTIFICATIONS

Register of Professional Archaeologists #15736

Secretary of the Interior (SOI)
– qualified in Archaeology

YEARS OF EXPERIENCE

With Terracon: <1
Total in Industry: 22

OFFICE LOCATION

Winter Park, FL

** Work performed prior to joining Terracon*

9 Resumes

Arizona Boyd, CWE

Senior Project Manager/Senior Environmental Scientist/Environmental Planning

PROFESSIONAL EXPERIENCE

Drawing on 9 years of experience in both public and private sectors within the environmental industry, Arizona is a project manager at Terracon's West Palm Beach, Florida office. He manages client relationships while leading technical efforts in environmental permitting and planning, ensuring projects move seamlessly from business development through regulatory compliance.

Arizona's career reflects a broad range of expertise developed through prior roles in environmental permitting, regulatory compliance, and ecological management, positioning him as an asset for advancing complex projects with precision and efficiency.

PROJECT EXPERIENCE

Environmental Permitting and Compliance Support Services – FL *

Spearheaded over 1,000 environmental projects, delivering assessments, wetland delineations, and complex permitting under tight deadlines. Successfully managed multi-agency processes and ensured regulatory compliance, advancing client objectives efficiently.

Solar Development Environmental Support Services – Florida, Mississippi, South Carolina *

Provided desktop and field support for solar energy projects in Florida, Mississippi, and South Carolina conducting wetland delineations and endangered species surveys to ensure compliance and advance renewable infrastructure.

Ferry Terminal Revitalization – Key West, FL *

Conducted tree surveys and wetland delineations to ensure regulatory compliance, prepared permit applications, and coordinated with stakeholders to expedite approvals and support project progress.

Freshwater Resource and Vegetation Resilience Program – Loxahatchee, FL *

Conducted ecological monitoring, biomass sampling, and flora ecophysiology assessments to evaluate ecosystem health. Utilized advanced technology, including a LI-6400XT photosynthesis meter, to collect precise data and support research-driven environmental management and compliance efforts.

Invasive Species Data Collection and Management Strategy Project – Everglades National Park, FL

Conducted ecological field surveys to characterize tree island habitats, document species presence, and collect data on invasive vegetation such as Old World Climbing Fern. Findings supported the identification of preferred habitats and informed management strategies to assess at-risk tree islands for potential monoculture site introduction.

Utility Facility Monitoring and Sampling Initiative – Florida City, FL *

Conducted ecological monitoring and water quality sampling to support compliance and operational oversight at an energy facility. Responsibilities included assessing environmental conditions, and documenting results.



EDUCATION

Bachelor of Arts, Biological Sciences,
Florida Atlantic University, Boca Raton, FL

REGISTRATIONS/ CERTIFICATIONS

Florida Stormwater, Erosion, and Sedimentation Control Inspector No. 49656
Florida Department of Environmental Protection
Certified Wetland Evaluator,
July 2021-July 2023

ADDITIONAL TRAINING

OSHA 40-hour Health & Safety

AFFILIATIONS

Omicron Delta Kappa
Phi Theta Kappa

YEARS OF EXPERIENCE

With Terracon: <1
Total in Industry: 9

OFFICE LOCATION

West Palm Beach, FL

** Work performed prior to joining Terracon*

9 Resumes



TOM DONAHUE, PE
Senior Director of Civil Engineering



PROFILE

Thomas Donahue has 47 years of experience in civil engineering projects including 18 years in South Florida. His qualifications include engineering design, quality assurance/quality control management, planning and environmental studies. Tom's comprehensive experience includes residential, commercial and industrial development, site plans, airports, highways, environmental analysis, local, state and federal permitting, right-of-way plans, utility and military designs. His project management experience includes management of professional staff of engineers, landscape architects and CAD personnel, development of project scope of work, contract negotiations, budgets, scheduling, quality control, oversight of resident inspectors and surveyors, review of contractor's pay requests, and client contact.

RELEVANT PROJECT EXPERIENCE

EDUCATION

1978
BS, Civil Engineering, Northeastern University

YEARS OF EXPERIENCE

Industry: 47
KEITH: 9

PROFESSIONAL REGISTRATIONS

Professional Engineer, 60529, FL, 2003

Professional Engineer, MA, 1994

PROFESSIONAL AFFILIATIONS

Institute of Transportation Engineers (ITE) Gold Coast Chapter Member, Member

American Society of Civil Engineering (ASCE), Member

National Association of Industrial and Office Parks (NAIOP), Member

General Engineering Continuing Services, Coconut Creek, FL: Project Manager. KEITH has served as the General Engineering Consultant for the City of Coconut Creek for the past 5 years. KEITH is providing on-going continuing services as needed including civil engineering, surveying, planning, landscape architecture, and construction engineering inspections. Some projects provided under this contract include: Coconut Creek Government Center Breezeway, Coconut Creek Fire Station No. 113 Due Diligence, CEI Services for Landscape Improvements for SR 7, Lyons Road Median Enhancements, and Lyons and Cullum Road Improvements.

Architectural and Engineering Services, Hallandale Beach, FL: Project Manager. KEITH, as prime consultant, assists the Client with landscape architecture, civil engineering, survey, and general planning services as part of our Continuing Services agreement. KEITH projects under this agreement include Hallandale Beach Boulevard Water Main Improvements, Hallandale Historic Village Site (Curci House), Layne Boulevard Water Main Improvements, and City-wide Vulnerability Assessment.

Pier Parking Garage, Pompano Beach, FL: Project Manager. The parking garage includes five stories, 662 parking spaces, and some retail space on the ground level. As part of the design-build team, as subconsultant, KEITH was responsible for planning, survey, utility coordination, civil engineering, landscape design, permitting, and construction inspection. KEITH services included extensive community and municipal outreach, complete civil design to adequately provide water/fire/sanitary sewer service and stormwater management design/grading, landscape and irrigation design, permitting, and construction inspection and certification services.

Charlotte Burrie Civic Center, Pompano Beach, FL: Project Manager. KEITH, under its continuing services contract with the city, as subconsultant, assisted the Client in developing a KEITH Campus project that includes 8,712-SF of multi-purpose spaces for civic, social, and recreational activities, lobby area, reception, administrative offices, conference rooms, 250-seat assembly hall, a fixed platform stage, kitchen, and storage, as well as easy pedestrian ADA-compliant access, a porte-cochère entrance, 48 vehicular and 20 bicycle parking spaces. KEITH provided full services to the Client including civil engineering, permitting, landscape architecture, and construction administration and coordination for the new LEED v4 certified building.

SRA1A Improvements, Pompano Beach, FL: Project Manager. Under our continuing services contract for GO Bond Improvements, KEITH assisted the Client in the development of a KEITH Access project. KEITH provided full services to the Client including survey/SUE, civil and transportation engineering, landscape architecture, and construction program management. During coordination it was determined that FDOT had a project overlapping the City's. KEITH coordinated with FDOT to have the funds transferred to the City increasing the construction budget.

9 Resumes



OMAR RODRIGUEZ, PE, CFM, ENV SP
Civil Engineer



PROFILE

Omar Rodriguez is an emerging engineering professional specializing in Hydrology and Hydraulic Modeling and Water Resources engineering. He is heavily involved in Floodplain Management, Urban Drainage, and Climate Adaptation. Gaining experience in water resources and civil engineering design projects including water, sewer, drainage systems, stormwater master plans, and flood mapping as well as County and State-Wide permitting, Omar has demonstrated his various abilities and qualifications as an engineer including Flood Risk Management implementation using CAD, GIS, and Modeling software.

RELEVANT PROJECT EXPERIENCE

Drainage Improvements at US-1 and NE 14th St, Pompano Beach, FL: Project Manager. KEITH, under its continuing contract with the City, is providing civil engineering, surveying, and subsurface utility engineering for this US1 and NE 14th Street Drainage Improvement project. This comprehensive drainage improvement project aims to significantly enhance the stormwater management system in the City of Pompano Beach. The project involves the installation of new storm drainage infrastructure and the cutting of swales to optimize drainage functionality and mitigate flooding risks. This project area primarily consists of residential properties. Key components of the project include: **Installation and Reconstruction:** A total of 54 storm drain structures will be installed or reconstructed to ensure efficient water flow and prevent blockages. **Storm Drain Piping:** Approximately 4,765 linear feet of storm drain piping will be laid to facilitate the effective conveyance of stormwater. **Enhanced Drainage Functionality:** The project will incorporate advanced engineering techniques to improve the overall drainage capacity and resilience of the area. TBG Consulting provided cost estimating services to ensure that the project remains within budget while achieving its goals of improved drainage and reduced flood risk.

Cypress Road Improvements, Plantation, FL: Task Manager. KEITH, under a continuing services contract with the City, assisted with development of this project involving signal upgrades, milling and resurfacing, roundabout design, drainage improvements, additional sidewalk, and the addition of corridor-wide sharrow pavement markings and respective signage. Services KEITH provided include survey, SUE, civil engineering, landscape architecture, and transportation engineering. KEITH also managed a team of professional contractors providing lighting analysis and design and geotechnical services.

Zone 2 Drainage Study, Plantation, FL: Task Manager. The KEITH Team, under its continuing services contract with the city, was retained to provide a full range of engineering services to provide an evaluation of the existing stormwater system and develop a Capital Improvement Program (CIP). The final product will be compiled in a Stormwater Master Plan. KEITH will leverage its expertise in hydrology and hydraulics modeling to evaluate the overall existing stormwater system, identify potential areas at risk of flooding and evaluate future required stormwater system upgrades. The culmination of the study's effort will be presented in the new and comprehensive stormwater master plan.

Fire Station No. 52 Design-Build, Pompano Beach, FL: Task Manager. KEITH, under our continuing services agreement with the City, assisted the Client, as subconsultant, in developing a KEITH Facility project including a two-story multi-bay facility. KEITH provided full services to the Client including civil engineering, planning, survey/SUE, landscape architecture, and construction program management. The project brought the community a much-needed resource for safety and emergency management.

EDUCATION

2023
MS, Hydroinformatics and Water Management, Université Côte d'Azur

2023
MS, Hydroinformatics and Water Management, Brandenburg University of Technology Cottbus-Senftenberg

2023
MS, Hydroinformatics and Water Management, Warsaw University of Technology

2023
MS, Hydroinformatics and Water Management, Technical University of Catalonia

2023
MS, Hydroinformatics and Water Management, Newcastle University

2018
BS, Civil Engineering, Escuela Superior Politecnica Del Litoral

YEARS OF EXPERIENCE

Industry: 7
KEITH: 7

PROFESSIONAL REGISTRATIONS

Professional Engineer, 94885, FL, 2022

ENV SP, 61736, 2024

CFM, US-19-11500

Temporary Traffic Control Certification, Advanced, 54294

9 Resumes



CHUCK SCHRAMM, PSM
Director of Survey and Mapping



PROFILE

With nearly four decades of geospatial experience, Chuck Schramm's leadership brings valuable insights, streamlines data collection, and improves the overall accuracy and efficiency of our projects. With his guidance, our survey team is poised to achieve new heights in quality and impact. His responsibilities include daily operations of the surveying department, estimating, project progress reporting, coordination with other departments and clients, and business development. He also has extensive experience with a variety of engineering and surveying-related computer software, including Bentley OpenRoads Designer (ORD), MicroStation, and GEOPAK, and has experience in NPDES documentation.

RELEVANT PROJECT EXPERIENCE

EDUCATION

1988
BS, Survey and Mapping, University of Florida

1984
Courses Completed, Florida Institute of Technology

YEARS OF EXPERIENCE

Industry: 37
KEITH: 1

PROFESSIONAL REGISTRATIONS

Professional Land Surveyor, LS5366, FL, 1994

Drainage Improvements at US-1 and NE 14th St, Pompano Beach, FL: Project Manager. KEITH, under its continuing contract with the City, is providing civil engineering, surveying, and SUE services for drainage improvement project. This comprehensive drainage improvement project aims to significantly enhance the stormwater management system in the City. The project involves the installation of new storm drainage infrastructure and the cutting of swales to optimize drainage functionality and mitigate flooding risks. This project area primarily consists of residential properties. Key components of the project include: **Installation and Reconstruction:** A total of 54 storm drain structures will be installed or reconstructed to ensure efficient water flow and prevent blockages. **Storm Drain Piping:** Approximately 4,765-LF of storm drain piping will be laid to facilitate the effective conveyance of stormwater. **Enhanced Drainage Functionality:** The project will incorporate advanced engineering techniques to improve the overall drainage capacity and resilience of the area. TBG Consulting provided cost estimating services to ensure that the project remains within budget while achieving its goals of improved drainage and reduced flood risk.

Water Service Material Validation, Pompano Beach, FL: Project Manager. KEITH, under this continuing service contract, provided civil engineering, survey, SUE, landscape architecture, and construction program management services. This project supported compliance with the EPA's Lead and Copper Rule Improvements (LCRI) by identifying and validating the materials of water service lines within the County's drinking water system. The scope included predictive modeling, field investigations, and integration of findings into BCWWS's GIS system. KEITH performed visual inspections and vacuum excavations, documented findings, and supported data-driven decision-making. The project also involved the use of Trinnex's LeadCAST software to enhance predictive modeling capabilities.

Cypress Road Improvements, Plantation, FL: Project Manager. KEITH, under a continuing services contract with the City, assisted with development of this project involving signal upgrades, milling and resurfacing, roundabout design, drainage improvements, additional sidewalk, and the addition of corridor-wide sharrow pavement markings and respective signage. Services KEITH provided include survey, SUE, civil engineering, landscape architecture, and transportation engineering. KEITH also managed a team of professional contractors providing lighting analysis and design and geotechnical services.

FDOT District 4, Design Services for Loxahatchee Road, Pompano Beach, FL: Project Manager. KEITH, as a subconsultant, provided landscape architecture, survey, SUE, and utility coordination services. This project is to reconstruct Loxahatchee Road to accommodate 11-foot paved lanes, a raised median, five-foot bicycle lanes, and sidewalk on the south side of the 6.15-mile roadway. The project also included a design analysis for a roundabout.

9 Resumes



BRYAN MERRITT, PSM Vice President of Geospatial



PROFILE

Bryan Merritt is Vice President of Geospatial at KEITH. He is responsible for overseeing all geospatial operations, including survey and subsurface utility engineering (SUE) for the company. This role involves strategic planning; project management; ensuring accuracy and quality of data; leading KEITH'S team of surveying, mapping, and utility specialists; managing budgets; and collaboration with other departments/ disciplines to support the KEITH company goals. Bryan also manages the evaluation and assessment of equipment and technology resources, assists in training and mentorship to team members, and provides leadership in the preparation of business development strategies for existing and new markets/geographies.

RELEVANT PROJECT EXPERIENCE

Water and Re-Use Treatment Plant Projects, Pompano Beach, FL: Principal. KEITH, as a subconsultant, assists in the development of water and re-use water treatment plant projects on an as-needed basis. KEITH assists the Client with survey, SUE, and landscape architecture services. The KEITH Team assists the Client with specific purpose survey, site plan processing, paving, grading, and drainage, erosion plan, water distribution and sanitary sewer, engineering permitting, landscape architecture plans, construction observation, and construction certification.

SE 5th Avenue Bridge Replacement, Pompano Beach, FL: Principal. KEITH, as subconsultant, assisted the Client in developing a KEITH Access project related to improvements to the SE 5th Avenue Bridge. KEITH provided extensive survey services to the Client.

Chiller Plant, Pompano Beach, FL: Principal. The project included a 750-SF chiller plant building and cooling tower yard. The new chiller plant will provide energy efficient air-conditioning to City Hall and the Commission Chambers while reducing energy costs to the City. KEITH provided planning, civil, survey, and SUE services including layout and processing of the site plan, utilities design and permitting through all agencies having jurisdiction.

Fire Station No. 114, Pompano Beach, FL: Principal. The client has requested that KEITH provide SUE services for the Fire Station 114 project. Horizontal utility designation services will be performed to mark detectable utilities along a proposed fence line. A hand-drawn field sketch of discoveries will be included.

South Florida Water Management District (SFWMD) Continuing Survey Services, FL: Principal. The SFWMD trusted KEITH to provide professional services to continue with survey mapping services in Broward, Palm Beach, and Miami-Dade counties. KEITH worked with SFWMD to improve wells for the Hillsboro Canal Phase I in Broward and Palm Beach counties, the L-8 Reservoir Project in western Palm Beach County, and canals for the C-14 basin's hydrographic survey in Miami-Dade County. KEITH served as the consultant managing a trans-disciplinary team, providing surveying and subsurface utility locating services.

Parking Garage Design-Build, Pompano Beach, FL: Principal. KEITH assisted the Client in developing a KEITH Facility mixed-use project including a 625-space, 5-story parking garage on a 3.5-acre site. KEITH, as part of the design-build team, provided planning, survey, utility coordination and investigation, civil engineering, landscape architecture, permitting, and construction inspection. Included with KEITH's professional services were extensive community and municipal outreach, complete civil design to adequately provide water, fire, and sanitary sewer service, and stormwater management design, and permitting through all jurisdictional agencies, and construction inspection and certification.

EDUCATION

1983
AS, Civil Engineering, Monroe
Community College

YEARS OF EXPERIENCE

Industry: 43
KEITH: 1

PROFESSIONAL REGISTRATIONS

Professional Land Surveyor, LS6558,
FL, 2006

Professional Land Surveyor, 050050,
NY, 1993

FAA Remote Pilot Small Unmanned
Aircraft System, 4225999, 2019

PROFESSIONAL AFFILIATIONS

Chair Advisory Committee -
Geomatics Engineering Florida
Atlantic University

Village of Royal Palm Beach
Program for Public Information
Committee, Board appointed

Palm Beach County GIS Board
Member

Trail Boss Florida Off Road Cycling
Enthusiasts (FORCE) Pinehurst Trail

South Florida GIS Expo committee
Exhibits Chair

9 Resumes



KELLI SCHUELER, PLA, LEED AP
Director of Landscape Architecture



PROFILE

An experienced landscape architect and dedicated project manager, Kelli Schueler provides planning, design and project management services for a wide variety of project types through all phases of the development process. Her knowledge of the local environment, innovative technologies and sustainable best practices is combined with a creative approach that is detail oriented, ensuring designs are implemented both efficiently and accurately. Kelli has a wide range of project experience, but is most motivated by the opportunity to create special moments within the urban environment where hardscape and architectural elements are thoughtfully combined with green space to create impactful places of respite and community within the urban core.

RELEVANT PROJECT EXPERIENCE

EDUCATION

2003
BS, Landscape Architecture,
Oklahoma State University

YEARS OF EXPERIENCE

Industry: 22
KEITH: 8

PROFESSIONAL REGISTRATIONS

LEED AP

Professional Landscape Architect,
LA6667565, FL, 2021

Professional Landscape Architect,
2959, TX, 2014

Council of Landscape Architecture
Registration Boards (CLARB)
Certified, 00192756

Charlotte Burrie Civic Center, Pompano Beach, FL: Landscape Architect. KEITH, under its continuing services contract with the city, as subconsultant, assisted the Client in developing a KEITH Campus project that includes 8,712-SF of multi-purpose spaces for civic, social, and recreational activities, lobby area, reception, administrative offices, conference rooms, 250-seat assembly hall, a fixed platform stage, kitchen, and storage, as well as easy pedestrian ADA-compliant access, a porte-cochère entrance, 48 vehicular and 20 bicycle parking spaces. KEITH provided full services to the Client including civil engineering, permitting, landscape architecture, and construction administration and coordination for the new LEED v4 certified building.

Covered Bridge Park, Parkland, FL: Landscape Architect. KEITH assisted the Client, under its continuing services contract, in developing a KEITH Play project that includes meandering natural trails with a connection to the iconic Covered Bridge, flexible open space, nature playground, meditation garden, and yoga lawn on a 3-acre site. KEITH provided full services to the Client including survey/SUE, civil engineering, landscape architecture, planning, traffic engineering, and construction observation and management. The KEITH Team assisted the Client, as prime consultant.

North Pompano Park Improvements, Pompano Beach, FL: Landscape Architect. KEITH assisted the Client in developing a KEITH Play project that includes several multi-purpose sports fields, concession stands, restrooms, sports and site lighting, walking paths, parking, dog park, and artificial turf and natural sod enhancements at the 20-acre site. KEITH, utilizing a multi-disciplinary team, provided full services to the Client including civil engineering, survey/SUE, landscape architecture, planning, arborist services, tree disposition, and construction management.

Youth Sports Complex, Pompano Beach, FL: Landscape Architect. KEITH assisted the Client in the development of this KEITH Play project that includes several multi-purpose sports fields, clubhouse, restrooms, storage, offices, walking paths, preservation of several mature canopy trees, and a 180-space parking lot in the 10-acre complex. KEITH, as prime consultant, provided full services to the Client throughout all design phases including public outreach, planning, design development and site plan approval, and ultimately permitting and construction observation.

Broward College North Campus Landscape Drainage Project, Coconut Creek, FL: Landscape Architect. KEITH provided surveying, civil engineering, permitting, landscape architectural, construction management, and construction inspection services to address existing drainage issues. This project is being used as a model for future improvements throughout the campus. The school continues to look for ways to update the existing gathering spaces on campus for outdoor seating. Schematic and construction plans were developed to address the drainage and seating requirements, as well as beautify the area.

9 Resumes



CHRIS PHILLIPS, PLA, ASLA
Senior Landscape Architect



PROFILE

Chris Phillips is motivated by thoughtfully planned and meticulously crafted outdoor environments and is drawn to the intersection where form, function, and nature seamlessly act as one. Inspired by contemporary styling, he subscribes to a less is more philosophy, producing artful projects that not only make a statement, but when implemented, settle into place, take root, and thrive. He cognitively embraces the essence of a place and develops site details that contribute to a cohesive design. Creating spaces that are harmonious with the environment, Chris integrates architectural elements, grading, hardscape, planting, and lighting, resulting in functional, dynamic, and balanced spaces that connect the world of nature with man-made elements and human needs.

RELEVANT PROJECT EXPERIENCE

EDUCATION

2011
BS, Landscape Architecture,
University of Arkansas

YEARS OF EXPERIENCE

Industry: 14
KEITH: 6

PROFESSIONAL REGISTRATIONS

Professional Landscape Architect,
LA6667361, FL, 2017
ASLA
Council of Landscape Architecture
Registration Boards (CLARB)
Certified

PROFESSIONAL AFFILIATIONS

American Society of Landscape
Architects (ASLA), Member

Covered Bridge Park, Parkland, FL: Landscape Architect. KEITH assisted the Client, under its continuing services contract, in developing a KEITH Play project that includes meandering natural trails with a connection to the iconic Covered Bridge, flexible open space, nature playground, meditation garden, and yoga lawn on a 3-acre site. KEITH provided full services to the Client including survey/SUE, civil engineering, landscape architecture, planning, traffic engineering, and construction observation and management. The KEITH Team assisted the Client, as prime consultant.

North Pompano Park Improvements, Pompano Beach, FL: Landscape Architect. KEITH assisted the Client in developing a KEITH Play project that includes several multi-purpose sports fields, concession stands, restrooms, sports and site lighting, walking paths, parking, dog park, and artificial turf and natural sod enhancements at the 20-acre site. KEITH, utilizing a multi-disciplinary team, provided full services to the Client including civil engineering, survey/SUE, landscape architecture, planning, arborist services, tree disposition, and construction management.

SR A1A Improvements, Pompano Beach, FL: Landscape Architect. Under our continuing services contract for GO Bond Improvements, KEITH assisted the Client in the development of a KEITH Access project including streetscape improvements such as landscaped medians, widened sidewalks where Right-of-Way is available, and street lighting. KEITH provided full services to the Client including survey/SUE, civil and transportation engineering, landscape architecture, and construction program management. The During project coordination it was determined that FDOT had a resurfacing project overlapping the City's planned project. KEITH coordinated with FDOT to have the funds transferred to the City increasing the construction budget.

Fire Station No. 24, Pompano Beach, FL: Landscape Architect. The City of Pompano Beach requested the replacement of the existing Fire Station No. 24 with a new two-story, four-bay fire station. The City was so pleased with the previous work done on Fire Station 11 that the design and development was used for Fire Station No. 103 and served as the prototype design for this design/build project. KEITH, as a subconsultant, provided engineering design and permitting, project coordination, surveying, landscape architecture, and construction services. The station was designed to achieve a minimum LEED level of Silver Certification.

Government Center Breezeway, Coconut Creek, FL: Project Manager. KEITH assisted the Client, under its continuing services contract with the City, in developing a KEITH Campus project that included conceptual master planning, courtyard, and parking area, as well as schematic level designs for the breezeway. KEITH provided services to the Client including geospatial, civil engineering, landscape architecture, and environmental public art and design.

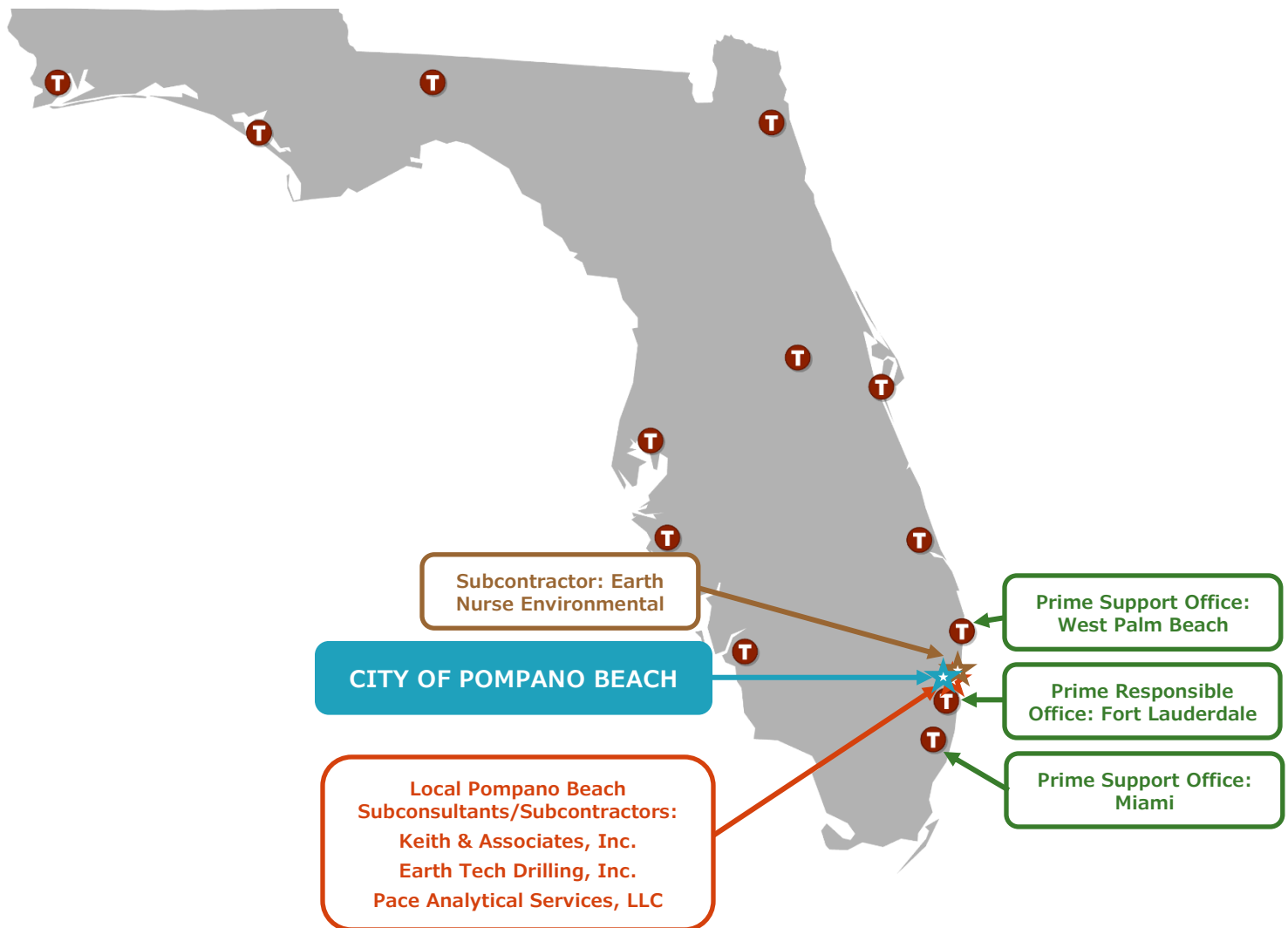


10 Office Locations

10 Office Locations

The Terracon Team's Proximity to Service Area

The Terracon Team has the necessary resources, equipment, and facilities to perform professional environmental engineering and testing services for this contract. As previously mentioned, Terracon will service this contract from our Fort Lauderdale office, which is located only 15 minutes door-to-door from your office to ours. Please find below a map of Terracon's Florida offices, including our South Florida offices, and our teaming partners that will service this contract.



The Terracon Team's offices are strategically located to provide proactive support to the City of Pompano Beach.

10 Office Locations

Key Team Members, Location	Office Role		No. Of Staff	
	Main	Support	Professional	Admin
Prime Consultant				
Terracon Consultants, Inc. (Terracon) Fort Lauderdale, FL ** Office Responsible for Contract	✓		16	1
Terracon Miami Lakes, FL		✓	7	1
Terracon West Palm Beach		✓	15	1
Subconsultants				
Keith and Associates, Inc. (KEITH) Pompano Beach, FL	✓		76	18
Subcontractors				
Earth Tech Drilling, Inc. Pompano Beach, FL	✓		UK	UK
Pace Analytical Services, LLC Pompano Beach, FL	✓		UK	UK
Earth Nurse Environmental Deerfield Beach	✓		UK	UK

Terracon has 10 additional Florida offices, with approximately 200 professional and 20 administrative staff, that can also help support this contract if the need arises.

10 Office Locations

The Terracon Team's Capacity

Terracon's staff and resources provide maximum flexibility to meet our clients' scheduling needs. The nature of our work requires us to typically provide services on an expedited basis. Our typical backlog is made up of many short-duration assignments, and therefore, our workload varies on a weekly basis. Furthermore, long-term contracts are of indefinite quantity, making the workload dependent upon individual work orders and difficult to predict.

The Terracon Team has the flexibility, ability, and capacity to handle all the services required and to meet the scheduling requirements for each City project. Our team has the capacity to perform this work based on actual and projected workload. If additional work is procured during this period, we are committed to increasing staff levels to service all assigned projects. We have made the same commitment on similar contracts with other clients and have never failed to cover the projects assigned to us.



The Terracon Team is 100% committed to providing all assignments under this contract in a timely and cost-efficient manner.

All the personnel identified in our organizational chart will be available on a priority basis for tasks assigned under this contract. We are committed to provide you with the highest quality personnel that have the specific experience necessary to complete any tasks you may need. It is our pledge to the City of Pompano Beach that adequate staff, who possess all the required licenses and certifications, will be made immediately available once a task has been identified. The following table further details our team and their availability as of January 2026.

Key Team Members	Role	Percentage of Availability	
		Recent/Current	Projected
Terracon Consultants, Inc.			
Steven Harrison, P.G.	Contract/Project Manager	45%	50%
Javier Jimenez, P.E.	PIC/Operations Manager	40%	40%
John Malkowski, P.E.	QA/QC Reviewer/Assessment and Remediation/Senior Environmental Engineer	40%	50%
Mark Kearns	Assistant Project Manager/Due Diligence and Assessment and Remediation Support	45%	50%
Alicia Coley, CIH, CSP, FLAC	Certified Industrial Hygienist	50%	45%
Brian DuChene, P.E., FLAC, BECxP, CxA+BE	Senior Licensed Asbestos Consultant	40%	45%
Sergio Adasme	Project Industrial Hygienist and Senior Inspector	55%	45%
Brennan Hagan, P.W.S.	Professional Wetland Scientist	40%	50%
Jeff Moates, MA, RPA	Senior Professional Archaeologist/Cultural Resources	40%	50%
Arizona Boyd, CWE	Senior Environmental Scientist	45%	50%

10 Office Locations

Key Team Members	Role	Percentage of Availability	
		Recent/Current	Projected
Keith and Associates, Inc.			
Tom Donahue, P.E.	Senior Director of Civil Engineering	70%	65%
Omar Rodriguez, P.E., CFM, ENV SP	Civil Engineer	65%	70%
Bryan Merritt, PSM	Vice President of Geospatial/Survey and SUE	70%	70%
Chuck Schramm, PSM	Director of Survey and Mapping	65%	70%
Kelli Schueler, PLA, LEED AP	Director of Landscape Architect	60%	70%
Chris Phillips, PLA, ASLA	Senior Landscape Architect	65%	70%

3347 NW 55th Street
Fort Lauderdale, FL 33309
P (954) 741 8282

Terracon.com/Office

CONTACT:

Steven A. Harrison, P.G.
Contract/Project Manager
D (954) 703 1866
M (954) 547 7734
steven.harrison@terracon.com



Nationwide
Terracon.com

- Environmental
- Facilities
- Geotechnical
- Materials

Terracon Consultants, Inc.

Environmental Services Rate Sheet

City of Pompano Beach

RLI26-004 CONTINUING CONTRACT FOR ENVIRONMENTAL TESTING SERVICES (CCNA) March 2026

Environmental Services

Terracon Consultants, Inc.

Item Description	Rate	Units
Principal	\$300.00	Hour
Environmental Director	\$275.00	Hour
Sr. Geologist, P.G.	\$225.00	Hour
Sr. Project Manager	\$225.00	Hour
Project Manager II	\$185.00	Hour
Project Manager	\$155.00	Hour
Registered Engineer/Geologist	\$185.00	Hour
Sr. Project Scientist Biologist/Ecologist/Archaeologist	\$200.00	Hour
STAFF I Engineer/Geologist/Scientist/Biologist/Ecologist/Archaeologist	\$135.00	Hour
Staff II / Sr Staff Environmental Scientist/ Geologist/ Biologist/ Archaeologist	\$155.00	Hour
Historical Preservation Specialist	\$165.00	Hour
Grants Administrator	\$135.00	Hour
Brownfields Coordinator	\$185.00	Hour
Sustainability/ Resiliency Manager	\$165.00	Hour
NEPA Specialist	\$150.00	Hour
Certified Arborist	\$140.00	Hour
Field Scientist/Geologist/Biologist/Ecologist/Archaeologist	\$105.00	Hour

RATE SHEET – TERRACON CONSULTANTS, INC.

RLI 26-004 CONTINUING CONTRACT FOR PROFESSIONAL ENVIRONMENTAL TESTING

Sr. Technician	\$115.00	Hour
Technician	\$95.00	Hour
CADD Operator	\$105.00	Hour
Sr. CADD Operator	\$145.00	Hour
GIS Manager	\$195.00	Hour
GIS/ CAD	\$130.00	Hour
Asbestos Building Inspector	\$115.00	Hour
Asbestos Project Designer	\$145.00	Hour
FL Licensed Asbestos Consultant	\$200.00	Hour
FL Radon Measurement Specialist	\$165.00	Hour
Administrative Assistant/ Clerical	\$100.00	Hour
IAQ Consultant	\$145.00	Hour
Lead-Based Paint (LBP) Risk Assessor	\$145.00	Hour
LBP Inspector	\$115.00	Hour
Expert Testimony (1.5 times rate)		
Keith Associates		
Item Description	Rate	Units
Project Executive	\$350.00	Hour
Project Manager	\$250.00	Hour
Project Controls Specialist	\$150.00	Hour
Administrative Assistant	\$125.00	Hour



RATE SHEET – TERRACON CONSULTANTS, INC.

RLI 26-004 CONTINUING CONTRACT FOR PROFESSIONAL ENVIRONMENTAL TESTING

Principal Engineer	\$280.00	Hour
Senior Engineer	\$230.00	Hour
Professional Engineer	\$200.00	Hour
Engineering Designer	\$165.00	Hour
Engineering Technician	\$135.00	Hour
Principal Landscape Architect	\$280.00	Hour
Senior Landscape Architect	\$230.00	Hour
Landscape Architect	\$200.00	Hour
Landscape Designer	\$165.00	Hour
Landscape Technician	\$135.00	Hour
Arborist	\$200.00	Hour
Planning Director	\$280.00	Hour
Planning Manager	\$230.00	Hour
Principal Planner	\$200.00	Hour
Planner	\$165.00	Hour
Planning Technician	\$135.00	Hour
Chief Utility Coordinator	\$230.00	Hour
Senior Utility Coordinator	\$200.00	Hour
Utility Coordinator	\$165.00	Hour
Utility Coordinator Technician	\$135.00	Hour

RATE SHEET – TERRACON CONSULTANTS, INC.

RLI 26-004 CONTINUING CONTRACT FOR PROFESSIONAL ENVIRONMENTAL TESTING

Construction Director	\$280.00	Hour
Senior Construction Manager	\$230.00	Hour
Construction Manager	\$200.00	Hour
Senior Inspector	\$180.00	Hour
Inspector	\$160.00	Hour
Chief Surveyor	\$280.00	Hour
Senior Surveyor /SUE	\$230.00	Hour
Project Surveyor / SUE	\$200.00	Hour
Survey / SUE Analyst	\$165.00	Hour
Survey / SUE Technician	\$135.00	Hour
Survey UAS/LiDAR Crew	\$250.00	Hour
Survey Crew	\$235.00	Hour
Utility Designating Crew	\$225.00	Hour
SUE Crew	\$400.00	Hour
Vacuum Excavation	\$550/Ea.	Per location (hole)
**Services provided by Keith will be invoiced at Cost plus 15%		
Environmental Testing/Equipment		
Item Description	Rate	Units
<i>Groundwater Sampling Equipment</i>		
4 piece GW sampling Kit - PP, DTW, Multimeter, Turbidimeter	\$325.00	Day

RATE SHEET – TERRACON CONSULTANTS, INC.

RLI 26-004 CONTINUING CONTRACT FOR PROFESSIONAL ENVIRONMENTAL TESTING

Peristaltic Pump - Geopump	\$70.00	Day
Multimeter - Ph, Cond, DO, temp - YSI 556	\$150.00	Day
Turbidity Meter - Hach	\$45.00	Day
Water Level Meter – Solinst, or equivalent	\$50.00	Day
1.0 Micron filters	\$30.00	Each
Sampling supplies- tubing , decontamination liquids, etc	\$25.00	GW sample
<i>Soil Sampling Equipment</i>		
OVA - PID/FID	\$150.00	Day
Multigas Meter (LEL, O2, H2S, CO)	\$175.00	Day
Core Drill, 4" bit	\$175.00	Day
Generator - Gasoline	\$150.00	Day
Hand Auger	\$30.00	Day
Landfill Gas Meter (Methane, H2S, etc)	\$200.00	Day
Vapor Sampling Kit (Shroud, Helium Gas, Helium Meter)	\$300.00	Day
<i>IAQ Sampling Equipment</i>		
Air Pumps	\$10.00	Day
Summa Canisters inc regulator (rental)	\$100.00	Day
Anderson Impactor (mold sampling with pump)	\$100.00	Day
XRF Gun (min one day)	\$600.00	Hour
Survey Equipment (no licensed surveyor)	\$75.00	Day

RATE SHEET – TERRACON CONSULTANTS, INC.

RLI 26-004 CONTINUING CONTRACT FOR PROFESSIONAL ENVIRONMENTAL TESTING

Vehicle Usage - Light duty	\$100.00	Day
Vehicle Usage	\$75.00	Half-Day
Mileage	\$0.83	Mile
Copies (8.5" x 11") - black & white	\$0.15	Page
Copies (8.5" x 11") - color	\$0.35	Page
Disposable Field Supplies	\$100.00	Day
Personal Protective Equipment (level D)	\$20.00	Day/Man
Shipping	Cost plus 10%	
Drilling and Related Services		
Item Description	Rate	Units
Monitoring Well Installation (2 inch diam 15 ft w/ MH) with hollow stem augers; includes surface completion (Does not included Drill rig and mobilization fees)	\$1100.00	Each
Monitoring Well Installation (1 inch diam 15 ft w/ MH) with direct push includes surface completion (Geoprobe) drill rig (in addition to Geoprobe Drilling Rig and mobilization fees)	\$550.00	Each
Geoprobe Drilling Rig	\$1,975.00	Day
Monitoring Well Permits per folio per well depth (up to 8 wells) plus labor	\$115.00	each
Drilling Rig Mobilization (Geoprobe or Traditional)	\$450.00	Day
Ground Penetrating Radar Survey with Report - Half Day (Min)	\$1,500.00	1/2 Day
Ground Penetrating Radar Survey with Report - Full Day (8hr)	\$2,500.00	Day

Laboratory Analyses		
Item Description	Rate	Units
Volatile Organic Compounds (VOCs)	\$110.00	Each
Semivolatile Organic Compounds (full list SVOCs)	\$275.00	Each
Polynuclear Aromatic Hydrocarbons (PAH) (low level, water)	\$125.00	Each
Polynuclear Aromatic Hydrocarbons (PAH) (low level, soil)	\$115.00	Each
Semivolatile Organic Compounds (full list SVOCs + PAH, low level)	\$350.00	Each
Volatile Organic Aromatics	\$65.00	Each
Volatile Organic Halocarbons	\$75.00	Each
Total Petroleum Recoverable Hydrocarbons by FLPRO Method	\$90.00	Each
Metals (each)	\$3500	Each
Priority Pollutant Metals (13)	\$195.00	Each
RCRA Metals (8)(As, Ba, Cd, Cr, Pb, Hg, Se, Ag)	\$105.00	Each
Hexavalent Chromium water	\$55.00	Each
Hexavalent Chromium soil	\$100.00	Each
Mercury	\$38.00	Each
PFAS/ PFOS –EPA Method 1633 (soil or water)	\$420.00	Each
Organochlorine Pesticides - EPA Method 8081	\$200.00	Each
Organophosphorous Pesticides - EPA method 8141	\$187.00	Each
Polychlorinated Biphenyls (PCBs) - EPA Method 8082	\$90.00	Each
Chlorinated Herbicides - EPA Method 8151	\$220.00	Each
Asbestos - 5 day TAT	\$20.00	Each

RATE SHEET – TERRACON CONSULTANTS, INC.

RLI 26-004 CONTINUING CONTRACT FOR PROFESSIONAL ENVIRONMENTAL TESTING

Mold - Spore Count - Air/ Tape Lift/ Swab - 5 day TAT	\$55.00	Each
Mold - cultured - 2 week TAT	\$90.00	Each
Lead in paint - 2 week TAT	\$30.00	Each
Analytical costs and based on laboratory standard turnaround of 7 business days unless noted otherwise. Lab fees do not include any associated collection, shipping costs, or expedited analyses.		
Services not included within the above price lists will be quoted on a project-specific basis. Additional items may include, but not be limited to, the following:		
Laboratory Analyses not included above (IAQ, Vapor samples, other groundwater and soil analyses) to be quoted on an as needed basis, utilizing a cost plus 15% basis.		
Site Survey / Top of Casing Elevation Survey as they are project specific		
MOT Plans and roadway closure		
Storage Tank Operations		
Drilling Efforts not Provided above		